

UNITED STATES DEPARTMENT OF COMMERCE

JESSE H. JONES, Secretary

BUREAU OF THE CENSUS

J. C. CAPT, Director (Appointed May 22, 1941)

WILLIAM LANE AUSTIN, Director (Retired January 31, 1941)

VERGIL D. REED, Assistant Director

HOWARD H. McCLURE, Assistant Director



SIXTEENTH CENSUS OF THE UNITED STATES : 1940

**DRAINAGE OF
AGRICULTURAL LANDS**

**Land in Drainage Enterprises, Capital Invested
and Drainage Works**

**Statistics for Counties With State and United States
Summaries and a Synopsis of Drainage Laws**

Prepared under the supervision of

ZELLMER R. PETTET

Chief Statistician for Agriculture

**UNITED STATES
GOVERNMENT PRINTING OFFICE
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HOWARD H. McCLURE, *Assistant Director*

Agriculture—ZELLMER R. PETTET, *Chief Statistician.*

SHERMAN S. SLICK, *Assistant Chief Statistician.*

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LETTER OF TRANSMITTAL

DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
Washington, D. C., September 30, 1942

SIR:

I transmit herewith the volume on Drainage of Agricultural Lands of the Sixteenth Decennial Census. This report contains detailed statistics for counties, with summaries for the States and the United States. State reports contained in this volume, were first published as separate bulletins.

Provision for the 1940 Census of Drainage was made in the Act providing for the Fifteenth Decennial Census which was approved on June 18, 1929. The information on drainage was obtained from a canvass of officials and records of enterprises and from county and court records.

The collection and compilation of these statistics and the preparation of this volume were made under the supervision of Z. R. Pettet, Chief Statistician for Agriculture, with the assistance of Sherman S. Slick, Assistant Chief Statistician, Warder B. Jenkins, Chief of Technical Staff, Hilton E. Robison, Principal Statistician, and Roger D. Marsden, Principal Drainage Engineer. The graphic material was prepared under the supervision of Clarence E. Batschelet, Geographer of the Census.

Acknowledgment is made of the cooperation of the Soil Conservation Service of the United States Department of Agriculture; of the Bureau of Reclamation and Office of Indian Affairs of the United States Department of the Interior; and of the Division of Statistical Standards, Bureau of the Budget.

Respectfully,

J. C. CAPT,
Director of the Census

Hon. JESSE H. JONES
Secretary of Commerce

III

SIXTEENTH CENSUS OF THE UNITED STATES: 1940

REPORTS ON AGRICULTURE, IRRIGATION, AND DRAINAGE

VOLUME I.—Statistics by Counties for Farms, and Farm Property, with Related Information for Farms and Farm Operators; Livestock and Livestock Products; and Crops.

Part 1.—New England, Middle Atlantic, and
East North Central States
Part 2.—West North Central States
Part 3.—South Atlantic States

Part 4.—East South Central States
Part 5.—West South Central States
Part 6.—Mountain and Pacific States

VOLUME II.—Statistics by Counties for Value of Farm Products, Farms Classified by Major Source of Income, and Farms Classified by Total Value of Products.

Part 1.—Northern States

Part 2.—Southern States

Part 3.—Western States

VOLUME III.—General Report—Statistics by Subjects for the United States, Geographic Divisions, and States.

Chapter I.—Farms and Farm Property
Chapter II.—Size of Farms
Chapter III.—Color, Tenure, and Race of
Farm Operators
Chapter IV.—Farm Mortgages and Farm Taxes
Chapter V.—Work Off Farm, Age, and
Years on Farm

Chapter VI.—Cooperation, Labor, Expenditures,
Machinery, Facilities, and
Residence
Chapter VII.—Livestock and Livestock Products
Chapter VIII.—Field Crops and Vegetables
Chapter IX.—Fruits and Nuts and
Horticultural Specialties
Chapter X.—Value of Farm Products

United States Summary Bulletins.—Statistics for the United States, Geographic Divisions, and States in Condensed Form as Follows:

First Series Summary—Number of Farms, Uses of Land, and Values; Principal Classes of Livestock and Livestock Products; and Specified Crops Harvested.

Second Series Summary—Farm Mortgages, Taxes, Labor, Expenditures, and Miscellaneous Farm Information; Goats and Mohair; and Fruits, Vegetables, and Minor Crops.

Third Series Summary—Value of Farm Products, Farms Classified by Major Source of Income, and Farms Classified by Total Value of Products.

Special Poultry Report.—Statistics by Geographic Divisions and States for Poultry of All Kinds on Hand and Raised; by Counties for Chickens and Chicken Egg Production by Number of Chickens on Hand; and by Counties for Farms Reporting Chickens and Turkeys Raised by Numbers Raised. (One volume.)

Irrigation of Agricultural Lands.—Statistics by Counties and by Drainage Basins for 20 Irrigation States and a Summary for the United States. (One volume.)

Twenty separate State maps showing irrigation by drainage basins.
Separate composite map showing irrigation by drainage basins.

Drainage of Agricultural Lands.—Statistics for 38 Drainage States with county data for 36, and a summary for the United States. (One volume.)

Separate map of the United States showing land in drainage enterprises.

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Area of enterprises, by size: Jan. 1, 1940, 1930, and 1920	61	68	81	92	101	105	116	124	133	155	178	201
Land and capital invested, by character of enterprise, Jan. 1, 1940	61	68	81	92	101	105	116	124	133	155	178	201
Land and capital invested, by type of drainage: Jan. 1, 1940, 1930, and 1920	62	68	81	92	101	105	116	124	133	155	178	201
Pumping plants and land served, by kind of power: Jan. 1, 1940, 1930, and 1920	62	69	82	93	---	106	---	125	134	156	179	202
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Land, capital invested, and area delinquent in drainage taxes, by arrearage in payment of obligations: Jan. 1, 1940 and 1930	62	69	82	93	101	106	117	125	134	156	179	202
Land, capital invested, indebtedness, arrearage in payment of bonds, reduction of debt by refinancing, and acreage delinquent, 1940; drainage taxes collected in 1939; by indebtedness and arrearage, Jan. 1, 1940	63	69	82	93	101	106	117	125	134	156	179	202
Land and capital invested, by principal purpose of drainage, Jan. 1, 1940	63	70	83	93	102	107	117	126	135	157	180	202
Land and capital invested, by date of organization, Jan. 1, 1940	63	70	83	94	102	107	117	126	135	157	180	203
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Land and capital invested, by character of enterprise, Jan. 1, 1940	210	218	231	255	253	278	293	311	319	352	358	344
Land and capital invested, by type of drainage: Jan. 1, 1940, 1930, and 1920	210	218	231	255	253	278	293	311	319	352	358	344
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Pumping plants and land served, by kind of pump: Jan. 1, 1940 and 1930	219	---	236	254	---	294	---	---	320	353	---	---
Land, capital invested, and area delinquent in drainage taxes, by arrearage in payment of obligations: Jan. 1, 1940 and 1930	211	219	231	256	254	279	294	312	320	353	359	345
Land, capital invested, indebtedness, arrearage in payment of bonds, reduction of debt by refinancing, and acreage delinquent, 1940; drainage taxes collected in 1939; by indebtedness and arrearage, Jan. 1, 1940	211	219	231	256	254	279	294	312	320	353	359	345
Land and capital invested, by principal purpose of drainage, Jan. 1, 1940	211	220	232	257	255	279	295	312	321	353	359	345
Land and capital invested, by date of organization, Jan. 1, 1940	211	220	232	257	255	279	295	312	321	353	359	345
Drainage condition, development, and use of land in enterprises, by date of organization, 1939	212	220	232	257	255	280	295	313	321	354	359	346
Cost of operation and maintenance, by type of drainage, 1939	212	220	232	257	255	280	295	313	321	354	359	346
Land and capital invested, by method of maintenance and by whether maintenance is systematic, Jan. 1, 1940	212	221	232	258	256	280	296	313	322	354	340	346
Land, capital invested, and drainage works, by ownership of power equipment for maintenance, 1940	212	221	232	258	256	280	296	313	322	354	340	346
Land, capital invested, and drainage works, by Federal agency giving aid in maintenance, 1940	212	221	232	258	256	281	296	313	322	354	340	346
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STATE TABLES												
Summary of drainage for the State: Jan. 1, 1940, 1930, and 1920	356	365	381	387	396	403	413	421	432	438	447	460
Area of enterprises, by size: Jan. 1, 1940, 1930, and 1920	356	365	381	387	396	403	413	421	432	438	447	460
Land and capital invested, by character of enterprise, Jan. 1, 1940	356	365	381	387	396	403	413	421	432	438	447	460
Land and capital invested, by type of drainage: Jan. 1, 1940, 1930, and 1920	356	365	381	387	396	403	413	421	432	438	447	460
Pumping plants and land served, by kind of power: Jan. 1, 1940, 1930, and 1920	---	---	---	388	---	---	---	422	---	439	---	---
Pumping plants and land served, by kind of pump: Jan. 1, 1940 and 1930	---	---	---	388	---	---	---	422	---	439	---	---
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Land, capital invested, indebtedness, arrearage in payment of bonds, reduction of debt by refinancing, and acreage delinquent, 1940; drainage taxes collected in 1939; by indebtedness and arrearage, Jan. 1, 1940	357	366	382	388	397	404	415	422	432	439	448	461
Land and capital invested, by principal purpose of drainage, Jan. 1, 1940	357	366	382	389	397	404	414	422	433	440	448	461
Land and capital invested, by date of organization, Jan. 1, 1940	357	366	382	389	397	404	414	423	433	440	448	461
Drainage condition, development, and use of land in enterprises, by date of organization, 1939	358	367	383	389	397	404	414	423	433	440	449	461
Cost of operation and maintenance, by type of drainage, 1939	358	367	383	390	398	405	414	423	434	440	449	462
Land and capital invested, by method of maintenance and by whether maintenance is systematic, Jan. 1, 1940	358	367	383	390	398	405	415	423	434	441	449	462
Land, capital invested, and drainage works, by ownership of power equipment for maintenance, 1940	358	367	383	390	398	405	415	424	434	441	449	462
Land, capital invested, and drainage works, by Federal agency giving aid in maintenance, 1940	---	367	---	390	398	---	415	424	434	441	449	462
Land, capital invested, and drainage works, by flood protection from levees of an outside agency, 1940	---	---	---	390	---	---	415	424	---	441	450	---
COUNTY TABLES												
Land in drainage enterprises classified by condition and by use, 1940, 1930, and 1920; and by kind of works, 1940	359	368	384	391	399	406	416	425	435	442	451	463
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¹ Alabama and Virginia, combined report on pp. 465-467.

INTRODUCTION

CENSUS OF DRAINAGE: 1940

ROGER D. MARSDEN, *Principal Drainage Engineer*

INTRODUCTION

This volume, prepared under the supervision of Zellmer R. Pettet, chief statistician for agriculture, assisted by Roger D. Marsden, principal drainage engineer, presents statistics relating to drainage of lands for agricultural purposes.

History and Scope of Census of Drainage.—The first census of drainage in the United States was taken in 1920, the second in 1930, and the third in 1940; each as part of the decennial census of agriculture.

The 1940 census of drainage covered 38 States. Delaware and Maryland have been included for the first time in the canvass of organized enterprises. The States omitted are the New England States, New York, New Jersey, Pennsylvania, and West Virginia.

This census collected data relating to (1) the land in organized drainage enterprises, its area, location, and condition with respect to drainage and use; (2) the organization, with respect to form and management; (3) the drainage improvement works constructed by the enterprises, as to lengths of drains and levees and capacities of drainage pumping plants; (4) the capital investment in the drainage works, and the expenditures in 1939 for maintenance, repair, and operation of the works; (5) the extent of the enterprises that have received some degree of Federal aid in maintenance; (6) certain items of the financial status of the enterprises, including drainage taxes collected in 1939; and (7) the extent to which the drainage enterprises are dependent upon levees built by other agencies for protection against floods. No data on drainage by farm owners, individually or cooperatively, without legal organization were collected in 1940 for undertakings to benefit less than 500 acres each, although in 1930 and 1920 such information was obtained as part of the general farm census and included in the drainage census publications. No data concerning crops grown on drained land have been collected since the census of 1920.

Legal Basis for Drainage Census.—The Act providing for the Fifteenth Decennial Census, approved June 18, 1929, states in part: "A census of population, agriculture, irrigation, drainage, distribution, unemployment, and mines shall be taken by the Director of the Census in 1930 and every ten years thereafter." The census of drainage in 1940, as in 1930, was taken in accordance with that provision.

Method of Canvass and Tabulation.—The drainage enterprises in the eastern and central States were canvassed by special drainage enumerators or, in those counties where there were not many drainage enterprises, by the drainage supervisor responsible for the canvass in that State or census area. These appointees were selected because of their knowledge of land-drainage organization and practices, general and local; and, in their capacity as drainage enumerators, had no part in other phases of the decennial census enumeration. The data were obtained from officials and records of the enterprises as far as practicable, and from county and court records. A printed schedule of questions was used for recording the information concerning each enterprise, and each drainage enumerator was provided with a county map on which to mark the locations of the enterprises.

In the 11 western States and adjoining portions of Texas, Nebraska, and South Dakota, where drainage enterprises are rather widely separated and much of the drainage is supplemental to irrigation, schedules were mailed from the Washington Office of the Bureau of the Census to each known enterprise with a request for completion and return. The enterprises in this region which did not return satisfactory reports by mail were canvassed by irrigation-and-drainage technicians appointed to supervise the irrigation and drainage censuses in those States.

When the drainage schedules were received in the Washington Office, they were examined for consistency and completeness, and were prepared for tabulation. Attempt was made by individual correspondence to supply important omissions and resolve apparent discrepancies in reports for many of the larger enterprises. The information then was transferred to punch cards, and the tabulations for the States and for individual counties were made by machine.

Presentation of Statistics.—This volume presents all the statistics for drainage collected in the census of 1940. The figures were issued first in a series of State bulletins on drainage, one for each State included in the census of drainage except Alabama and Virginia. The amount of organized drainage found in those two States was not material. The State bulletins carried county data and presented the figures without discussion. Each bulletin showed the location of the land in drainage enterprises on a State map compiled from the county maps on which the drainage enumerators had platted the enterprises, from information given on the schedules and, in some instances, from other sources. The maps and tables in the State bulletins are reprinted in this volume following the general and summary tables showing combined totals for the 38 States. These data are presented by States arranged alphabetically, and tables for Alabama and Virginia combined follow the others.

The first 16 tables herein, which are summary tables, follow the same form as the State tables in the State bulletins. The area in drainage enterprises is classified by size of enterprise. Condition and use of the land are classified by date of organization of the enterprise. Land and capital investment are classified by character of organization, by type of drainage, by indebtedness and arrearage in payment of obligations, by purpose of drainage, by date of organization, by method of maintaining the drainage works, by maintenance machinery owned, by Federal aid received in maintenance, and by flood protection received from outside agencies. Cost of operation and maintenance in 1939 is classified by type of drainage. Drainage works are classified by maintenance machinery owned by the enterprises, by Federal aid received, and by flood protection by outside agencies. Drainage pumping plants and land dependent on them are classified by kind of power and kind of pumps. Comparable figures for the same items from the 1930 and 1920 Censuses are given as far as practicable, particularly with respect to land in enterprises, capital invested, and drainage works constructed.

Tables in the fore part of this volume show by States, as the State bulletins show by counties, land in drainage enterprises classified by condition and use, with comparable figures for 1930 and 1920; land classified by drainage works in 1940; drainage works and capital invested, with like items from the prior censuses; capital invested, 1940, classified by kind of works; maintenance and operation cost in 1939, divided between pumping and gravity enterprises; and amounts of drainage taxes collected in 1939, area delinquent in payment of drainage taxes on December 31, 1939, total indebtedness and indebtedness in arrears on that date, and reduction of indebtedness by refinancing prior to the same date. Number of enterprises reporting and land in these enterprises are shown for maintenance and operation expenditures, drainage taxes collected, indebtedness, arrearage, and reduction of indebtedness; however, only number of enterprises reporting is shown where there were less than 3, unless permission to publish has been given by each enterprise affected.

Succeeding tables bring together, for comparison, the State figures as broken down in a number of the classifications.

Following these are a table of the monthly and annual precipitations in 1939 for each of the 38 States, with departures from the normal, and a table showing by States the expenditures for wages in 1939 and the number of persons employed in the week ending April 29, 1939, by the enterprises.

In the Appendix is given a facsimile copy of the Drainage Schedule used in the 1940 Drainage Census, including the instructions for making the canvass. Also given, is a synopsis of the drainage laws of the 38 States covered by this census, and a chart showing the principal features of those laws and of the laws under which drainage enterprises may be organized in the other 10 States.

Comparability of Data.—The date of each drainage census has been January 1 of the census year. Questions on financial status in the 1940 Census specified December 31, 1939. The data on condition and use of land and on expenditures for maintenance and operation relate to 1939 and 1929. The status of a drainage enterprise, however, is not subject to seasonal fluctuations.

DEFINITIONS AND EXPLANATIONS

The following definitions were printed on the Drainage Schedule used for reporting the information concerning the individual drainage enterprises:

Drainage of agricultural lands is the act or process of drawing off an excess of water by underground conduits, pipes, or tiles; or by open or covered trenches in the surface of the ground; or by pumping, for the purpose of improving the condition of the soil and crops. In this connection the area drained does not include land from which water flows without artificial aid into natural watercourses; nor does it include land protected from overflow by levees, dikes, or embankments; nor areas guarded by trenches from the run-off from higher lands, unless some form of drainage works has been constructed on the protected land.

Drainage works of an enterprise include all varieties of underground conduits, pipes, or lines of tile; drains of stone, wood, or other materials; and all open ditches, canals, and pumping equipment for drainage. Levees, dikes, dams, weirs, gates, and other devices for draining away or controlling surface and soil waters are to be considered "Drainage works" when, and only when, they are constructed or operated with drainage ditches, underdrains, or drainage pumps.

A *drainage enterprise* was defined, for the purpose of the census, as the area (1) organized in one drainage district, or (2) assessed for the same public drain, or (3) in corporate or in private ownership drained by works operated as one undertaking. Privately owned enterprises draining less than 500 acres each were omitted from the census, but all enterprises established under State drainage laws were included.

Character of Enterprises.—Drainage enterprises have been classified, for Census purposes, on the basis of ownership or management. The following classification has been used in this volume.

Drainage districts, county drains, and township drains are community enterprises organized under general or special State laws for obtaining equitable cooperation between landowners who will be benefited by the same drainage works. A drainage district is governed by officials elected or appointed for that particular enterprise. A county drain is governed by county officials who manage the affairs of all enterprises in the county organized under the same statute. Township drains are managed by township officials as county drains are managed by county officials. In these three classes the costs of each enterprise are assessed, almost universally, against the property benefited and more or less in proportion to the amounts of benefits.

The distinction here made between drainage districts and county drains is not made universally in the States. In Iowa, for example, almost all of the enterprises are classed herein as county drains although they are by law named drainage districts; and in some other States the term "district" is used locally, even in the statutes, for enterprises classed differently herein.

State projects are administered by State officials. The cost of each such enterprise is divided between the State and local interests according to a method provided in the statute, which commonly considers the relative amounts of land owned by the respective interests.

Irrigation enterprises included in the drainage census are those organized for the purpose of irrigating land that have constructed drainage works to relieve or protect that land as a part of the irrigation development and maintenance. The drainage costs commonly are assessed against all land assessed for irrigation, even if only a minor portion has developed need for drainage, on the assumption that all land irrigated is in some measure responsible for injury caused or threatened.

The Federal enterprises are mostly projects or parts of projects of the Bureau of Reclamation and the Office of Indian Affairs, Department of the Interior. The classification of enterprises by character has generally been made according to type of control or management, but developments by the Bureau of Reclamation that have been turned over to water users for operation have been tabulated as Federal.

Commercial developments, as the term is used in the Drainage Census, are those drainage enterprises established for the purpose of developing lands for sale, without organization under drainage laws. Many are organized under general corporation laws.

Individual-ownership enterprises comprise drainage undertakings by individual owners, each for his own farm, and by two or more owners cooperating without organization under statute law.

Land, Area, and Number of Enterprises.—In this volume the terms "land in enterprises" and "area of enterprises" are used with somewhat different meanings, and "number of enterprises" with different significance than the number of reports obtained or tabulated. The distinctions are necessary because of the overlapping of enterprises.

Overlapping of enterprises has resulted from the fact that some land has been assessed in more than one enterprise. Lands already wholly or partly within a drainage district have been organized as subdistricts to construct drainage works of local benefit and assess the costs against the land benefited by those works. Some subdistricts may be administered by the same officers as the main or parent district, and some by their own officers. Subdistricts may be organized to construct or install all the drainage works within the boundaries of the main district, which may be established merely to correlate the plans of the subdistricts.

Some land may be assessed and be paying drainage taxes in two entirely independent enterprises at the same time, because the earlier one gave only incomplete benefit and, commonly, most effective drainage required utilization of a differently located outlet.

Some lands which were in drainage enterprises that have been dissolved or have expired legally, or have been abandoned as organizations, have been included in subsequent enterprises organized to replace or reconstruct or maintain part or all of the drainage works of the earlier enterprise. The later enterprise, in designing its works and establishing its boundaries, may entirely disregard those of the earlier enterprises which are partly or wholly overlapped.

Land in enterprises in a county or State represents that portion of the county or State which has been included in drainage enterprises. For irrigation enterprises that have installed drains for part of the area included, and assessed the cost against all the land as part of the irrigation expense, the acreage tabulated and mapped is that of the area assessed.

Area of enterprises is the sum of the areas of the individual enterprises, and exceeds the land in enterprises by the amount of overlapping.

Number of enterprises represents the number of separate drainage organizations in the State or county, not including those that have been dissolved, abandoned, or entirely superseded by later organizations. Subdistricts that have been reported separately from the main or parent district have been counted as independent enterprises. Old enterprises have been included in the census if they still have authority to maintain the drainage works or if the works are still providing drainage to the lands. The number of reports tabulated includes those for enterprises that have been superseded but have contributed to the investment and works of later organizations.

Intercounty enterprises or joint-county enterprises are enumerated as if the part in each county were organized separately. Only in this way is it possible to show the data by counties in those States where there is a considerable amount of organized drainage for agriculture. Elimination of this duplication in number of enterprises has been made for the State, and the number of separate enterprises is shown in a footnote on each county table.

Condition and Use of Land.—The drainage condition, development, and use of the land in 1939 were reported independently of each other, although they are not independent. They are not matters of record, and the figures reported necessarily were estimates and were obtained from persons acquainted with the lands.

Drained land, partly drained, and undrained land are so classified with respect to the sufficiency of drainage for producing crops suited to the locality, but without regard to whether other improvement—such as clearing of trees, brush, or stones—might be needed to fit the land for cultivation. Incomplete drainage, however, may not indicate that the works of the enterprise are inadequate, because the only lack may be farm laterals which the individual owners are expected to provide for their own lands.

Improved land was defined to comprise land regularly tilled or mowed; pasture that has been cleared or tilled; fallow land; gardens, orchards, vineyards, and nurseries; land occupied by buildings, house yards, barnyards, etc.; and land occupied by ditches, levees, highways, and railways.

Land in occupied farms comprises all improved land used for farming, all used regularly for pasture, and woodland contributing to operation of the farm. The definition permitted some latitude in judgment where the enterprise included large individual ownerships embracing much unimproved land or large plantations inadequately provided with tenants.

Idle land purports to show the acreage in the drainage enterprises that in 1939 was not being used for farming or for other purposes such as highways, drainage works, etc.

Land available for settlement is the land drained or being drained to be sold for establishing new farms, rather than to benefit existing farms.

Cost and Finances.—*Capital invested* represents the original cost of the drainage works, including all expenses incident to organizing the enterprise, and similar costs for extensions and enlargements, but not expenditures for repair, maintenance, or operation of the works or enterprise. Costs of superseded enterprises are included if the drainage works are still in use. For those smaller and earlier enterprises in which construction of ditches was done largely by the landowners benefited without compensation from the enterprise, it has been impossible to include any cost or value of that labor.

Indebtedness represents the total legal obligations of the enterprises outstanding on December 31, 1939.

Arrearage is the amount of funded obligations, including interest, that was outstanding and past due on December 31, 1939.

Reduction of indebtedness is the amount by which the costs to be paid by the landowners have been reduced through refunding or refinancing operations.

Drainage taxes collected is the amount actually received by the enterprises in 1939, regardless of when assessed or of how much may have been levied in that year.

Area delinquent in payment of drainage taxes is the area against which such taxes are valid liens and classed as delinquent under the law of the State. This area does not include the lands for which such liens have been cancelled by tax sales, reversion to State ownership, or other procedure.

Drainage Works.—*Open ditches* of a drainage enterprise were defined to include all open artificial drainage channels and all natural watercourses improved for land drainage that were being maintained or used by the enterprise, but not private ditches.

Tile drains were defined to include all covered drainage conduits of earthenware, concrete, or other materials, that were being maintained or used by the enterprise, but not private drains.

Levees, by instructions issued, do not include spoil banks thrown up in construction of ditches unless the embankments were particularly designed and constructed to act as levees. Conversely, borrow pits resulting from construction of levees are not included as drainage ditches unless particularly designed and constructed as part of the ditch system.

Pumping for drainage is required where river floods or other conditions do not permit gravity flow of water from the enterprise rapidly enough to avoid causing injury. Pumping enterprises, as classed herein, are all those which operate pumps for drainage during any part of the time. Few enterprises pump all their drainage. In this publication, enterprises are classed "all by pumping" if all the land sometimes requires operation of the pumps, and "part by pumping" if part of the land can always have drainage without operation of the pumps.

Area served by pumps is the acreage in the enterprise that requires pumping for any part of the time.

Wells pumped for drainage are those operated to obtain drainage by lowering the ground-water table; they are not sumps into which surface water is discharged by open ditches.

Flood protection by levees of an outside agency relates in most cases to protection received from works constructed by the Federal Government or by a flood-protection district that does not come within the scope of the drainage census.

Maintenance of drainage works is reported as systematic or otherwise, according to the judgment of the person furnishing the information. Power equipment for maintenance was not itemized, but it does not include automobiles or trucks.

Cost of maintenance and operation in 1939 includes all expenses for that year except additions to capital investment and payments of principal and interest on bonds and notes. Instructions were issued that no cost should be included for any aid obtained from Federal agencies without obligation for repayment, as in repair or rehabilitation of the drainage works by Work Projects Administration, Civilian Conservation Corps, or Corps of Engineers, U. S. Army.

GENERAL DISCUSSION

General Extent and Condition of Land in Drainage Enterprises.—The land in drainage enterprises in 1940 in the 38 States covered by the Census of Drainage is shown in table 1 as 86,967,039 acres, which is 2 percent more than the land area of Illinois, Indiana, and Ohio together. These enterprises have constructed 146,152 miles of open ditches, 55,734 miles of tile drains, 6,793 miles of levees (table 18), and have installed drainage pumping plants of 102,196 horsepower and 20,716,025 gallons per minute capacity. The investment in these enterprises is shown as \$691,724,519, an average of \$7.95 per acre.

Of the approximate 87,000,000 acres in all drainage enterprises, improved land comprised 67,000,000 acres or 77 percent, and timber and cut-over land about 13 percent. Of the total, 86 percent was reported as being sufficiently drained for production of normal crops, and 8 percent as too wet for producing any crop. Part of this drained land evidently required additional work to be actually fitted for cultivation. Of the total land in drainage enterprises, 80 percent is shown as in occupied farms and 57 percent in planted crops in 1939. This percentage in farms is considerably greater than the 55.7 percent shown by the Census of Agriculture for land in all farms in the United States. The acreage in planted crops, amounting to 71 percent of all land in farms in these enterprises, is much greater than the average of 32 percent used for crops in all farms as determined by the Census of Agriculture. For many localities the land in crops reported for drainage enterprises probably corresponds more nearly to land available for crops including idle cropland and plowable pasture, which was 50 percent as determined by the Census of Agriculture.

The increase in land in drainage enterprises since the first Census of Drainage in 1920 amounts to 33 percent; the increase in the decade 1920 to 1930 was 29 percent. There is the possibility that the first canvass of drainage enterprises was not entirely complete, for lack of prior experience or information except a general knowledge of the location of such enterprises. It is believed that the approximate 87,000,000 acres reported in 1940 is reasonably accurate, as the drainage enumerators were furnished lists of the enterprises reported in 1930, supplemented by inquiry addressed in 1939 to officials in each county of the 38 States. Table 1 shows that improved land constituted approximately 77 percent of all land in drainage enterprises in 1940, 75 percent in 1930, and 68 percent in 1920. The portion in farms is shown to be about 1 percent less in 1940 than in 1930, and the percentage in planted crops about 7 percent less. The small increase in drainage enterprises between 1930 and 1940 as compared with the increase during the preceding decade, undoubtedly, is fairly representative of the effect of the change in economic conditions upon the demand for farm crops and of the policy initiated for conservation to prevent or check depletion of the soil resources of the Nation.

The increases in open ditches and tile drains in the periods 1920 to 1930 and 1930 to 1940 compare with the increases in land included in the enterprises. The figures show a tendency in the latter decade toward use of open ditches instead of tile drains, which before 1920 and for a few years thereafter were used in large sizes many times when open ditches would have been more economical on the basis of investment and maintenance costs.¹ The capital invested in drainage enterprises for 1940 was but little greater than for 1930, and the average cost per acre was somewhat less in 1940 than in 1930, whereas there was a large increase in each in the preceding ten years. Were the data for Delaware and Maryland omitted from the computation, the average cost would appear as \$8.00 per acre, midway between the costs shown for 1940 and 1930.

Location of Enterprises.—As shown by the map and in table 17, the greatest portion of the land in drainage enterprises is located in the East North Central and West North

Central States, which embrace respectively 38 and 27 percent of the total. The State embracing the largest acreage in drainage enterprises in 1940 was Minnesota, with almost 11,000,000 acres. Indiana and Michigan had approximately 10,000,000 and 9,000,000 acres, and Ohio, Iowa, Florida, and Illinois rank next in the order given, each with more than 5,000,000 acres in drainage enterprises. Capital invested is shown greatest for the West North Central and East North Central States with \$210,000,000 and \$200,000,000, respectively, reported in the Drainage Census, together comprising almost 60 percent of the total for all enterprises. The State showing the largest investment in drainage enterprises is Iowa, with approximately \$75,300,000 invested as of January 1, 1940. Illinois ranks second in this respect with an investment of more than \$72,000,000, and California third with \$70,000,000.

Including a total of almost \$4,000,000 estimated additional investment to complete works authorized (table 23), the average cost when the present enterprises have completed construction will be \$8.00 per acre. Table 18 shows the average cost in the Pacific States as \$23.99, nearly twice that in Mountain States which in turn is a third larger than the next highest, in the West North Central States. The highest State averages are \$26.54 in California, \$24.47 in Georgia, \$24.45 in Utah; all other States that show average cost exceeding \$16 per acre are in the Pacific and Mountain States.

The figures in some States show slight reductions in the amount of land in the drainage enterprises. There were reports of several drainage enterprises dissolved or abandoned since prior censuses. Some of the apparent reductions may be the result of more accurate determination of overlapping of enterprises, concerning which special emphasis was placed in the 1940 Census. Some areas in drainage enterprises have in the past decade been transferred to State or Federal control for purposes of reforestation or wildlife conservation.

Number and Size of Enterprises.—In the drainage census a report was received and tabulated for each enterprise organized that had constructed drainage works which still were serving agricultural lands, or that had contributed to the capital invested in such existing works. This practice followed that of the preceding Drainage Censuses. The numbers of these reports received in 1940, 1930, and 1920 are shown in table 19. The total number of reports tabulated in the 1940 Census was 79,220, approximately 16 percent more than were tabulated in 1930, and 67 percent more than in 1920. In each census 85 percent of these reports was received from the East North Central States. The three States of Ohio, Indiana, and Michigan totaled in each census a fraction more than 81 percent of the total for the 38 States.

The numbers of enterprises in 1940 published in this volume and the State bulletins are intended to represent those enterprises that have not been superseded by later organizations. Separation of reports for the superseded enterprises was made in the Washington Office, on the basis of overlapping areas and other pertinent information on the reports.

For enterprises embracing land in more than one county, a separate report was made and tabulated for the portion in each county. In this way, by county count, the number of enterprises that still are serving agricultural lands is 42,363, which is 53.5 percent of the number of reports tabulated. The number of separate enterprises by State count, however, eliminating duplications arising from adding the county figures, is but 39,597. The number of enterprises in each State and geographic division by State count and by county count, and the number of reports, are shown in table 20. In Ohio and also in Indiana, the number of enterprises is only about 40 percent of the number of reports.

Classification of the land in enterprises according to size of enterprise necessarily must be made on the basis of area assessed in each enterprise as organized. The sum of the

¹Technical Bulletin, 269, U. S. Department of Agriculture.

acres assessed as shown in table 2 is 53 percent greater than the land included in the enterprises. Enterprises of less than 500 acres each amount to nearly 7 percent of the total area; those of 500 to 5,000 acres each, to 35 percent; those of 5,000 to 50,000 acres, to 40 percent; and those 50,000 to 500,000 acres to 15 percent of the total acreage assessed. This classification was made on the basis of dividing the intercounty enterprises on the county lines. On this basis, the average size is shown in table 2 as 1,677 acres in 1940, as 1,892 acres in 1930, and as 2,018 acres in 1920. The table shows for 1940 a noticeable increase over 1930 in percentage included in enterprises under 500 acres, and a decrease in the enterprises greater than 50,000 acres. The total acreage assessed is 3.3 percent greater in 1940 than in 1930, and 39 percent greater than in 1920. In each census the land included has been about two-thirds of the sum of acreages assessed in the individual enterprises. The land in enterprises in tables 2, 19, and 20 is, for each size group, the land in the same enterprises that has not been overlapped by later enterprises.

The area assessed in drainage enterprises in the East North Central Division in 1940 was 51 percent of the total, in the West North Central was 23 percent, and the highest in the other divisions was 11 percent in the West South Central. The three States of Ohio, Indiana, and Michigan together embraced 46 percent of the total assessed acreage.

Classification of drainage enterprises by size considering each as a whole, without division on county lines as in table 19, is shown in table 20. The greatest portion of the acreage was organized in enterprises of from 20,000 to 49,999 acres each, while the greatest number of enterprises was organized in the group from 200 to 499 acres. The size group 20,000 to 49,999 acres has included the greatest portion of the acreage in four of the seven geographic divisions included in the drainage census. In each State of the East North Central Division, the greatest portion of the acreage has been organized in enterprises of 2,000 to 4,999 acres. But in each of these States, the greatest number of enterprises is in the 200 to 499 acre group, except Illinois where most have been between 1,000 to 1,999 acres in size. The largest average acreage assessed is shown for Arizona, 60,181 acres; next in order are Florida with 51,297 acres, and Texas with 48,722 acres. Whereas the average size of all enterprises as organized was approximately 1,680 acres, the average size of those existing on January 1, 1940 was approximately 2,060 acres for intercounty enterprises divided on county lines, and 2,200 acres for intercounty enterprises tabulated each as a whole.

Date of Organization of Enterprises.—The rise and recession of activity in land drainage under cooperative organization are indicated by classification of the enterprises according to date of organization, shown in tables 10 and 30. The increase and decrease are indicated better by the figures for area of enterprises without deduction for overlapping, than by the figures for land in which deduction has been made in each case for the area that has been included in later organizations. The greatest activity in establishing such enterprises for the 38 States as a whole occurred in the period 1905 to 1919. The decades of greatest activity in the different geographic divisions have been: In the East North Central, 1900 to 1909; West North Central, 1905 to 1914; South Atlantic, 1910 to 1919; East South Central, 1915 to 1924; West South Central, 1910 to 1919; Mountain, 1915 to 1924; and Pacific, 1910 to 1919. From these high points there was a gradual recession until the half decade 1930 to 1934. In the period 1935 to 1939 there was a rather marked increase in the rate of organization in each division except the Pacific.

Capital invested by date of organization, as given in table 10, shows the highest cost to have been \$8.69 per acre assessed, for those enterprises organized in 1920 to 1924. The average cost for the enterprises organized in 1915 to 1919 was \$8.27 per acre assessed; the other periods for which the average cost was as much as \$5.00 per acre were 1910 to 1914 and 1925 to 1929. The lowest cost for any decade or half decade shown was \$1.62 per acre assessed, for the enterprises organized 1935 to 1939. This low cost may have been the result of a relatively large portion of aid from Federal relief agencies, and of the organization during this period of only low-cost undertakings, including those for improvement of old ditches or small natural watercourses.

Completion of Enterprises Under Construction.—On January 1, 1940, enterprises comprising 3,914,299 acres, or 4.5 percent of the land in all drainage enterprises in the 38 States, had not completed construction of the drainage works that had been authorized. An estimated additional investment of \$3,967,857, or 0.6 percent of the amount invested to that date in all enterprises, was required to complete the works authorized. These percentages, 4.5 percent of the land and 0.6 of the capital invested, are to be compared with 3.4 percent and 1.4 percent, respectively in 1930, and with 13.3 percent and 16.7 percent, respectively in 1920. Of this additional investment required for completion of works under construction, approximately 55 percent was reported by enterprises in California, Idaho, Oregon, and Texas, each of which reported more than \$450,000 required. The amounts of the additional investment in proportion to the investments made to the census date amounted to 8.6 percent for Oregon, 8.1 percent for Idaho, 7.1 percent for North Carolina, and none other as much as 4 percent. The land and capital investment in completed enterprises and enterprises under construction, and the additional investment required to complete the works authorized are shown by States and geographic divisions in table 24.

Character of Enterprises.—The land and capital invested in drainage enterprises have been classified by character of enterprise as determined by the form of management or control (see definitions, page II), except that all those enterprises which were organized primarily for irrigating land and have provided drainage works as part of the irrigation development have been classed separately and divided between Federal and non-Federal control. This classification is shown in table 3, and by geographic divisions and States in table 21.

The drainage district form of organization, with its own officials almost universally elected by the landowners assessed for the cost of the enterprise, is used generally in most of the States. Enterprises of this character, however, comprise only 40 percent of the land in all drainage enterprises, but represent 54 percent of the capital invested. The county drain form of organization is used most largely in Ohio, Indiana, Michigan, Minnesota, Iowa, North Dakota, South Dakota, Kentucky, and Oklahoma. Enterprises of this character embrace 53 percent of the land in all enterprises and approximately 40 percent of the capital invested. Township drains and State drainage projects together constituted 1 percent of the land and a lesser percentage of the capital invested; commercial developments and individual-ownership enterprises comprised slightly more than 1 percent of the total; irrigation enterprises comprised a little less than 5 percent of the total. The district form of organization under its own officials is generally considered more suited to the larger and the more costly undertakings, as giving the landowners the greatest degree of local control. The county drain form administered by county officials is generally more economical in administrative costs for small enterprises, in which the problems of engineering and financing are relatively simple. This form is most common in those States where drainage is promoted for draining land already in farms. The district form is general in those areas where reclamation and development of unimproved lands for making new farms has been an important consideration in promoting the drainage enterprises.

In several States in the Mountain and Pacific Divisions, the greater portion of the land reported in drainage enterprises is organized as irrigation enterprises; in Montana, Idaho, Wyoming, Arizona, and Nevada the portions were from 70 to 98 percent. In the same divisions there are also drainage districts that have been organized to drain irrigated lands. The importance of drainage in irrigation enterprises is indicated in table 22, which shows by States the land in all irrigation enterprises included in the census of drainage, divided between Federal and non-Federal control, except that generally projects or divisions of projects of the United States Bureau of Reclamation that have been turned over to water users for operation have been classed as Federal enterprises. The land assessed for drainage in these irrigation enterprises is 4,240,578 acres, of which approximately 53 percent is shown as benefited or to be benefited by the drainage works installed

or under construction. The Federal enterprises comprise about 46 percent of the land in all irrigation enterprises. Idaho, Montana, and Wyoming have the greatest acreages in the Federal irrigation enterprises included in the Drainage Census, whereas California includes the largest acreage in the non-Federal irrigation enterprises.

From table 3 it may be determined that the average cost of the drainage districts has been \$10.73 per acre, which is exceeded only by the incorporated commercial developments and is approached only by the Federal irrigation enterprises and the individually owned projects.

Purpose of Drainage.—Improvement of land already in farms was reported as the principal purpose of organization by enterprises that embraced 71 percent of the land in all enterprises. The capital investment in these enterprises is shown by table 9 as 60 percent of the total reported in the Census of 1940. These percentages are somewhat larger than the 63 percent of land and 53 percent of capital reported in 1930. Reclamation of swampland not previously in farms is shown as the principal purpose of enterprises that comprised 16 percent of the total acreage and 19 percent of the capital investment, as compared with 27 and 31 percent shown in the 1930 Census. The apparent increase in farm-improvement enterprises between 1930 and 1940 may be largely the result of two factors. It is evident, from comparison of figures published in the State bulletins, that in 1940 some irrigation enterprises reported the drainage as for improvement of land already in farms rather than for removal of alkali or seepage. Also, for 1940 the land in overlapping enterprises was tabulated in the latest enterprise in which it was included, whereas for 1930 it was tabulated in the earliest enterprise.

The percentages shown in table 9 for enterprises organized to obtain protection against stream overflow, and removal of alkali and seepage as a result of irrigation, are somewhat larger than the corresponding percentages reported in 1930 but not shown in this volume.

Condition and Use of Land in Enterprises.—The condition and use of the land in drainage enterprises in 1939, classified by date of the latest drainage organization in which it was included, are shown in table 11. The amount drained for normal crops is shown as nearly 75,000,000 acres; the amount improved as exceeding 67,000,000 acres, one-sixth timbered or cut-over; and 70,000,000 acres in occupied farms. For all enterprises, there is shown 11 percent more land drained than has been classed as improved. The enterprises showing the least percentage drained, least improved, least in farms, and least in planted crops are those organized in 1910 to 1914, and ranking next in each case are those organized in 1935 to 1939.

Drainage Works.—Drainage by pumping, as shown in table 4, has increased somewhat in importance since 1930, but is shown in 1940 to be utilized by only 5.0 percent of all land in drainage enterprises. The importance is more evident, however, when it is noted that the pumping enterprises represent 17.8 percent of the entire capital investment. These figures compare with 4.3 percent of the land and 15.7 percent of the capital invested in 1930. The average capital investment to January 1, 1940 amounts to \$6.88 per acre for the gravity-drainage enterprises, \$53.40 per acre for the enterprises which obtain all drainage by pumping, and \$28.18 per acre for all enterprises that are dependent either entirely or partly upon pumping.

Drainage pumping equipment is classified in tables 5 and 6. The Census did not determine the relation between kind of pumps and kind of power where more than one kind of either was used. It is evident from table 5 that electric motors and internal-combustion engines are replacing steam plants. The electric motors are more suitable for the small installations, and the internal-combustion engines for the larger plants. The average capacities for those enterprises using electric power entirely were 269 horsepower and 39,500 gallons per minute; whereas the average installation of internal-combustion engines, where no other kind of power was employed, was 288 horsepower and 89,000 gallons per minute. It is evident from table 6 that between 1930 and 1940 there has been considerable replacement of centrifugal pumps with those of the screw and turbine types. The turbine pumps are used more largely for

pumping from wells and against higher average lifts than are other types. It is probable that the few pumps classed as rotary should have been designated either as screw or centrifugal. It may be surmised that the pumps classified "Other" in 1930 were mostly either screw or turbine.

The average cost of drainage per acre by type of drainage is shown in table 25 by divisions and States. For those enterprises not having pumping plants, the average costs are shown as \$5.90 per acre for open ditches only, \$11.02 per acre for tile drains only, and \$9.56 per acre where both open ditches and tile drains have been used. These figures indicate a willingness of landowners to invest more for tile drains than for open ditches. The reasons for this have been the lower cost of maintaining the tile drains in good operating condition, and the desire to avoid both the inconvenience of farming lands divided by the ditches and the unsightliness of the weeds and brush that usually border the ditches.

State average costs for open ditch drainage are shown in table 25 as ranging from 24 cents per acre in Maryland to \$42 per acre in Arizona. These extremes, however, are not typical. The ditches dug in Maryland before 1930 were constructed generally by the labor of the landowners, to each of whom a certain section of the drain was allotted, and the value of this work was not included in the records of cost. A large part of the drainage work done since 1930 has been by Federal agencies organized primarily for emergency relief rather than for constructing land drainage improvements, and the cost of work done by those agencies was not determined by the census. The low cost shown for Delaware is the result of such condition; in other States, drainage construction by landowners' labor and by Federal relief agencies has not comprised so large a part of the cost. In the East North Central and West North Central States, which embrace 64.6 percent of all land in drainage enterprises, is located 93 percent of the land using tile drains, entirely or in conjunction with open ditches. The higher cost of drainage per acre in the Mountain and Pacific States as compared with that in the Central and Eastern States is to be noted. This has resulted from more costly construction of drains in the more rugged topography, and higher values for good agricultural land. Some of the highest costs are related to very small acreages of special use or value.

The acreage per mile of drain is shown for each State and each type of drainage in table 26. For all States and all types of drain the average is shown as 428 acres per mile, the average for open ditches is 524 acres per mile, and for those enterprises using only tile, 225 acres per mile. The greatest acreages per mile of drain are shown for Arizona, North Dakota, and Florida. Small acreage per mile of drain ordinarily indicates comparatively close spacing of drains, so the figures indicate that the closest spacing is provided in the East North Central States, and the widest spacing in the South Atlantic and West South Central Divisions. This intensity of drainage by organized enterprises might indicate the relative thoroughness of drainage provided by the enterprises, or the degree of drainage required for the land in its natural condition. The extremely small acreages per mile shown for open-ditch-and-tile systems in Kansas and Georgia result in part from drainage for city and suburban property, and from inclusion of small farm drains usually provided by individual owners rather than by the organized enterprise.

The enterprises that have installed pumping plants to obtain all or part of their drainage comprise 5.0 percent of the land in all the enterprises, according to table 25. Those that have installed pumps to serve all of their land embrace 1,510,929 acres, of which 673,124 acres are in California and 325,499 acres are in Illinois, and 234,416 acres divided about equally between Florida and Louisiana. The average cost of such enterprises in the 38 States has been \$53.44 per acre, the State averages ranging from \$13.43 per acre for a small area in Michigan to \$71.35 per acre in Illinois. The last, however, includes the cost of a few enterprises that have provided sanitary benefits in addition to improving land for crop production. The enterprises that have installed pumps but require them for only part of their land comprise 2,856,166 acres, of which 1,462,590 acres are in California and 354,903 acres are in Idaho. The average cost of all such enterprises has been \$14.81 per acre. The State averages range up to \$105.21 in Kansas and \$142.86 in Georgia. The high cost in Kansas

includes pumping for drainage of city property; the high cost in Georgia includes complete farm drainage, and perhaps other improvements for land in truck crops.

Table 27 shows for each State the average capacity of drainage pumping plants with respect to the land served by the pumps, and makes comparison between the power end and the work end of those plants. The table shows for the 2,316,867 acres served by the pumps in the 38 States, an average capacity of 8.9 gallons per minute per acre, equivalent to a run-off depth of 0.47 inches for 24 hours. The reasons for the extraordinary capacities shown for Georgia and Arizona were not determined. The capacity shown for the small acreage in Wyoming possibly results from using equipment available instead of purchasing the equipment required. Omitting consideration of these extremes, the capacities range, by States, from 0.12 inch in Texas to 2.17 inches in Louisiana. The average lift of water by States ranges from 4.6 feet in Florida to 23.4 feet in Arizona. The ratio of engine or motor capacity of a pumping plant to the work that would be done by pumping the capacity of pumps against the average lift of water is herein termed "plant ratio". It is, in effect, the reciprocal of the overall efficiency required of the plant to operate the pumps at their rated capacity at the average lift. The average plant ratio for the 38 States is 2.0, and by States ranges from 0.6 in Wisconsin to 6.3 in Nebraska and 7.4 in Wyoming.

A considerable part of the land drainage work in some areas, more especially in the South Central and the Pacific States, is closely related to flood-protection undertakings, as these enterprises involved drainage of alluvial lands that are naturally subject to frequent or occasional overflow by stream floods. Construction of levees to afford such protection is done by many of the drainage enterprises covered in the census. In many instances, levees have been built by levee districts organized under laws that are generally similar to drainage laws, but flood-protection enterprises that have not included construction of drains or drainage pumping plants were not included in the drainage census. Flood-protection works by the Corps of Engineers, United States Army, also have afforded flood protection to enterprises included in the drainage census. The extent to which the drainage enterprises received benefit from levees built by these outside agencies is shown in table 16 to comprise 12.2 percent of the land in all drainage enterprises and represents 17.0 percent of the capital invested in the enterprises. The drainage works of the enterprises receiving such benefit represent 10 percent of the length of open ditches, 0.4 percent of the tile drains, and 27 percent of the levees that have been built by the drainage enterprises. The cost of the levees built by outside agencies, or the value of the benefit conferred, has not been included in the investment figures for drainage enterprises.

Maintenance and Operation.—Cost of maintenance and operation in 1939 was reported by drainage enterprises including 86,160,078 acres or 99.1 percent of the total. This includes 54,493,896 acres that reported that no expenditures were made in 1939. The total expenditure of \$5,996,672, as shown in table 12, averages 7 cents per acre on the total acreage reporting, and 19 cents per acre on the area making the expenditures. Of the enterprises drained entirely by gravity, only 34 percent of the acreage incurred any of the cost; and the average expenditures amounted to 4 cents per acre for all and 13 cents per acre for those incurring cost. Of the enterprises that employed pumping for part or all of drainage, 88 percent of the acreage incurred expense for maintenance and operation in 1939, which averaged 53 cents per acre for all pumping enterprises and 60 cents per acre for those incurring the expense. Of the gravity enterprises, those with levees incurred markedly higher costs for maintenance than did the others. Maintenance costs based on the total reporting, including land that made no expenditures during the year, are a better criterion of average annual cost than figures based on only those acreages that reported cost incurred.

The average expenditure per acre for maintenance and operation in 1939 ranged by States, as shown in table 31, from nothing in Oklahoma to 28 cents in Oregon and 42 cents in California, for all enterprises reporting as to such expenditures, and from nothing in Oklahoma to 86 cents in Georgia based on the land in those enterprises that actually incurred the expense. For the enterprises drained by gravity only, the

State averages ranged up to 27 cents per acre in California and 28 cents per acre in Colorado, based on all land reporting, and to 31 cents per acre in Arkansas and 48 cents per acre in Ohio based on the land incurring the cost. It is apparent that regular maintenance of drainage works is more general in the western than in the central and eastern States. The enterprises that had installed pumping plants expended for maintenance and operation much more per acre than did the gravity enterprises. Those that pumped for all their land incurred costs almost four times the costs for the part-gravity enterprises, or \$1.04 and \$1.15 per acre as compared with 27 cents and 30 cents per acre. The highest costs are shown in the table for land drained partly by pumping and partly by gravity in Kansas, of which a considerable portion is city and suburban property. The next highest costs were in Illinois, averaging \$1.55 and \$1.64 per acre for those enterprises that had provided pumping for all their land. It should be noted, however, concerning the figures for States where the drainage water pumped by irrigation enterprises is used for irrigation, and for that use has a value greater than the cost of the pumping, that the cost of operating the pumps is charged to irrigation and is not included in the figures in table 31.

Maintenance work by drainage enterprises usually is done by letting contract for specified work, or by labor employed and directly supervised by the officials of the enterprise. In some localities, it is not uncommon for small enterprises to allot the work directly to the landowners who do the work themselves or have it done for their specified portions without drainage taxes being levied therefor. Table 13 indicates 35 percent of the enterprises, on the basis of land included, do maintenance work by district forces, and a like portion by letting contracts, and 10 percent by apportioning the work to the landowners. Enterprises comprising 45 percent of the land and 57 percent of the capital investment reported that the drainage works are maintained systematically; but no definition of that term was made, and it might have included a "system" under which the work is done when the need is apparent or landowners make complaint. The percentage stated probably is greater than the portion for which work is done regularly every one, or two, or three years.

Method of maintenance is shown by States in table 32. Maintenance by district forces is practiced most generally in the West North Central, the Mountain, and the Pacific States, and in Kentucky, Louisiana, and Texas. The method of letting specific jobs by contract is followed most commonly in the East North Central States, except Wisconsin. The method of apportioning the work directly to the landowners apparently is used in Mississippi, Indiana, and Wisconsin more largely than in the other States. About one-fifth of the land reported that maintenance work was not done, or did not report concerning it. Systematic maintenance was reported for less than half the land in drainage enterprises in Minnesota, Iowa, Arkansas, Oklahoma, and all States east of the Mississippi River except Illinois, Kentucky, and Michigan.

Table 14 shows that enterprises comprising nearly 12 percent of the land in all enterprises, and representing 19 percent of the capital investment, owned power machinery other than automobiles and trucks for the purpose of keeping their drainage works in operating condition. The same table shows that these enterprises have 11 percent of the open ditches, 4 percent of tile drains, and 28 percent of the levees constructed by the drainage enterprises covered by the census. The fact that percentage of levees is higher than percentage of open ditches may suggest that there is more general appreciation of the need for continued maintenance of the levees to prevent large losses in the enterprises than of the necessity for immediate repair of obstructed ditches. However, a large portion of all the ditches consists of sizes small enough that use of large equipment is not required frequently. Distribution by States of ownership of power maintenance equipment is shown in table 33, which discloses that those States in which the enterprises owning power equipment comprise more than half the land in enterprises are western States, where irrigation has been the primary object of a considerable portion of the enterprises included in the drainage census.

Federal assistance in maintaining their drainage works has been reported by enterprises embracing 17 percent of the land in all the enterprises and representing 23 percent of the

total capital investment, and comprising 16 percent in length of the ditches, tile, and levees of all enterprises. The activities of the Corps of Engineers, United States Army, in flood protection and aid of navigation, by cleaning and straightening watercourses and by constructing levees, during a number of decades has afforded incidentally some special assistance to many drainage districts, particularly in the lower Mississippi River valley. Since establishment of the Federal Emergency Relief Administration in 1933, that agency, the Civil Works Administration, the Works Progress Administration, and the Work Projects Administration have rendered assistance to many drainage enterprises, especially in cleaning the ditches of debris and vegetation. Such assistance has been done very largely with hand tools. The Civilian Conservation Corps during the past half decade furnished assistance to a large number of legally organized drainage enterprises in maintenance and repair of their works. More than 40 C.C.C. camps, mostly in the Central States, were allotted to drainage maintenance work only, equipped with power excavating machinery, and organized under supervision of technically trained drainage engineers. The land in drainage enterprises receiving assistance from these agencies is shown in table 15, in which the classification Work Projects Administration includes its three predecessor organizations. The cost of such assistance was not determined by the Census nor was any value placed upon the work. The aid received by some enterprises was very important in amount, and that received by others was not great. The classification "Other or not reported" in the table represents either a combination of all of these agencies or a designation that if stated could not be interpreted.

Work Projects Administration has given assistance in some measure in all but eight of the States in the Drainage Census as shown in table 34. The Civilian Conservation Corps has been of assistance to drainage enterprises in less than half of the States in the Drainage Census, and most of the drainage work for that agency has been done in the States of the Central and South Atlantic Geographic Divisions. The enterprises benefiting by the flood protection work of the Corps of Engineers, United States Army, are mostly those bordering the Mississippi River and its main tributaries, and to a less extent the Pacific streams.

Financial Status of Enterprises.—The financial status of drainage enterprises is shown in tables 7 and 8. The portion in arrears in 1940, comprising 13 percent of the land and 17 percent of the capital invested, was slightly larger than in 1930. In those enterprises that in 1940 were in arrears in payment of their obligations, more than half the land was reported as delinquent in payment of the drainage taxes. This acreage, however, is known to include some duplication because of land reported delinquent in two or more overlapping enterprises. Of approximately 11,500,000 acres reported in arrears, 2,270,000 showed none to be delinquent in payment of the drainage taxes assessed. This condition might be a result of delinquent lands having been sold for taxes and the delinquency canceled by such sale. Out of 75,000,000 acres reported not in arrears, one-sixth is shown as comprising delinquent lands amounting to 20 percent of the area included. Such condition might be the result of having the arrearage canceled through refinancing operations. For all enterprises, the land delinquent in payment of drainage taxes was somewhat less in 1940 than in 1930, both in amount and in percentage; but for those enterprises in arrears in payment of their obligations, the amount and the percentage of land delinquent in drainage taxes was greater in 1940 than in 1930.

Of the 87,000,000 acres in all drainage enterprises, 32,085,959 acres or 37 percent are shown as having an indebtedness of \$137,745,272, an average of \$4.29 per acre. This amount is 40 percent of the capital invested in those enterprises, which was \$344,440,683 as shown in table 8. Of the land in debt, 11,432,555 acres were bearing \$63,745,329, or

46.3 percent, and were in arrears in payment of their funded obligations by \$38,488,274 or \$3.37 per acre.

Refinancing operations had reduced the debt by \$51,467,173 of bonds and interest thereon, of which less than 4 percent had been received by the enterprises not in debt on January 1, 1940. Of the total debt reductions, \$43,098,365 or 83.7 percent had been for benefit of the enterprises reported as not in arrears but still bearing an indebtedness of \$71,115,043. The enterprises reported as in arrears on the census date had benefited by refinancing operations only to the extent of \$5,776,803.

The relation of indebtedness and arrearage to delinquency of land in payment of the drainage taxes is indicated in table 8. Enterprises not in debt reported less than 0.1 percent of their area as delinquent in payment of drainage taxes as of January 1, 1940. Collections of drainage taxes by these enterprises in 1939 amounted to 0.5 percent of the capital invested. The enterprises in debt but not in arrears reported a delinquency of 10.3 percent of their acreage, and drainage taxes collected in 1939 amounting to 4.0 percent of the capital investment. The enterprises that stated the amount of arrearage reported 58.0 percent of their acreage as delinquent, and drainage taxes collected in 1939 as 2.0 percent of the capital investment. In terms of indebtedness, the taxes collected in 1939 amounted to 12.8 percent for the enterprises not in arrears, and 3.5 percent for those enterprises reported in arrears, although the average collections per acre were, respectively, \$0.45 and \$0.51. As already stated, the figures for acreage delinquent may be somewhat large because of duplication in overlapping enterprises, but probably correction of the error (not possible in the Census statistics) would not materially affect the relationships indicated in tables 7 and 8.

The effect of delinquency in payment of drainage taxes on the financial status of the drainage enterprises in the different States is indicated in table 28. The duplication in acreage delinquent is especially evident for Florida, where more than 90 percent of all land in enterprises was so reported but only 82 percent was in arrears. The States showing more than 25 percent of land in drainage enterprises as being in arrears in payment of their obligations are Virginia and Alabama, South Carolina, Georgia, Florida, Tennessee, and Utah.

The relation of arrearage in payment of obligations to its drainage condition and the use of the land in the enterprises is shown in table 29. The land unfit for raising any crop because of lack of drainage is shown as 7,133,943 acres or 8 percent of the land in all enterprises in the 38 States, and the land idle in 1939 was 18,836,290 acres or 22 percent. By States, the portions unfit for crop range from 0.1 percent in Arizona to 44 percent in Tennessee and 56 percent in Florida. The amounts idle in 1939 range from 2 percent in Iowa to 60 percent in Tennessee and 82 percent in Florida. For those enterprises in arrears in payment of obligations, comprising 14 percent of the land in all enterprises, 4,077,142 acres or 35 percent were reported as unfit for any crop for lack of drainage, and 6,126,758 acres or 52 percent as idle in 1939. The comparable percentages for those enterprises not in arrears, embracing a total of 74,805,259 acres, are 4 percent unfit for crop and 17 percent idle in 1939. In general, the order of the States in respect to lack of drainage and lack of use, both for enterprises in arrears and for enterprises not in arrears in payment of obligations, corresponds roughly to the order of all enterprises with respect to the same conditions.

Employment and Pay Roll.—Inquiry was made of each enterprise as to number of persons employed during the week of April 29, 1939, and as to the amount paid out for wages and salaries during the year 1939. The figures reported by the drainage enterprises in each State are shown in table 35, classified by character of enterprise. Information was not obtained as to whether these data related to maintenance and operation of drainage works or to new construction, and doubtless both kinds of work are included.

UNITED STATES SUMMARY

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 1.—SUMMARY OF DRAINAGE FOR THE UNITED STATES: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of 38 States reporting organized drainage enterprises ¹.....acres.....	1,785,118,720	1,743,689,840	1,717,932,160	² 40,283,520	2.3	25,767,680	1.5
Land in drainage enterprises.....acres.....	86,967,039	84,408,093	65,495,038	2,558,946	3.0	18,913,055	28.9
Improved.....acres.....	67,389,440	63,514,061	44,288,235	3,875,359	6.1	19,225,846	43.4
Unimproved:							
Timber and cut-over.....acres.....	11,042,630	11,310,402	11,283,536	-267,772	-2.4	26,866	0.2
Other.....acres.....	8,534,969	9,583,610	9,923,257	-1,048,641	-10.9	-339,657	-3.4
Drainage sufficient for normal crop.....acres.....	75,004,277	66,234,390	(3)	8,769,887	13.2		
Partly drained, for partial crop.....acres.....	4,828,819	10,777,625	(3)	-5,948,806	-55.2		
Unfit to raise any crop for lack of drainage.....acres.....	7,133,943	7,396,078	⁴ 7,224,213	-282,135	-3.5	171,865	2.4
In occupied farms.....acres.....	70,068,469	68,640,109	(3)	1,428,360	2.1		
In planted crops.....acres.....	49,613,573	54,427,577	(3)	-4,814,004	-8.8		
Idle.....acres.....	18,836,290	20,003,315	(3)	-1,167,025	-5.8		
Available for settlement.....acres.....	4,569,205	7,987,171	(3)	-3,417,966	-42.8		
Open ditches, completed.....miles.....	146,152.3	138,673.0	107,468.2	7,479.3	5.4	31,204.8	29.0
Tile drains, completed.....miles.....	55,734.0	55,031.9	42,311.7	702.1	1.3	12,720.2	30.1
Drainage pumping plants, capacity.....horsepower.....	102,196	99,747	⁵ 64,389	2,344	2.3	35,358	54.9
.....gal. per min..	20,716,025	17,854,824	⁵ 15,229,166	2,845,401	15.9	2,625,658	17.2
Capital invested in enterprises.....dollars.....	691,724,519	⁶ 680,250,255	372,273,567	11,474,264	1.7	307,976,688	82.7
Average per acre.....dollars.....	7.95	8.05	5.68	-0.11	-1.4	2.38	41.9

¹ The 38 States which reported organized drainage enterprises in 1940: Alabama, Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington, Wisconsin, and Wyoming. All of these States were included in the drainage census of 1930, except Alabama, Delaware, and Maryland; and all were included in the drainage census of 1920, except Alabama, Delaware, Maryland, and Virginia.

² Including States added to scope of drainage census and revision of State land areas.

³ Not available.

⁴ Reported as "Swampy, subject to overflow, seeped or alkali."

⁵ Revised.

TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises 1940 ²
	1940	1930	1920	
	Acres	Acres	Acres	
All enterprises.....	132,828,451	128,495,078	95,629,291	86,967,039
Less than 100 acres.....	525,455	324,157	1,152,025	242,639
100 to 199 acres.....	1,446,870	1,040,664	1,152,025	696,662
200 to 499 acres.....	7,093,485	5,984,023	5,222,615	3,439,442
500 to 999 acres.....	11,234,727	11,130,096	9,091,516	5,899,150
1,000 to 1,999 acres.....	14,558,019	34,074,009	29,522,536	8,221,932
2,000 to 4,999 acres.....	20,511,078	15,865,002	13,357,936	12,728,433
5,000 to 9,999 acres.....	16,387,515	15,865,002	13,357,936	10,722,187
10,000 to 19,999 acres.....	16,964,180	35,075,951	23,826,149	11,506,321
20,000 to 49,999 acres.....	20,141,844	11,403,982	8,605,536	14,573,972
50,000 to 99,999 acres.....	10,760,472	4,850,978	4,850,978	8,026,817
100,000 to 199,999 acres.....	5,925,431	3,378,199	.....	4,493,168
200,000 to 499,999 acres.....	3,155,493	.....	.....	2,860,641
500,000 acres and over.....	4,123,862	.....	.....	3,555,675

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	86,967,039	100.0	691,724,519	100.0
Drainage districts.....	34,811,053	40.0	373,358,517	54.0
County drains.....	46,040,391	52.9	276,101,410	39.9
Township drains.....	232,862	0.3	768,129	0.1
State projects.....	621,109	0.7	1,344,680	0.2
Irrigation enterprises:				
Federal.....	1,955,481	2.2	19,254,857	2.8
Other.....	2,285,097	2.6	11,625,594	1.7
Commercial developments:				
Incorporated.....	60,788	0.1	720,611	0.1
Unincorporated.....	12,188	(1)	30,300	(1)
Individually owned projects.....	912,070	1.0	8,417,821	1.2
Other, or not reported.....	36,000	0.1	102,600	(1)

¹ Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	86,967,039	100.0	84,408,093	100.0	65,485,038	100.0	691,724,519	100.0	680,250,255	100.0	372,273,567	100.0
Gravity drainage only by—												
Open ditches.....	63,255,581	72.8	60,234,328	71.4	63,602,475	97.1	373,435,534	54.0	373,316,473	54.8	306,443,303	82.3
Tile drains.....	7,075,713	8.1	8,325,453	9.9			77,997,787	11.3	70,297,640	10.4		
Open ditches and tile drains..	12,268,650	14.1	12,205,817	14.4			117,246,453	16.9	129,671,338	19.1		
All drained by pumping by—												
Open ditches.....	1,130,343	1.3	1,608,433	1.9	781,441	1.2	62,939,719	9.1	79,894,531	11.7	32,020,807	8.6
Tile drains.....	6,583	(²)					332,280	0.1				
Open ditches and tile drains..	374,003	0.4					17,393,924	2.5				
Part only by pumping by—												
Open ditches.....	1,446,816	1.7	2,034,062	2.4	1,111,122	1.7	32,619,824	4.7	27,070,273	4.0	33,809,457	9.1
Tile drains.....	10,348	(²)					176,279	(²)				
Open ditches and tile drains..	1,399,002	1.6					9,582,719	1.4				
Total area served by pumps.....	2,316,867	2.7	2,174,803	2.6	³ 1,414,010	2.2						

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.² Less than one-tenth of 1 percent.³ Revised.

TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises	CAPACITY			Land served	
		Number	Engine or motor			Pump
			#p.	Percent			G. p. m.
All pumping enterprises.....						
	1940..	353	102,196	100.0	20,716,025	2,316,867
	1930..	292	99,747	100.0	17,854,824	2,174,803
	¹ 1920..	210	64,389	100.0	15,229,166	1,414,010
Steam.....	1940..	13	3,180	3.1	858,050	70,316
	1930..	22	9,730	9.8	3,002,000	227,022
	1920..	63	17,376	27.0	7,126,448	497,106
Electric.....	1940..	219	58,917	57.6	8,647,342	1,487,638
	1930..	170	64,033	64.2	8,368,505	1,380,489
	1920..	90	36,472	56.6	5,733,756	706,794
Internal combustion.....	1940..	92	26,464	25.9	8,186,133	504,219
	1930..	73	13,118	13.2	4,024,969	347,207
	¹ 1920..	37	3,916	6.1	1,125,182	120,627
Steam and electric.....	1940..	8	5,125	5.0	878,900	82,216
	1930..	9	5,900	5.9	919,800	82,091
	1920..	11	5,485	8.5	974,200	67,466
Steam and internal combustion.....	1940..	3	1,030	1.0	169,500	11,779
	1930..	6	4,030	4.0	1,113,000	52,764
	1920..	3	250	0.4	80,100	6,700
Electric and internal combustion.....	1940..	15	4,464	4.4	823,200	134,419
	1930..	12	2,936	2.9	426,750	85,230
	1920..	5	890	1.4	189,500	14,723
Other.....	1940..	3	3,016	3.0	1,350,900	26,280
	1930..					
	1920..	1				594

¹ Revised.

TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity	Land served	
		G. p. m.	Percent			
						#p.	Acres
All pumping enterprises.....						
	1940..	1,284	20,716,025	100.0	2,316,867	
	1930..	1,028	17,854,824	100.0	2,174,803	
Centrifugal.....	1940..	437	11,033,493	53.3	56,807	1,036,134
	1930..	552	13,456,224	75.4	73,337	1,655,717
Rotary.....	1940..	8	76,900	0.4	430	14,303
	1930..	36	949,800	5.3	3,616	82,727
Screw.....	1940..	125	3,537,750	17.1	13,732	311,096
	1930..	29	1,482,600	8.3	4,265	163,357
Turbine.....	1940..	393	616,550	3.0	8,087	464,336
	1930..	157	165,800	0.9	3,125	89,820
Centrifugal and—						
Rotary.....	1940..	5	91,500	0.4	490	4,189
	1930..	7	520,000	2.9	815	15,500
Screw.....	1940..	158	4,636,385	22.4	16,812	266,076
	1930..	19	839,400	4.7	3,473	59,570
Turbine.....	1940..	100	322,447	1.5	2,787	103,444
	1930..	56	60,000	0.4	650	28,112
Other.....	1940..	58	401,000	1.9	3,051	117,289
	1930..	172	380,000	2.1	10,264	80,000

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	86,967,039	100.0	84,408,093	100.0	691,724,519	100.0	690,250,255	100.0	9,168,557	10,050,800
Enterprises in arrears.....	11,541,134	13.3	9,812,578	11.6	116,317,496	16.8	112,982,986	16.6	6,637,225	5,188,989
With some delinquent land.....	9,269,946	10.7	8,791,824	10.4	95,704,974	13.9	102,332,965	15.0	6,637,225	5,188,989
With no delinquent land.....	1,262,626	1.5	539,085	0.6	11,119,828	1.6	5,229,532	0.8	.....	.....
With no report on delinquency.....	968,562	1.1	481,669	0.6	9,492,594	1.3	5,400,489	0.8	.....	.....
Enterprises not in arrears.....	75,062,949	86.3	74,595,515	88.4	569,768,609	82.4	567,267,269	83.4	2,524,899	4,861,811
With some delinquent land.....	12,461,432	14.3	15,950,167	18.9	133,186,355	19.3	138,015,254	20.3	2,524,899	4,861,811
With no delinquent land.....	61,758,750	71.0	56,224,896	66.6	427,896,622	61.8	409,819,142	60.1	.....	.....
With no report on delinquency.....	842,767	1.0	2,420,462	2.9	8,685,632	1.3	19,652,873	3.0	.....	.....
Enterprises not reporting on arrearage.....	362,956	0.4	.....	.....	5,638,414	0.8	.....	.....	6,433	.....
With some delinquent land.....	22,776	(²)	.....	.....	752,779	0.1	.....	.....	6,433	.....
With no delinquent land.....	48,855	0.1	.....	.....	704,324	0.1	.....	.....	.....	.....
With no report on delinquency.....	291,325	0.3	.....	.....	4,181,311	0.6	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Less than one-tenth of 1 percent.

TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	86,967,039	691,724,519	137,745,272	38,488,274	51,467,173	9,168,557	13,446,868
Enterprises in debt.....	² 32,085,959	344,440,683	137,745,272	38,488,274	49,223,671	8,737,832	11,505,292
In arrears, amount of arrearage stated.....	11,432,555	113,062,050	63,745,329	38,488,274	5,776,803	6,635,576	2,237,976
Collecting drainage taxes in 1939.....	8,522,053	85,343,595	51,448,665	29,150,307	4,630,548	5,338,010	2,237,976
No collections reported.....	2,910,502	27,718,455	12,296,664	9,337,967	1,146,255	1,297,566	.....
In arrears, amount not stated.....	108,579	3,283,496	418,733	.....	23,367	2,825	55,255
Collecting drainage taxes in 1939.....	36,259	2,379,625	127,033	.....	1,680	55,255	.....
No collections reported.....	72,320	903,861	291,700	.....	23,367	1,145	.....
Not in arrears.....	20,381,589	224,923,193	71,115,043	.....	43,098,365	2,093,220	9,103,745
Collecting drainage taxes in 1939.....	17,244,156	199,362,825	64,415,103	.....	41,755,745	2,022,043	9,103,745
No collections reported.....	3,137,433	25,560,368	6,699,940	.....	1,342,620	71,177	.....
Not reporting as to arrears.....	163,236	3,171,954	2,466,167	.....	330,136	6,211	108,316
Collecting drainage taxes in 1939.....	155,839	2,969,954	2,334,267	.....	330,136	5,407	108,316
No collections reported.....	7,397	202,000	131,900	.....	.....	804	.....
Enterprises not in debt.....	54,222,776	340,291,604	.....	.....	1,919,122	410,806	1,858,629
Collecting drainage taxes in 1939.....	6,286,172	54,407,909	.....	.....	779,346	312,058	1,858,629
No collections reported.....	47,936,604	285,883,695	.....	.....	1,139,776	98,748	.....
Enterprises not reporting as to debt.....	658,304	6,992,232	.....	.....	319,380	19,919	82,947
Collecting drainage taxes in 1939.....	238,092	3,925,467	.....	.....	290,380	13,645	82,947
No collections reported.....	420,212	3,066,765	.....	.....	29,000	6,274	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Includes 28,567 acres in enterprises reporting debt but not showing amount.

TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	86,967,039	100.0	691,724,519	100.0
Improvement of land already in farms.....	62,128,311	71.4	418,544,038	60.5
Reclamation of swamp land not previously in farms.....	19,635,030	15.7	131,149,703	19.0
Protection against overflow.....	6,751,044	7.8	99,169,737	14.3
Removal of alkali or seepage from irrigation.....	4,452,654	5.1	42,861,041	6.2

TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	86,967,039	100.0	132,828,451	45,861,412	691,724,519	100.0
Before 1870.....	171,349	0.2	1,238,623	1,067,274	3,658,131	0.5
1870-1879.....	427,759	0.5	3,480,851	3,053,092	11,716,391	1.7
1880-1889.....	2,429,435	2.8	8,906,253	6,476,818	27,704,109	4.0
1890-1899.....	3,742,588	4.3	11,331,068	7,588,480	29,275,245	4.2
1900-1904.....	5,769,509	6.6	13,328,522	7,559,013	33,025,974	4.8
1905-1909.....	12,191,576	14.0	20,008,077	7,816,501	93,378,598	13.5
1910-1914.....	19,573,521	22.5	25,480,317	5,906,796	142,210,576	20.6
1915-1919.....	18,012,061	20.7	21,177,254	3,165,193	175,305,253	25.4
1920-1924.....	11,272,180	13.0	12,876,529	1,604,349	111,956,591	16.2
1925-1929.....	7,410,814	8.5	8,658,734	1,247,920	48,491,083	7.0
1930-1934.....	2,092,568	2.4	2,339,718	247,150	8,510,186	1.2
1935-1939.....	3,873,679	4.5	4,002,505	128,826	6,492,382	0.9

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement		
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	86,967,039	75,004,277	86.2	4,828,819	7,133,943	67,389,440	77.5	11,042,630	8,534,969	70,098,469	80.6	49,613,573	18,836,290	4,569,205
Before 1870.....	171,349	149,984	87.5	10,891	10,474	132,471	77.3	33,741	5,137	152,631	89.1	97,322	44,799	4,800
1870-1879.....	427,759	403,898	94.4	13,554	10,307	373,450	87.3	35,197	19,112	406,019	94.9	288,335	54,001	2,086
1880-1889.....	2,429,435	2,267,023	93.3	97,647	64,765	2,173,456	89.5	146,062	109,917	2,330,857	95.9	1,864,772	245,807	7,882
1890-1899.....	3,742,588	3,500,309	93.5	144,045	98,234	3,255,998	87.0	383,194	103,396	3,406,298	91.0	2,481,638	382,281	20,016
1900-1904.....	5,769,509	5,413,792	93.8	223,522	132,195	5,133,782	89.0	452,894	182,833	5,378,404	93.2	3,613,555	681,562	23,575
1905-1909.....	12,191,576	11,081,282	90.9	548,057	562,237	10,340,430	84.8	1,054,964	796,182	10,820,713	87.1	7,652,179	1,881,503	416,383
1910-1914.....	19,573,521	14,137,852	72.2	1,238,360	4,197,309	12,281,391	62.7	3,168,872	4,123,258	12,727,452	65.0	9,006,298	6,695,981	1,404,267
1915-1919.....	18,012,061	16,282,045	90.3	814,971	935,045	14,057,404	78.1	2,589,708	1,354,949	14,580,103	80.9	10,268,103	3,868,862	1,241,830
1920-1924.....	11,272,180	10,028,192	89.0	617,909	626,079	8,948,443	78.5	1,680,122	743,615	9,133,841	81.0	6,480,293	2,687,125	762,204
1925-1929.....	7,410,814	6,823,838	92.1	351,326	235,840	6,187,942	83.5	736,562	486,710	6,418,764	86.6	4,510,953	1,160,607	321,089
1930-1934.....	2,092,568	1,974,374	94.4	87,735	60,459	1,787,467	85.4	205,599	99,502	1,846,884	88.2	1,326,402	222,361	14,833
1935-1939.....	3,873,679	2,961,688	76.4	710,792	201,199	2,807,606	72.5	555,715	510,358	3,066,503	79.2	1,823,723	911,380	350,210

¹Land included in more than 1 enterprise is tabulated only in the last organized.

TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars	
All enterprises.....	86,967,039	86,160,078	31,666,182	54,493,896	5,996,672	0.07	0.19
Gravity drainage only.....	82,599,944	81,863,305	27,833,859	54,029,446	3,701,079	0.04	0.13
Open ditches only.....	56,442,219	55,826,308	16,322,616	39,503,692	1,825,838	0.03	0.11
Open ditches and levees.....	6,813,362	6,801,815	5,398,825	1,402,990	1,097,708	0.16	0.20
Tile drains only.....	7,061,711	7,004,344	1,514,411	5,489,933	161,175	0.02	0.11
Tile drains and levees.....	14,002	14,002	4,275	9,727	582	0.04	0.14
Open ditches and tile drains.....	12,082,137	12,030,848	4,453,133	7,577,715	576,098	0.05	0.13
Open ditches, tile drains, and levees.....	186,513	185,968	140,599	45,369	39,878	0.21	0.28
Pumping for all or part of drainage.....	4,367,095	4,296,773	3,832,323	464,450	2,295,593	0.53	0.60
All drainage by pumping.....	1,510,929	1,491,398	1,349,864	141,534	1,550,417	1.04	1.15
Part pumping and part gravity.....	2,856,166	2,805,375	2,482,459	322,916	745,176	0.26	0.30

TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	86,967,039	100.0	691,724,519	100.0
Method:				
By district forces.....	30,413,184	35.0	289,547,364	41.9
By contract.....	30,715,178	35.3	230,497,356	33.3
Work apportioned to landowners.....	9,022,968	10.4	59,551,296	8.6
"None," or not reporting.....	16,815,711	19.3	112,128,503	16.2
Whether systematic:				
Reporting "yes".....	39,068,195	44.9	391,591,464	56.6
Reporting "no".....	47,241,528	54.3	295,304,902	42.7
Not reporting.....	657,316	0.8	4,828,153	0.7

TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	86,967,039	10,119,394	11.6
Capital invested.....dollars..	691,724,519	133,656,336	19.3
Drainage works:			
Open ditches.....miles....	146,152.3	16,856.1	11.4
Tile drains.....miles....	55,734.0	2,374.8	4.3
Levees.....miles....	6,792.9	1,910.7	28.1

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	<i>Acres</i>	<i>Dollars</i>	<i>Miles</i>	<i>Miles</i>	<i>Miles</i>
All enterprises reporting Federal aid received.....	14,762,880	158,723,612	24,419.2	4,396.6	2,406.1
Work Projects Administration.....	7,934,093	66,940,370	14,301.2	2,651.0	975.3
Civilian Conservation Corps.....	3,199,441	27,041,471	5,687.7	1,098.9	236.0
Corps of Engineers, U.S.A.....	526,867	10,226,947	474.1	105.5	454.8
W.P.A. and C.C.C.....	829,875	18,785,495	1,596.5	206.1	260.1
W.P.A. and Corps of Engineers.....	167,823	9,109,673	212.8	2.0	55.9
C.C.C. and Corps of Engineers.....	10,541	279,000	20.0	1.3	12.0
Other or not reported.....	2,094,240	26,345,856	2,124.9	331.8	412.0

TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres.....	86,967,039	¹ 10,586,767	12.2
Capital invested.....dollars..	691,724,519	117,686,566	17.0
Drainage works:			
Open ditches.....miles....	146,152.3	14,910.6	10.2
Tile drains.....miles....	55,734.0	202.7	0.4
Levees.....miles....	6,792.9	1,826.4	26.9

¹The land actually dependent upon outside agencies for protection is 9,633,366 acres, which is 91.0 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 17.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)	TOTAL (38 Drainage States)	GEOGRAPHIC DIVISIONS					
		East North Central	West North Central	South Atlantic ¹	East South Central ¹	West South Central	
LAND AREA							
1	Approximate land area.....acres....1940..	1,785,118,720	156,789,760	326,797,440	189,029,120	82,873,600	275,730,560
2	Drainage enterprises.....number....1940..	2 42,363	32,014	7,106	941	710	918
3	Land in enterprises.....acres....1940..	86,967,039	32,682,172	23,468,623	7,435,448	3,957,480	13,228,858
4	.....1930..	84,408,093	33,485,754	23,690,882	6,941,716	4,167,681	11,940,152
5	.....1920..	65,495,038	31,627,176	19,217,367	2,385,364	2,323,595	7,924,197
6	Area of all enterprises, overlapping included.....acres....1940..	132,828,451	67,924,976	30,498,946	8,740,277	4,260,659	15,065,589
7	Amount of overlapping.....acres....1940..	45,861,412	35,242,804	7,030,323	1,304,829	303,179	1,836,731
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	75,004,277	30,921,740	22,282,539	3,539,233	2,493,625	10,302,455
9	.....1930..	66,234,390	29,439,215	18,440,603	2,605,877	3,231,231	8,243,890
10	Increase or decrease (-), 1930-1940.....acres.....	8,769,887	1,482,525	3,841,936	465,209	-737,606	2,058,565
11	.....percent.....	13.2	5.0	20.8	17.8	-22.8	25.0
12	Land undrained, unfit for any crop.....acres....1940..	7,133,943	674,683	587,334	3,298,108	798,773	1,492,766
13	.....1930..	7,396,078	1,288,906	2,412,875	1,516,956	466,687	1,597,904
14	Increase or decrease (-), 1930-1940.....acres.....	-262,135	-614,213	-1,825,541	1,744,244	332,086	-105,138
15	.....percent.....	-3.5	-47.6	-75.6	115.0	71.2	-6.6
16	Land partly drained, for partial crop.....acres....1940..	4,828,819	1,085,739	598,750	598,107	665,082	1,433,637
17	.....1930..	10,777,625	2,757,633	2,837,404	2,818,873	469,713	1,498,358
18	Increase or decrease (-), 1930-1940.....acres.....	-5,948,806	-1,671,894	-2,238,654	-2,294,072	195,369	-64,721
19	.....percent.....	-55.2	-60.6	-78.9	-81.4	41.6	-4.3
20	Improved land.....acres....1940..	67,389,440	29,171,858	19,937,169	1,799,504	2,597,047	8,453,816
21	.....1930..	63,514,081	29,906,796	18,485,847	1,215,239	2,681,877	7,035,974
22	.....1920..	44,288,235	25,282,065	11,630,279	388,345	1,349,791	3,877,166
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	11,042,630	2,467,706	2,451,090	1,750,901	1,213,250	3,002,806
24	.....1930..	11,310,402	2,440,540	2,723,026	2,188,439	1,226,931	2,687,952
25	.....1920..	11,283,536	4,457,151	2,530,016	862,334	914,404	2,506,431
26	Other unimproved land.....acres....1940..	8,534,969	1,042,608	1,080,364	3,865,043	147,183	1,772,236
27	.....1930..	9,583,610	1,138,418	2,482,009	3,538,038	258,773	1,616,226
28	.....1920..	9,923,267	1,887,960	5,057,072	1,134,705	59,400	1,540,600
29	Land in occupied farms.....acres....1940..	70,068,469	30,147,707	20,086,297	2,192,944	3,226,975	8,615,347
30	.....1930..	66,640,109	32,689,727	20,212,282	893,634	3,021,791	7,570,988
31	Increase or decrease (-), 1930-1940.....acres.....	1,428,360	-2,542,020	-125,985	723,255	205,184	1,044,359
32	.....percent.....	2.1	-7.8	-0.6	80.9	6.8	13.8
33	Land in planted crops.....acres....1940..	49,613,573	21,446,699	15,321,225	1,140,580	2,216,856	4,853,667
34	.....1930..	54,427,577	26,317,269	15,799,777	587,512	2,334,721	5,662,415
35	Increase or decrease (-), 1930-1940.....acres.....	-4,814,004	-4,870,570	-478,552	209,646	-117,865	-808,748
36	.....percent.....	-8.8	-18.5	-3.0	35.7	-5.0	-14.3
37	Land idle.....acres....1940..	18,836,290	3,506,999	3,854,366	5,484,219	1,508,207	3,690,612
38	.....1930..	20,003,315	2,498,332	4,910,444	6,040,396	1,523,503	4,226,453
39	Increase or decrease (-), 1930-1940.....acres.....	-1,167,025	1,008,667	-1,056,078	-789,324	-15,296	-535,841
40	.....percent.....	-5.8	40.4	-21.5	-13.1	-1.0	-12.7
41	Land available for settlement.....acres....1940..	4,569,205	10,460	1,008,960	1,687,700	93,589	1,536,529
42	.....1930..	7,987,171	249,700	1,759,310	2,659,191	740,104	2,322,567
43	Increase or decrease (-), 1930-1940.....acres.....	-3,417,966	-239,240	-750,350	-971,491	-646,505	-786,038
44	.....percent.....	-42.9	-95.8	-42.6	-36.5	-87.4	-33.8
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	56,442,219	21,420,875	13,946,010	4,874,752	3,557,723	11,176,684
46	Length of these ditches.....miles.....	109,575.3	55,896.2	22,170.1	6,692.4	6,736.5	15,007.4
47	Part protected by levees of an outside agency.....acres.....	5,889,674	115,674	262,375	655,365	1,745,588	3,013,056
48	Land drained by open ditches and own levees.....acres.....	6,813,362	445,683	1,736,703	2,279,603	380,625	1,598,700
49	Length of these ditches.....miles.....	8,263.6	761.8	2,589.7	1,961.1	308.2	1,976.9
50	Length of these levees.....miles.....	3,638.2	664.3	1,374.7	286.6	220.5	773.4
51	Part protected by levees of an outside agency.....acres.....	2,888,076	175,542	512,741	1,178,342	320,777	630,902
52	Land drained by tile only.....acres.....	7,061,711	3,986,149	3,006,269	.....	.....	.....
53	Length of these tile.....miles.....	31,385.8	18,894.5	12,012.5	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	7,200	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	14,002	3,466	8,309	.....	.....	.....
56	Length of these tile.....miles.....	20.9	5.5	12.4	.....	.....	.....
57	Length of these levees.....miles.....	28.6	7.5	16.1	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	12,082,137	6,368,983	4,528,316	.....	18,932	127,200
60	Length of these open ditches.....miles.....	17,961.2	11,299.4	4,651.9	.....	39.2	349.2
61	Length of these tile.....miles.....	23,001.2	9,528.0	11,186.9	.....	36.1	17.9
62	Part protected by levees of an outside agency.....acres.....	156,328	7,820	8,576	.....	18,312	117,320
63	Land drained by open ditches, tile, and levees.....acres.....	186,513	38,864	40,330	.....	.....	.....
64	Length of these open ditches.....miles.....	443.7	80.4	100.0	.....	.....	.....
65	Length of these tile.....miles.....	350.9	37.9	20.8	.....	.....	.....
66	Length of these levees.....miles.....	219.1	30.5	100.6	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	6,475	1,500	1,415	.....	.....	.....
68	Land in enterprises operating pumping plants ².....acres.....	4,367,095	418,152	202,686	281,093	.....	326,274
69	Length of open ditches owned by these enterprises.....miles.....	9,908.5	754.0	295.4	1,256.0	.....	1,042.9
70	Length of tile owned by these enterprises.....miles.....	974.5	210.6	287.3	2.0	.....	13.0
71	Length of levees owned by these enterprises.....miles.....	2,907.0	621.3	168.9	193.0	.....	245.1
72	Part protected by levees of an outside agency.....acres.....	685,613	45,983	10,335	114,262	.....	273,673

¹ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

² Each enterprise is counted in each county in which a part is located. The number of separate drainage enterprises in the 38 States is 39,597. Concerning comparison with earlier Censuses, see text.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

GEOGRAPHIC DIV.—Con.		EAST NORTH CENTRAL DIVISION					WEST NORTH CENTRAL DIVISION						
Mountain	Pacific	Ohio	Indiana	Illinois	Michigan	Wisconsin	Minnesota	Iowa	Missouri	North Dakota	South Dakota	Nebraska	
549,015,040	204,883,200	26,318,080	23,153,820	35,806,080	36,494,080	35,017,600	51,205,760	35,831,040	44,332,800	44,834,560	48,983,040	49,057,920	1
256	418	12,222	9,271	1,961	8,130	430	2,732	3,439	338	145	215	145	2
2,772,730	3,421,728	7,729,267	10,121,952	5,091,364	8,978,386	761,203	10,990,409	6,164,344	3,087,063	1,376,041	678,472	916,181	3
1,969,770	2,612,138	8,165,494	10,214,014	5,032,682	9,180,651	892,713	11,474,683	6,137,949	3,150,022	1,094,142	697,759	879,459	4
810,076	1,207,243	8,107,204	9,087,183	3,909,049	9,729,171	794,569	9,232,709	5,224,478	2,596,204	1,240,328	222,062	607,730	5
2,794,992	3,543,012	25,212,061	19,972,525	5,897,124	16,070,273	772,993	14,702,196	7,544,831	4,434,979	1,640,781	711,572	1,005,541	6
22,262	121,284	17,482,794	9,850,573	805,760	7,091,687	11,790	3,711,787	1,380,587	1,347,916	464,740	35,100	89,360	7
2,527,026	2,937,659	7,690,503	9,424,503	4,754,490	8,456,953	595,291	10,226,116	6,045,348	2,847,792	1,360,259	666,936	878,741	8
1,779,788	2,493,736	7,495,681	9,303,527	4,510,111	7,581,151	548,545	7,322,252	5,946,118	2,530,697	1,055,429	614,210	829,681	9
747,238	443,923	194,622	120,976	244,379	875,802	46,746	2,903,864	199,230	317,095	304,830	52,726	49,060	10
42.0	17.8	2.6	1.3	5.4	11.6	8.5	39.6	3.4	12.5	28.9	8.6	5.9	11
112,394	169,875	12,482	162,953	146,657	248,196	104,405	423,256	33,626	105,858	4,300	3,160	16,628	12
59,667	53,073	102,290	222,269	275,800	531,454	157,093	2,037,481	68,371	253,251	13,440	26,601	10,139	13
52,727	116,802	-89,808	-59,316	-129,143	-283,258	-52,688	-1,614,225	-34,745	-147,393	-9,140	-23,441	6,489	14
88.4	220.1	-87.8	-26.7	-46.8	-53.3	-33.5	-79.2	-50.8	-58.2	-68.0	-88.1	64.0	15
133,310	314,194	26,282	534,496	190,217	273,237	61,507	341,037	85,370	133,413	11,482	6,376	20,812	16
130,315	285,329	567,323	688,218	246,771	1,068,246	187,075	2,114,950	223,160	366,074	25,273	56,947	39,639	17
2,995	48,865	-541,041	-153,722	-56,554	-795,009	-125,568	-1,773,913	-137,790	-232,661	-13,791	-50,571	-18,827	18
2.3	18.4	-95.4	-22.3	-22.9	-74.4	-67.1	-83.9	-61.7	-63.6	-54.6	-88.8	-47.5	19
2,410,239	3,019,807	7,300,737	8,738,887	4,750,910	7,921,202	460,122	8,165,522	6,115,785	2,522,011	1,371,741	652,922	855,205	20
1,703,743	2,484,505	7,361,457	4,745,840	7,663,256	531,969	7,396,575	7,396,575	5,961,454	2,309,267	1,075,259	661,540	833,511	21
695,868	1,124,721	6,707,328	7,605,565	3,532,316	7,182,352	254,504	3,818,490	4,493,407	1,474,302	1,026,574	178,540	551,517	22
37,867	119,010	371,999	1,000,928	193,198	681,044	220,537	1,926,442	26,391	478,245	.....	.....	17,933	23
6,571	36,943	487,981	681,989	175,571	980,846	114,273	2,046,799	88,802	565,068	9,478	588	8,031	24
87	13,113	956,894	942,378	184,573	2,195,562	177,744	1,370,023	74,652	1,074,860	.....	4	5,342	25
324,624	282,911	56,531	382,137	147,256	376,140	80,544	896,445	22,168	86,807	4,300	23,550	42,989	26
259,456	290,690	73,239	170,688	111,271	536,749	246,471	2,031,309	87,393	275,687	9,405	35,630	37,917	27
174,121	69,409	442,982	539,240	192,180	351,257	362,321	4,044,196	656,419	47,042	213,754	43,518	49,871	28
2,564,329	3,234,870	7,173,937	9,703,805	4,911,263	7,796,979	561,723	8,397,586	5,945,393	2,673,169	1,322,573	647,173	849,948	29
1,728,767	2,522,920	8,132,973	10,150,221	5,005,376	8,826,265	574,892	8,782,323	6,105,496	2,427,599	1,094,114	684,746	864,159	30
835,562	711,950	-959,036	-446,416	-94,113	-1,029,286	-13,169	-384,737	-160,103	245,570	228,459	-37,573	-14,211	31
48.3	28.2	-11.8	-4.4	-1.9	-11.7	-2.3	-4.4	-2.6	10.1	20.9	-5.5	-1.6	32
2,095,076	2,539,470	4,682,046	7,512,766	4,549,562	4,317,989	384,336	6,198,229	4,697,259	1,872,751	1,116,385	526,407	688,976	33
1,504,265	2,221,618	6,800,406	8,454,498	4,248,907	6,462,936	350,522	5,916,067	5,376,805	2,067,727	908,979	567,285	743,178	34
590,811	317,852	-2,118,360	-941,732	300,655	-2,144,947	33,814	282,162	-679,546	-194,976	207,406	-40,878	-54,202	35
39.3	14.3	-31.2	-11.1	7.1	-33.2	9.6	4.8	-9.4	-9.4	22.8	-7.2	-12.6	36
388,537	403,350	422,255	1,396,258	273,248	1,082,024	333,214	2,742,654	98,727	527,289	242,493	118,654	114,696	37
357,568	446,619	359,758	486,660	232,052	1,041,456	376,406	3,747,812	78,303	879,897	103,641	51,905	45,755	38
30,969	-43,269	62,497	909,598	41,196	40,568	-45,192	-1,005,158	20,424	-352,608	138,852	66,749	68,941	39
8.7	-9.7	17.4	186.9	17.8	3.9	-11.9	-26.8	26.1	-40.1	134.0	128.6	150.7	40
66,136	165,821	1,778	.....	.....	5,882	2,800	966,726	500	24,592	.....	15,140	2,000	41
150,156	106,143	7,313	4,359	.....	50,237	187,791	1,346,207	15,104	379,679	.....	13,000	5,320	42
-84,020	59,678	-5,535	-4,359	.....	-44,355	-184,991	-379,479	-14,604	-355,087	.....	2,140	-3,320	43
-56.0	56.2	-75.7	-100.0	.....	-88.3	-98.5	-28.2	-96.7	-93.5	.....	16.5	-62.4	44
934,728	583,933	4,772,956	6,608,890	1,870,093	7,620,741	548,195	8,238,586	1,500,195</					

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 17.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)	W. N. CENTRAL DIV.—Con.	SOUTH ATLANTIC DIVISION				
	Kansas	Delaware	Maryland	Virginia ¹	North Carolina	South Carolina
LAND AREA						
1 Approximate land area.....acres....1940..	52,552,320	1,265,920	6,327,680	58,225,280	31,450,880	19,580,160
2 Drainage enterprises.....number....1940..	92	287	126	4	288	32
3 Land in enterprises.....acres....1940..	258,113	395,014	183,337	43,759	825,576	204,366
4	257,169	.....	.....	15,042	679,236	208,249
5	93,856	.....	.....	.....	542,828	140,031
6 Area of all enterprises, overlapping included.....acres....1940..	258,946	853,562	190,922	43,759	899,848	204,366
7 Amount of overlapping.....acres....1940..	833	458,548	7,585	.....	74,272	.....
CONDITION AND USE OF LAND						
8 Land with drainage sufficient for normal crop.....acres....1940..	257,347	295,400	172,747	15,714	717,099	200,866
9	242,216	.....	.....	13,138	498,982	139,587
10 Increase or decrease (-), 1930-1940.....acres.....	15,131	.....	.....	2,576	278,107	61,279
11	6.2	.....	.....	19.6	63.4	43.9
12 Land undrained, unfit for any crop.....acres....1940..	506	33,908	2,990	10,511	57,942	1,500
13	3,592	.....	.....	.....	79,267	33,002
14 Increase or decrease (-), 1930-1940.....acres.....	-3,086	.....	.....	10,511	-21,325	-31,502
15	-85.9	.....	.....	.....	-26.9	-95.4
16 Land partly drained, for partial crop.....acres....1940..	260	65,706	7,600	17,534	50,535	2,000
17	11,361	.....	.....	1,904	160,977	35,660
18 Increase or decrease (-), 1930-1940.....acres.....	-11,101	.....	.....	15,630	-110,442	-33,660
19	-97.7	.....	.....	820.9	-68.6	-94.4
20 Improved land.....acres....1940..	253,983	264,465	133,622	21,299	534,717	111,815
21	248,241	.....	.....	6,042	305,597	75,592
22	87,449	.....	.....	.....	204,928	59,075
Unimproved land:						
23 Woodland and cut-over land.....acres....1940..	2,019	129,654	48,250	11,579	236,506	92,343
24	4,260	.....	.....	8,500	209,961	120,313
25	4,135	.....	.....	.....	244,576	64,955
26 Other unimproved land.....acres....1940..	2,111	895	1,465	10,881	54,353	206
27	4,668	.....	.....	500	163,678	12,344
28	2,272	.....	.....	.....	93,324	16,001
29 Land in occupied farms.....acres....1940..	250,455	394,164	181,891	43,759	673,034	202,002
30	253,845	.....	.....	5,704	331,121	94,744
31 Increase or decrease (-), 1930-1940.....acres.....	-3,390	.....	.....	38,055	341,913	107,258
32	-1.3	.....	.....	667.2	109.2	113.2
33 Land in planted crops.....acres....1940..	221,218	224,551	118,871	18,681	425,589	91,351
34	219,736	.....	.....	4,748	267,525	61,606
35 Increase or decrease (-), 1930-1940.....acres.....	1,482	.....	.....	13,933	158,064	29,745
36	0.7	.....	.....	293.4	59.1	48.3
37 Land idle.....acres....1940..	9,853	170,080	63,067	25,078	378,478	110,851
38	3,131	.....	.....	9,500	363,415	126,396
39 Increase or decrease (-), 1930-1940.....acres.....	6,722	.....	.....	15,578	15,063	-15,545
40	214.7	.....	.....	164.0	4.1	-12.3
41 Land available for settlement.....acres....1940..	.....	.....	.....	.....	113,994	.....
42 .....	.....	.....	.....	9,000	248,147	71,834
43 Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	-9,000	-134,153	-71,834
44 .....	.....	.....	.....	-100.0	-54.1	-100.0
LAND CLASSIFIED BY WORKS, 1940						
45 Land drained by open ditches only.....acres.....	72,708	395,014	183,337	43,759	820,424	204,366
46 Length of these ditches.....miles.....	121.3	1,482.3	461.3	89.0	1,834.6	459.9
47 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48 Land drained by open ditches and own levees.....acres.....	174,405	.....	.....	.....	5,152	.....
49 Length of these ditches.....miles.....	253.3	.....	.....	.....	12.0	.....
50 Length of these levees.....miles.....	248.8	.....	.....	.....	4.0	.....
51 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52 Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....
53 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
54 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55 Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59 Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....
60 Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
61 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
62 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63 Land drained by open ditches, tile, and levees.....acres.....	1,020	.....	.....	.....	.....	.....
64 Length of these open ditches.....miles.....	2.0	.....	.....	.....	.....	.....
65 Length of these tile.....miles.....	0.5	.....	.....	.....	.....	.....
66 Length of these levees.....miles.....	2.0	.....	.....	.....	.....	.....
67 Part protected by levees of an outside agency.....acres.....	1,020	.....	.....	.....	.....	.....
68 Land in enterprises operating pumping plants ⁴.....acres.....	9,980	.....	.....	.....	.....	.....
69 Length of open ditches owned by these enterprises.....miles.....	4.8	.....	.....	.....	.....	.....
70 Length of tile owned by these enterprises.....miles.....	210.0	.....	.....	.....	.....	.....
71 Length of levees owned by these enterprises.....miles.....	27.5	.....	.....	.....	.....	.....
72 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.² Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches only.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

SOUTH ATLANTIC DIVISION—Con.		EAST SOUTH CENTRAL DIVISION ¹			WEST SOUTH CENTRAL DIVISION				MOUNTAIN DIVISION				
Georgia	Florida	Kentucky	Tennessee	Mississippi	Arkansas	Louisiana	Oklahoma	Texas	Montana	Idaho	Wyoming	Colorado	
37,451,520	34,727,680	25,669,760	26,855,040	30,348,800	33,744,000	28,913,280	44,341,120	168,732,160	93,642,240	52,997,120	62,403,840	66,538,880	1
78	126	160	207	343	287	511	29	91	39	57	28	67	2
84,374	5,699,022	465,270	601,892	2,890,618	4,592,738	4,219,624	197,646	4,218,850	372,661	659,136	312,662	468,322	3
84,285	5,954,934	585,625	589,560	2,988,496	4,631,155	3,655,483	170,158	2,883,356	167,629	375,464	245,703	366,719	4
85,452	1,637,079	358,480	368,671	1,601,444	3,478,591	2,266,328	12,150	2,166,128	168,682	64,642	95,474	171,856	5
84,374	6,469,446	515,617	618,172	3,126,670	5,639,299	4,703,474	197,646	4,531,170	374,189	674,532	312,662	469,294	6
.....	764,424	50,347	16,580	236,252	1,040,561	483,850	.....	312,320	1,528	15,396	.....	972	7
80,514	2,056,893	386,620	222,013	1,884,982	4,135,770	3,172,725	181,353	2,812,607	351,531	605,378	287,833	443,514	8
46,592	1,967,568	428,883	367,805	2,434,593	3,435,260	2,486,972	143,221	2,178,417	152,871	333,204	219,762	313,039	9
33,922	89,325	-42,263	-145,782	-549,601	700,490	685,753	38,132	634,190	198,660	272,174	68,071	130,475	10
72.8	4.5	-9.8	-39.6	-22.6	20.4	27.6	26.6	29.1	130.0	81.7	31.0	41.7	11
500	3,190,757	32,228	264,956	501,589	373,212	729,488	7,726	382,340	16,963	18,957	13,274	9,928	12
24,114	1,380,583	133,230	286,155	286,664	1,286,212	786,889	5,734	2,178,417	13,670	6,388	9,021	5,504	13
-23,614	1,810,174	-15,074	131,726	215,434	-213,452	-57,401	1,992	163,723	10,575	5,287	4,253	4,424	14
-97.9	131.1	-31.9	98.9	75.3	-36.4	-7.3	34.7	74.9	165.5	38.7	47.1	80.4	15
3,360	451,372	46,422	114,623	504,037	83,756	317,411	8,567	1,023,903	4,167	34,801	11,555	14,880	16
13,549	2,606,783	109,440	92,525	267,748	608,211	381,622	21,203	486,322	8,370	28,590	16,920	48,176	17
-10,189	-2,155,411	-63,018	22,098	236,289	-525,455	-64,211	-12,636	537,581	-4,203	6,211	-5,365	-33,296	18
-75.2	-82.7	-57.6	23.9	88.2	-86.2	-16.8	-59.6	110.5	-50.2	21.7	-31.7	-69.1	19
47,727	685,859	376,370	328,153	1,892,524	2,972,124	2,597,311	163,787	2,720,604	330,694	628,012	277,725	411,635	20
44,975	783,033	445,613	286,008	1,950,356	2,614,427	2,267,737	142,766	2,011,044	148,768	354,575	181,828	302,023	21
29,753	94,589	245,334	163,218	941,239	1,491,777	1,269,391	8,845	1,107,153	141,252	52,098	84,846	123,031	22
36,247	1,196,322	57,876	166,804	988,570	1,514,179	943,924	20,215	524,488	7,903	1,808	1,002	5,780	23
10,153	1,839,512	101,709	219,510	905,712	1,752,958	746,560	11,923	176,511	.....	637	1,100	.....	24
10,155	542,648	92,495	189,945	631,964	1,923,382	467,822	3,305	111,922	.....	67	.....	.....	25
400	3,616,841	31,024	106,635	9,524	106,445	678,389	13,644	973,758	34,064	29,316	33,995	50,907	26
29,127	3,332,389	38,303	88,042	132,428	263,770	641,186	15,469	695,801	18,861	20,252	62,775	64,696	27
25,544	999,836	20,651	10,508	28,241	64,432	529,115	.....	947,053	27,430	12,457	10,628	48,625	28
83,874	614,220	464,963	579,283	2,182,729	3,100,342	2,512,250	182,980	2,819,775	362,711	650,135	287,420	392,132	29
63,865	398,200	515,101	413,791	2,092,899	2,940,035	2,571,531	163,836	1,895,466	150,644	362,303	188,327	305,966	30
20,009	216,020	-50,136	165,492	89,830	160,307	-59,281	19,044	924,289	211,867	287,632	99,093	86,166	31
31.3	54.2	-9.7	40.0	4.3	5.4	-2.3	11.6	48.8	140.4	79.4	52.6	28.2	32
38,420	223,117	295,757	232,923	1,688,176	2,326,648	1,356,366	86,884	1,083,769	291,952	601,967	226,149	344,702	33
37,097	216,536	320,084	212,690	1,801,947	2,425,632	1,822,620	135,956	1,278,207	114,266	334,546	163,015	274,922	34
1,323	6,581	-24,327	20,233	-113,771	-98,984	-466,254	-49,072	-194,438	177,686	267,421	63,134	69,780	35
3.6	3.0	-7.6	9.5	-6.3	-4.1	-25.6	-36.1	-15.2	155.5	79.9	38.7	25.4	36
45,354	4,690,711	132,591	359,113	1,016,503	1,593,470	656,011	19,693	1,421,438	24,401	34,605	69,629	82,996	37
35,640	5,505,445	223,064	324,469	975,970	2,035,463	1,348,437	26,092	816,461	18,170	28,673	64,478	69,780	38
10,314	-814,734	-90,473	34,644	40,533	-441,993	-692,426	-6,399	604,977	6,231	5,932	5,151	13,216	39
28.9	-14.8	-40.6	10.7	4.2	-21.7	-51.4	-24.5	74.1	34.3	20.7	8.0	18.9	40
.....	1,573,706	.....	6,037	87,562	683,535	160,269	4,393	688,332	.....	4,271	10,535	13,073	41
4,787	2,325,423	8,274	44,467	687,363	1,210,414	336,867	1,063	772,223	7,243	6,836	39,505	53,513	42
-4,787	-751,717	-8,274	-38,430	-599,801	-526,879	-178,598	3,330	-83,891	-7,243	-2,565	-28,970	-40,440	43
-100.0	-32.3	-100.0	-86.4	-87.3	-43.5	-52.7	313.3	-10.9	-100.0	-37.5	-73.3	-75.6	44
83,674	3,144,178	464,650	592,097	2,500,976	3,758,444	3,411,021	197,646	3,809,573	150,568	197,992	² 173,018	171,156	45
538.3	1,827.0	1,228.6	1,499.6	4,008.3	4,687.8	5,978.0	334.3	4,007.3	315.7	375.8	² 318.2	423.8	46
.....	655,365	.....	1,250	1,744,338	1,625,024	1,242,274	.....	145,758	.....	.....	.....	.....	47
.....	2,274,451	.....	9,495	³ 371,330	777,117	663,287	.....	158,296	.....	2,600	6,113	.....	48
.....	1,949.1	.....	8.4	³ 299.8	1,220.8	550.1	.....	206.0	.....	4.5	7.2	.....	49
.....	282.6	.....	30.0	³ 190.5	326.4	385.3	.....	61.7	.....	5.5	7.2	.....	50
.....	1,178,342	.....	.....	³ 320,777	386,155	242,747	.....	2,000	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
.....	.....	620	.....	18,312	9,480	.....	.....	117,720	187,577	71,944	131,366	277,294	59
.....	.....	3.2	.....	36.0	27.2	.....	.....	322.0	58.2	198.8	317.9	529.1	60
.....	.....	2.0	.....	34.1	10.8	.....	.....	7.1	6.6	74.0	254.1	288.6	61
.....	.....	.....	.....	18,312	2,800	.....	.....	114,520	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	.....	29,500	.....	.....	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	.....	47.0	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	.....	54.0	.....	.....	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
700	280,393	.....	.....	(³)	47,697	145,316	.....	133,261	.....	386,371	(²)	10,027	68
12.0	1,246.0	.....	.....	(³)	94.5	577.4	.....	371.0	.....	389.0	(²)	20.0	69
2.0	.....	.....	.....	.....	.....	6.0	.....	7.0	.....	96.9	.....	5.0	70
5.0	188.0	.....	.....	(³)	6.0	239.1	.....	.....	.....	89.9	.....	.....	71
.....	114,262	.....	.....	(³)	44,267	102,145	.....	127,261	.....	.....	.....	.....	72

¹ Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches and levees.

² Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 17.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	MOUNTAIN DIVISION—Continued				PACIFIC DIVISION			
	New Mexico	Arizona	Utah	Nevada	Washington	Oregon	California	
LAND AREA								
1	Approximate land area.....acres.....1940..	77,767,040	72,691,200	52,701,440	70,273,280	42,865,280	61,664,000	100,353,920
2	Drainage enterprises.....number.....1940..	14	5	37	9	169	65	184
3	Land in enterprises.....acres.....1940..	305,885	298,633	202,058	153,373	405,709	348,825	2,667,194
4	.....1930..	176,292	318,931	156,052	162,980	367,242	211,182	2,233,714
5	.....1920..	140,219	39,640	113,823	15,940	94,924	4,000	1,108,319
6	Area of all enterprises, overlapping included.....acres.....1940..	305,885	300,907	204,150	153,373	433,340	353,915	2,755,767
7	Amount of overlapping.....acres.....1940..	.....	2,274	2,092	.....	27,631	5,090	88,563
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	284,474	297,382	123,237	133,677	368,293	299,317	2,270,049
9	.....1930..	144,750	313,112	142,941	160,109	329,166	153,381	2,011,189
10	Increase or decrease (-), 1930-1940.....acres.....	139,724	-15,730	-19,704	-26,432	39,127	145,936	258,860
11	.....percent.....	96.5	-5.0	-13.8	-16.5	11.9	95.1	12.9
12	Land undrained, unfit for any crop.....acres.....1940..	11,810	300	41,162	.....	5,903	28,610	135,362
13	.....1930..	15,220	4,125	5,600	139	9,879	30,575	12,619
14	Increase or decrease (-), 1930-1940.....acres.....	-3,410	-3,825	35,562	-139	-3,976	-1,965	122,743
15	.....percent.....	-22.4	-92.7	635.0	-100.0	-40.2	-6.4	972.7
16	Land partly drained, for partial crop.....acres.....1940..	9,601	951	37,659	19,696	31,513	20,898	261,783
17	.....1930..	16,322	1,694	7,511	2,732	28,197	27,226	209,906
18	Increase or decrease (-), 1930-1940.....acres.....	-6,721	-743	30,148	16,964	3,316	-6,328	51,877
19	.....percent.....	-41.2	-43.9	401.4	620.9	11.8	-23.2	24.7
20	Improved land.....acres.....1940..	240,810	295,976	135,666	89,721	349,576	269,233	2,400,998
21	.....1930..	146,557	309,112	137,962	122,918	332,265	144,253	2,007,987
22	.....1920..	92,477	36,880	97,314	7,970	81,886	4,000	1,038,835
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	2,874	.....	300	18,200	39,715	4,862	74,423
24	.....1930..	.....	75	4,759	.....	18,531	9,912	8,500
25	.....1920..	.....	.....	.....	.....	850	.....	12,263
26	Other unimproved land.....acres.....1940..	62,201	2,657	66,092	45,482	16,418	74,730	191,763
27	.....1930..	29,735	9,744	13,331	40,062	16,446	57,017	217,227
28	.....1920..	47,742	2,760	16,509	7,970	12,188	.....	57,221
29	Land in occupied farms.....acres.....1940..	286,890	296,276	140,148	148,617	380,964	302,870	2,551,036
30	.....1930..	151,516	304,802	109,518	155,491	351,898	146,576	2,024,446
31	Increase or decrease (-), 1930-1940.....acres.....	135,374	-8,526	30,630	-6,874	29,066	156,294	526,590
32	.....percent.....	89.3	-2.8	28.0	-4.4	8.2	106.6	26.0
33	Land in planted crops.....acres.....1940..	187,727	268,907	95,451	78,221	332,672	241,090	1,965,708
34	.....1930..	137,570	278,066	90,368	111,512	309,818	116,987	1,794,813
35	Increase or decrease (-), 1930-1940.....acres.....	50,157	-9,159	5,083	-33,291	22,854	124,103	170,895
36	.....percent.....	36.4	-3.3	5.6	-29.8	7.4	106.1	9.5
37	Land idle.....acres.....1940..	79,093	23,247	35,768	38,798	13,197	52,360	337,793
38	.....1930..	30,996	39,219	60,946	45,306	33,764	52,563	360,292
39	Increase or decrease (-), 1930-1940.....acres.....	48,097	-15,972	-25,178	-6,508	-20,567	-203	-22,499
40	.....percent.....	155.2	-40.7	-41.3	-14.4	-60.9	-0.4	-6.2
41	Land available for settlement.....acres.....1940..	26,242	.....	7,259	4,786	1,790	13,023	151,008
42	.....1930..	13,400	1,519	20,651	7,489	4,653	48,784	52,706
43	Increase or decrease (-), 1930-1940.....acres.....	12,842	-1,519	-13,392	-2,733	-2,863	-35,761	98,302
44	.....percent.....	95.8	-100.0	-64.8	-36.5	-61.5	-73.3	186.5
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	100,894	2,274	62,797	76,089	282,095	95,636	206,202
46	Length of these ditches.....miles.....	245.9	6.0	78.0	124.8	501.4	198.0	624.1
47	Part protected by levees of an outside agency.....acres.....	50,000	.....	.....	.....	1,600	.....	46,016
48	Land drained by open ditches and own levees.....acres.....	92,250	.....	.....	.....	14,310	1,232	259,103
49	Length of these ditches.....miles.....	244.3	.....	.....	.....	70.9	8.8	332.2
50	Length of these levees.....miles.....	135.4	.....	.....	.....	20.5	4.2	152.9
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	7,543	.....	65,989
52	Land drained by tile only.....acres.....	4,443	.....	25,350	.....	14,868	.....	7,377
53	Length of these tile.....miles.....	50.0	.....	236.5	.....	61.1	.....	34.6
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	7,200
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	2,227
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	3.0
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	5.0
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	77,620	1,800	101,911	.....	50,475	106,193	32,526
60	Length of these open ditches.....miles.....	37.9	1.5	184.8	.....	126.6	66.1	100.6
61	Length of these tile.....miles.....	256.4	0.5	1,170.1	.....	94.5	21.6	65.9
62	Part protected by levees of an outside agency.....acres.....	1,000	.....	.....	.....	1,800	.....	1,500
63	Land drained by open ditches, tile, and levees.....acres.....	30,738	1,585	12,000	.....	9,451	.....	24,045
64	Length of these open ditches.....miles.....	97.1	1.0	5.0	.....	46.0	.....	67.2
65	Length of these tile.....miles.....	2.5	3.0	212.0	.....	10.0	.....	10.7
66	Length of these levees.....miles.....	45.9	0.5	5.0	.....	1.0	.....	34.8
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	1,560	.....	2,000
68	Land in enterprises operating pumping plants ¹.....acres.....	.....	292,974	.....	77,294	34,510	145,764	2,135,714
69	Length of open ditches owned by these enterprises.....miles.....	.....	92.3	.....	301.6	140.1	507.2	4,967.0
70	Length of tile owned by these enterprises.....miles.....	.....	5.3	.....	.....	13.4	129.0	212.0
71	Length of levees owned by these enterprises.....miles.....	.....	24.0	.....	23.0	50.9	139.0	1,944.9
72	Part protected by levees of an outside agency.....acres.....	.....	50,000	.....	.....	16,737	2,127	168,736

¹Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 18.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	TOTAL (38 Drainage States)	GEOGRAPHIC DIVISIONS				
		East North Central	West North Central	South Atlantic ¹	East South Central ¹	West South Central
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	2 42,363	32,014	7,106	941	710	918
2 Open ditches:						
3 Completed.....miles.....1940..	146,152.3	68,791.8	29,807.1	9,911.5	7,083.9	18,376.4
4 ..1930..	138,673.0	71,009.3	27,437.1	7,556.0	6,639.9	16,640.3
5 ..1920..	107,468.2	64,924.3	23,912.7	3,701.6	3,256.8	7,672.8
6 Additional length authorized.....miles.....1940..	822.9	51.1	24.7	50.5	2.8	426.5
7 Tile drains:						
8 Completed.....miles.....1940..	55,734.0	28,677.2	23,519.9	2.0	36.1	30.9
9 ..1930..	55,031.9	27,429.5	23,587.5	190.0	114.5	10.6
10 ..1920..	42,311.7	23,325.2	17,109.3	101.5	325.3	20.6
11 Additional length authorized.....miles.....1940..	321.5	54.2	7.0	.....	4.0	.....
12 Levees and dikes:						
13 Completed.....miles.....1940..	6,792.9	1,323.6	1,660.3	479.6	220.5	1,018.5
14 ..1930..	6,539.5	1,286.2	1,538.3	751.4	257.5	994.1
15 ..1920..	3,503.8	866.4	698.6	99.7	49.2	627.3
16 Additional length authorized.....miles.....1940..	37.1	.....	2.0	.....	.....	10.0
17 Pumping plants:						
18 Engine capacity.....horsepower.....1940..	102,196	23,788	6,535	7,364	.....	11,577
19 ..1930..	99,747	19,164	7,423	8,125	370	7,520
20 ..1920..	64,389	20,190	6,003	1,275	250	7,665
21 Pump capacity.....gal. per min.....1940..	20,716,025	3,766,433	1,362,706	3,414,600	.....	5,156,582
22 ..1930..	17,854,824	3,251,040	1,515,830	2,984,799	103,000	3,146,930
23 ..1920..	15,229,166	2,964,014	1,086,800	1,083,600	78,000	5,245,150
24 Land served by pumps.....acres.....1940..	2,316,867	384,849	132,896	185,893	.....	144,956
25 ..1930..	2,174,803	342,879	139,520	230,072	8,040	162,503
26 ..1920..	1,414,010	315,879	207,124	107,440	4,000	140,809
27 Wells pumped for drainage.....number.....1940..	488	.....	4	.....	.....	2
28 ..1930..	444	.....	3	.....	.....	44
CAPITAL INVESTED						
29 Capital invested to January 1.....dollars.....1940..	691,724,519	199,989,982	210,066,013	53,240,835	34,709,421	78,831,043
30 ..1930..	680,250,255	209,397,588	206,190,547	53,632,283	35,325,823	73,571,767
31 ..1920..	372,273,567	134,269,666	121,562,077	18,847,093	11,523,633	28,946,385
32 Estimated cost when completed.....dollars.....1940..	685,692,376	200,237,943	210,279,511	53,631,454	34,718,199	79,702,540
33 ..1930..	689,596,354	210,767,200	207,343,139	56,749,686	35,676,888	73,295,446
34 ..1920..	434,594,979	143,722,327	133,194,663	33,323,268	13,830,251	42,357,607
35 Average cost per acre when completed.....dollars.....1940..	8.00	6.13	8.96	7.21	8.77	6.02
36 ..1930..	8.17	6.29	8.75	8.18	8.56	6.46
37 ..1920..	6.64	4.54	6.93	13.97	5.95	5.35
38 Invested in and required for completion, 1940:						
39 Enterprises having open ditches only.....dollars..	295,192,221	89,139,060	78,400,328	32,708,143	31,195,501	49,133,802
40 Average amount per acre.....dollars..	5.25	4.16	5.62	6.71	8.77	4.40
41 Enterprises having open ditches and levees.....dollars..	79,127,798	9,195,060	27,473,148	13,998,637	3,431,160	19,495,331
42 Average amount per acre.....dollars..	11.61	20.63	15.82	6.14	9.01	12.19
43 Enterprises having tile only.....dollars..	77,854,680	35,051,679	40,554,716	.....	.....	.....
44 Average amount per acre.....dollars..	11.02	8.79	13.49	.....	.....	.....
45 Enterprises having tile and levees.....dollars..	223,410	58,689	127,000	.....	.....	.....
46 Average amount per acre.....dollars..	15.96	16.93	15.28	.....	.....	.....
47 Enterprises having open ditches and tile.....dollars..	114,081,518	39,784,547	57,380,239	.....	91,538	1,279,841
48 Average amount per acre.....dollars..	9.44	6.25	12.67	.....	4.94	10.06
49 Enterprises having ditches, tile, and levees.....dollars..	3,109,473	539,688	839,610	.....	.....	.....
50 Average amount per acre.....dollars..	16.67	13.89	20.82	.....	.....	.....
51 Enterprises operating pumping plants ⁴.....dollars..	125,103,275	26,469,220	5,504,470	6,924,674	.....	9,793,566
52 Average amount per acre.....dollars..	28.55	63.30	27.16	24.63	.....	30.02
MAINTENANCE AND OPERATION						
53 Cost of maintenance and operation in 1939:						
54 By enterprises operating pumping plants.....dollars..	2,295,593	559,470	136,524	237,223	(5)	165,857
55 Enterprises reporting.....number..	304	66	24	15	1	24
56 Land in these enterprises.....acres....	3,818,413	374,331	184,102	281,093	(5)	295,544
57 Average cost per acre.....dollars....	0.60	1.49	0.74	0.84	(5)	0.56
58 By enterprises not operating pumping plants.....dollars..	3,701,079	760,544	873,973	225,678	183,194	1,167,517
59 Enterprises reporting.....number..	4,621	1,539	1,987	163	177	420
60 Land in these enterprises.....acres....	27,943,850	3,210,725	7,351,967	5,109,276	1,462,203	6,442,676
61 Average cost per acre.....dollars....	0.13	0.24	0.12	0.04	0.12	0.14
62 Federal aid in maintenance						
63 Enterprises reporting.....number..	4,865	3,719	321	422	107	144
64 Land in these enterprises.....acres....	14,762,880	4,313,419	2,758,371	2,039,181	508,961	3,972,207
FINANCIAL CONDITION						
65 Drainage taxes collected in 1939.....dollars..	13,446,869	2,155,768	3,377,931	799,336	1,078,349	3,159,869
66 Enterprises reporting.....number..	4,087	1,374	1,356	202	422	368
67 Land in these enterprises.....acres....	32,467,755	3,491,122	7,073,762	5,175,701	3,095,534	10,074,934
68 Average amount collected per acre.....dollars..	0.41	0.62	0.48	0.15	0.35	0.31
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	9,168,557	391,091	821,743	5,501,430	351,468	1,682,671
70 Enterprises reporting.....number..	1,930	592	418	213	278	246
71 Land in these enterprises.....acres....	21,647,569	1,493,762	3,678,947	5,867,660	1,398,857	7,725,357
72 Portion delinquent in these enterprises.....percent..	42.4	26.2	22.3	93.8	25.1	21.8
73 Total indebtedness, Dec. 31, 1939.....dollars..	137,745,272	8,908,814	19,897,551	34,199,634	9,345,105	28,868,779
74 Enterprises reporting.....number..	4,014	1,449	1,246	217	399	376
75 Land in these enterprises.....acres....	6 32,057,392	2,810,885	6,751,438	5,997,113	2,773,743	9,937,411
76 Average indebtedness per acre.....dollars..	4.30	3.17	2.95	5.70	3.37	2.90
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	38,488,274	1,484,704	2,598,895	21,540,154	2,776,590	3,484,937
78 Enterprises reporting.....number..	1,015	237	220	158	218	91
79 Land in these enterprises.....acres....	7 11,541,134	923,092	1,417,668	5,026,074	829,625	1,829,051
80 Average arrearage per acre.....dollars..	3.34	1.63	1.83	4.28	3.35	1.90
81 Reduction of debt by refinancing, prior to 1940.....dollars..	51,467,173	4,416,693	9,782,989	9,753,682	6,035,225	15,460,985
82 Enterprises reporting.....number..	488	54	82	52	95	111
83 Land in these enterprises.....acres....	8,017,593	337,976	1,129,352	839,907	1,684,591	2,790,253
84 Average reduction per acre.....dollars..	6.42	13.07	8.66	11.61	3.58	5.54

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division. ²An intercounty enterprise is counted in each county in which a part is located. The number of separate drainage enterprises in the 38 States is 39,597. Concerning comparison with earlier Censuses, see text. ³Revised. ⁴Data in lines 46 and 47 are not included in lines 34 to 45. ⁵Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants. ⁶Does not include 28,567 acres of land in enterprises reporting debt but not showing amount of debt as follows: Illinois, 3,914 acres; Wisconsin, 1,080 acres; North Carolina, 2,257 acres; Mississippi, 4,087 acres; Arkansas, 14,000 acres; Washington, 650 acres; and California, 2,579 acres. ⁷Includes 108,579 acres of land in enterprises reporting arrearage but not showing amount of arrearage as follows: Illinois, 15,967 acres; Wisconsin, 1,080 acres; Missouri, 11,000 acres; North Carolina, 2,257 acres; Georgia, 1,150 acres; Mississippi, 4,087 acres; Arkansas, 21,816 acres; Oklahoma, 24,000 acres; Washington, 10,222 acres; and California, 17,000 acres.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 18.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND

ITEM (See definitions in Introduction)	GEOGRAPHIC DIV.—Con.		EAST NORTH CENTRAL DIVISION			
	Mountain	Pacific	Ohio	Indiana	Illinois	Michigan
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	256	418	12,222	9,271	1,961	8,130
2 Open ditches:						
3 Completed.....miles.....1940..	4,425.4	7,756.2	18,732.2	22,008.1	6,862.2	19,608.6
4 1930..	3,542.7	5,847.7	25,048.2	20,786.8	5,996.4	17,188.5
5 1920..	827.7	3,172.2	24,984.0	17,470.7	4,754.5	16,023.8
6 Additional length authorized.....miles.....1940..	202.9	64.4	9.7	10.9	4.0	26.5
7 Tile drains:						
8 Completed.....miles.....1940..	2,812.1	655.8	10,163.9	10,754.7	4,246.6	3,229.5
9 1930..	2,971.9	727.9	9,371.6	10,438.7	3,825.6	3,490.2
10 1920..	1,248.2	181.6	9,205.3	8,227.6	3,507.1	2,173.9
11 Additional length authorized.....miles.....1940..	1.0	255.3	10.5	13.6	7.7	2.4
12 Levees and dikes:						
13 Completed.....miles.....1940..	337.2	1,753.2	5.2	139.0	1,157.8	13.6
14 1930..	124.3	1,589.7	0.3	131.9	1,108.4	34.6
15 1920..	37.5	1,131.1	9.6	165.8	650.2	33.1
16 Additional length authorized.....miles.....1940..		25.1				
17 Pumping plants:						
18 Engine capacity.....horsepower.....1940..	4,345	48,482		515	23,206	17
19 1930..	12,242	44,903	25	166	18,658	275
20 1920..	460	28,526	125	625	18,225	1,065
21 Pump capacity.....gal. per min.....1940..	286,450	6,711,460		47,333	3,648,100	6,000
22 1930..	631,325	6,221,900	5,000	48,000	3,156,700	36,340
23 1920..	69,860	4,699,042	3,600	55,348	2,843,066	62,000
24 Land served by pumps.....acres.....1940..	146,596	1,298,602		5,412	375,437	800
25 1930..	170,484	1,101,305	348	2,763	331,448	8,270
26 1920..	32,912	604,446	1,755	5,611	291,816	10,100
27 Wells pumped for drainage.....number.....1940..	91	390				
28 1930..	178	219				
CAPITAL INVESTED						
29 Capital invested to January 1.....dollars.....1940..	33,928,327	80,958,898	35,215,586	47,540,385	72,567,174	40,412,251
30 1930..	27,877,424	75,254,823	36,836,449	54,110,854	² 74,565,923	37,677,084
31 1920..	7,839,941	49,284,572	30,680,145	31,147,682	43,595,069	24,683,715
32 Estimated cost when completed.....dollars.....1940..	35,023,810	82,098,919	35,279,998	47,581,041	72,617,674	40,479,644
33 1930..	29,014,174	76,749,821	36,836,449	54,203,346	² 75,728,447	37,778,550
34 1920..	12,508,817	55,658,046	30,771,620	31,943,858	51,393,244	25,046,980
35 Average cost per acre when completed.....dollars.....1940..	12.63	23.99	4.56	4.70	14.26	4.51
36 1930..	14.73	27.29	4.51	5.31	15.05	4.11
37 1920..	15.44	46.10	3.80	3.52	13.15	2.57
38 Invested in and required for completion, 1940:						
39 Enterprises having open ditches only.....dollars..	10,065,350	5,983,022	17,847,814	24,742,312	14,869,919	29,203,860
40 Average amount per acre.....dollars..	10.79	10.25	3.74	3.74	7.95	3.83
41 Enterprises having open ditches and levees.....dollars..	1,757,885	3,848,577	56,189	826,967	8,229,162	43,787
42 Average amount per acre.....dollars..	17.41	14.01	18.65	13.78	22.02	10.78
43 Enterprises having tile only.....dollars..	1,574,469	673,816	10,772,897	11,485,767	6,702,152	5,806,536
44 Average amount per acre.....dollars..	33.46	30.29	8.06	8.18	9.29	11.54
45 Enterprises having tile and levees.....dollars..		37,721	1,653	581	55,000	1,455
46 Average amount per acre.....dollars..		16.94	31.79	0.78	25.34	2.89
47 Enterprises having open ditches and tile.....dollars..	13,481,445	2,163,908	6,576,533	10,219,199	16,098,181	5,409,465
48 Average amount per acre.....dollars..	15.87	11.44	4.08	5.06	9.46	6.38
49 Enterprises having ditches, tile, and levees.....dollars..	1,353,822	376,353	24,912	109,443	401,553	3,780
50 Average amount per acre.....dollars..	18.34	11.24	10.94	9.09	16.66	8.59
51 Enterprises operating pumping plants ⁴.....dollars..	6,770,839	69,015,522		196,772	26,261,707	10,741
52 Average amount per acre.....dollars..	8.83	29.80		12.28	66.06	13.43
MAINTENANCE AND OPERATION						
53 Cost of maintenance and operation in 1939:						
54 By enterprises operating pumping plants.....dollars..	91,140	1,073,396		(⁵)	556,930	540
55 Enterprises reporting.....number..	23	150		2	63	1
56 Land in these enterprises.....acres..	490,083	2,104,063		(⁵)	373,881	450
57 Average cost per acre.....dollars..	0.18	0.51		(⁵)	1.49	1.20
58 By enterprises not operating pumping plants.....dollars..	316,003	205,573	26,274	⁶ 45,638	490,414	178,778
59 Enterprises reporting.....number..	165	170	59	232	547	613
60 Land in these enterprises.....acres..	1,685,765	754,701	55,233	⁶ 173,999	1,931,725	753,409
61 Average cost per acre.....dollars..	0.19	0.27	0.48	⁶ 0.26	0.25	0.24
62 Federal aid in maintenance:						
63 Enterprises reporting.....number..	59	93	353	341	190	2,761
64 Land in these enterprises.....acres..	646,541	524,200	378,201	469,589	923,684	2,256,968
FINANCIAL CONDITION						
65 Drainage taxes collected in 1939.....dollars..	693,537	2,170,716	149,837	133,868	1,617,438	233,665
66 Enterprises reporting.....number..	146	216	216	176	415	634
67 Land in these enterprises.....acres..	1,764,913	1,776,075	365,642	369,036	1,837,053	828,322
68 Average amount collected per acre.....dollars..	0.39	1.22	0.41	0.36	0.88	0.28
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	158,259	261,056	19,688	62,207	143,747	37,026
70 Enterprises reporting.....number..	89	94	134	115	115	198
71 Land in these enterprises.....acres..	548,533	927,920	158,999	318,300	593,474	234,559
72 Portion delinquent in these enterprises.....percent..	28.6	28.1	12.4	19.5	24.2	15.8
73 Total indebtedness, Dec. 31, 1939.....dollars..	17,130,464	19,394,925	303,447	429,245	6,974,400	809,579
74 Enterprises reporting.....number..	153	174	313	266	158	673
75 Land in these enterprises.....acres..	1,630,714	2,156,088	486,719	689,172	860,834	574,776
76 Average indebtedness per acre.....dollars..	10.50	9.00	0.62	0.62	8.10	1.41
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	3,464,797	3,138,197	26,491	131,634	842,282	156,741
78 Enterprises reporting.....number..	46	45	4	101	53	59
79 Land in these enterprises.....acres..	258,390	1,257,234	13,065	451,083	232,061	64,770
80 Average arrearage per acre.....dollars..	13.41	2.50	2.03	0.29	3.90	2.42
81 Reduction of debt by refinancing, prior to 1940.....dollars..	2,450,883	3,482,216	767	9,752	4,302,649	1,250
82 Enterprises reporting.....number..	52	42	7	2	40	1
83 Land in these enterprises.....acres..	359,296	860,504	3,331	5,980	313,725	1,000
84 Average reduction per acre.....dollars..	6.82	4.05	0.23	1.63	13.71	1.25

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

²Revised.

³Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches and tile drains.

⁴Data in lines 46 and 47 are not included in lines 34 to 45.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

E. N. CEN. DIV.—Con.	WEST NORTH CENTRAL DIVISION							SOUTH ATLANTIC DIVISION					
	Wisconsin	Minnesota	Iowa	Missouri	North Dakota	South Dakota	Nebraska	Kansas	Delaware	Maryland	Virginia ¹	North Carolina	South Carolina
430	2,732	3,439	338	145	215	145	92	287	126	4	288	32	1
1,590.7	15,856.7	5,189.7	5,191.5	940.4	840.7	1,406.7	381.4	1,482.3	461.3	89.0	1,846.6	459.9	2
1,989.4	14,477.6	4,800.0	4,960.5	817.6	854.4	1,202.3	324.7	.....	.....	40.0	1,483.5	423.0	3
1,691.3	14,657.0	3,998.0	3,438.7	708.3	237.8	734.5	138.4	.....	.....	.....	1,171.3	262.7	4
.....	0.3	0.6	23.8	.....	.....	.....	.....	2.5	.....	.....	48.0	.....	5
262.5	9,893.4	12,873.2	170.3	10.4	335.8	26.3	210.5	.....	.....	.....	.....	.....	6
303.4	9,451.3	13,982.4	123.4	9.6	315.3	93.4	212.1	.....	.....	.....	.....	150.0	7
211.3	5,924.6	10,384.9	38.8	9.3	179.3	359.4	213.0	.....	.....	.....	.....	101.5	8
20.0	6.0	1.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
8.0	0.4	456.8	687.1	.....	7.4	230.3	278.3	.....	.....	.....	4.0	.....	10
9.0	149.7	113.4	931.4	.....	.....	116.8	227.0	.....	.....	.....	22.0	11.0	11
7.7	0.1	45.2	456.9	2.1	2.4	26.8	165.1	.....	.....	.....	33.5	.....	12
.....	.....	.....	2.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
50	30	3,900	2,115	.....	.....	70	420	.....	.....	.....	.....	.....	14
40	75	4,625	2,533	.....	.....	70	120	.....	.....	.....	3,000	.....	15
150	.....	3,153	2,785	.....	.....	.....	65	.....	.....	.....	1,000	155	16
65,000	10,000	824,500	502,000	.....	.....	2,200	24,000	.....	.....	.....	1,000,000	.....	17
5,000	12,700	881,500	607,430	.....	.....	2,200	12,000	.....	.....	.....	1,000,000	.....	18
.....	.....	530,800	552,000	.....	.....	.....	4,000	.....	.....	.....	1,000,000	44,600	19
3,200	1,315	81,754	64,527	.....	.....	300	5,000	.....	.....	.....	.....	.....	20
50	815	84,801	71,604	.....	.....	300	2,000	.....	.....	.....	100,000	.....	21
6,597	.....	134,616	70,308	.....	.....	.....	2,200	.....	.....	.....	100,000	2,940	22
.....	.....	.....	1	.....	.....	3	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	24
4,254,586	65,576,077	75,374,497	49,050,414	3,673,336	5,078,771	7,578,999	3,733,919	454,883	43,914	611,300	5,467,906	1,241,300	25
6,207,278	64,139,641	77,478,893	47,340,174	3,148,919	4,534,768	6,847,070	2,701,082	.....	.....	241,608	4,719,079	1,265,276	26
4,163,055	42,017,447	49,627,304	20,723,128	2,208,049	1,461,063	4,588,578	936,508	.....	.....	.....	3,623,518	582,163	27
4,279,586	65,616,075	75,391,497	49,106,914	3,673,336	5,078,771	7,578,999	3,833,919	454,963	43,914	611,300	5,858,445	1,241,300	28
6,220,398	64,149,641	77,690,195	47,902,514	3,148,919	4,794,768	6,946,020	2,721,082	.....	.....	241,608	4,848,738	1,333,276	29
4,564,625	44,183,838	54,169,878	24,749,735	2,261,449	1,732,729	4,886,681	1,210,353	.....	.....	.....	4,526,018	936,514	30
5.62	5.97	12.23	15.91	2.67	7.51	8.27	14.85	1.15	0.24	13.97	7.10	6.07	31
6.97	5.59	12.66	15.21	2.88	6.86	7.90	10.58	.....	.....	16.06	7.14	6.40	32
5.74	4.79	10.37	9.53	1.82	7.80	8.04	12.90	.....	.....	.....	8.34	6.69	33
2,475,135	28,128,874	14,301,019	25,763,005	3,623,013	2,790,503	3,235,075	558,839	454,963	43,914	611,300	5,820,345	1,241,300	34
4.52	3.41	9.53	13.85	2.65	5.77	7.59	7.69	1.15	0.24	13.97	7.09	6.07	35
38,955	50,129	2,221,962	19,857,603	.....	18,283	3,212,191	2,113,580	.....	.....	.....	38,100	.....	36
7.88	20.09	13.82	19.15	.....	8.46	8.94	12.12	.....	.....	.....	7.40	.....	37
284,327	11,799,417	27,646,097	.....	48,250	1,060,952	.....	.....	.....	.....	.....	.....	.....	38
14.84	12.83	13.82	.....	5.34	13.70	.....	.....	.....	.....	.....	.....	.....	39
.....	.....	.....	127,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	.....	.....	15.28	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
1,481,169	25,515,945	28,939,319	868,607	2,073	1,209,033	845,262	.....	.....	.....	.....	.....	.....	42
7.84	13.97	12.10	8.67	1.62	10.64	8.84	.....	.....	.....	.....	.....	.....	43
.....	28,592	516,819	189,699	.....	.....	93,000	11,500	.....	.....	.....	.....	.....	44
.....	11.53	21.49	19.39	.....	.....	31.00	11.27	.....	.....	.....	.....	.....	45
(8)	93,118	1,766,881	2,301,000	.....	.....	193,471	1,150,000	.....	.....	.....	.....	.....	46
(9)	70.81	20.17	32.12	.....	.....	6.02	115.23	.....	.....	.....	.....	.....	47
.....	751	79,482	29,131	.....	.....	2,160	25,000	.....	.....	.....	.....	.....	48
.....	1	10	11	.....	.....	1	1	.....	.....	.....	.....	.....	49
.....	1,315	72,512	71,637	.....	.....	32,138	6,500	.....	.....	.....	.....	.....	50
.....	0.57	1.10	0.41	.....	.....	0.07	3.85	.....	.....	.....	.....	.....	51
19,440	142,237	247,519	400,609	4,420	2,311	59,839	17,038	5,051	1,540	(9)	15,413	800	52
88	561	1,154	165	7	7	44	49	20	5	2	57	1	53
296,359	1,877,194	2,640,993	2,069,843	58,648	104,146	419,941	181,212	29,582	15,199	(9)	55,743	5,600	54
0.06	0.08	0.09	0.19	0.08	0.02	0.14	0.09	0.17	0.10	(9)	0.28	0.14	55
74	89	129	92	.....	1	4	6	205	121	.....	76	4	56
284,977	298,454	853,956	1,548,099	.....	(9)	30,459	27,403	283,669	178,106	.....	314,561	67,481	57
20,960	1,114,425	544,303	1,290,413	179	40,740	130,173	257,698	5,028	1,601	(9)	41,125	24,849	58
33	728	353	179	1	15	46	34	17	6	2	64	12	59
91,069	2,877,164	1,141,202	2,230,253	2,960	231,576	444,790	145,817	35,473	15,975	(9)	144,327	114,839	60
0.23	0.39	0.48	0.58	0.06	0.18	0.29	1.77	0.14	0.10	(9)	0.28	0.21	61
128,428	278,473	43,001	435,261	2,086	25,225	31,960	5,737	1,195	(9)	41,664	122,674	101,358	62
30	207	31	129	2	12	27	10	3	1	4	28	16	63
188,430	1,213,033	150,472	1,773,470	6,320	182,378	291,918	61,856	12,979	(9)	43,759	182,561	119,290	64
68.2	23.0	28.6	24.5	33.0	13.8	10.9	9.4	9.2	(9)	95.2	67.2	85.0	65
392,143	6,034,528	1,286,932	8,174,355	184,096	1,132,904	1,278,621	1,806,105	1,271	.....	169,500	686,601	636,250	66
39	768	227	170	5	20	36	20	6	.....	4	34	26	67
199,384	3,093,134	900,147	1,892,734	31,048	311,342	431,905	91,128	8,468	.....	43,759	267,455	182,426	68
1.97	1.95	1.43	4.32	5.93	3.64	2.96	19.82	0.15	.....	3.87	2.39	4.68	69
327,556	317,729	208,127	1,927,224	5,765	91,800	40,250	8,000	.....	.....	41,500	518,388	372,150	70
20	94	51	61	2	6	4	2	.....	.....	3	25	15	71
162,093	360,407	264,169	598,352	6,320	150,438	27,653	10,329	.....	.....	30,191	170,244	77,087	72
2.02	(7)	0.79	3.22	0.91	0.61	1.46	0.77	.....	.....	1.37	3.04	4.82	73
102,275	.....	892,092	8,653,382	.....	118,410	119,000	105	.....	.....	(9)	72,788	88,500	74
4	.....	7	62	.....	9	3	1	.....	.....	2	5	5	75
13,940	.....	61,436	1,014,414	.....	31,533	14,969	7,000	.....	.....	(9)	31,785	80,721	76
7.34	.....	14.52	8.53	.....	3.76	7.95	0.02	.....	.....	(9)	2.29	1.09	77

⁸Data for 2 enterprises operating pumping plants are included in those for enterprises not operating pumping plants.

⁹Where there are less than 3 enterprises reporting, data are included only in the totals for the 38 States.

⁷Not computed because acreage of 1 enterprise is included for which amount of arrearage was not reported.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

W.S. CEN. DIV.—Con.		MOUNTAIN DIVISION									PACIFIC DIVISION		
Oklahoma	Texas	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Washington	Oregon	California	
29	91	39	57	28	67	14	5	37	9	169	65	184	1
334.3	4,906.3	420.9	968.1	643.3	972.9	625.2	100.8	267.8	426.4	885.0	780.1	6,091.1	2
303.0	3,661.8	284.2	651.2	521.0	814.9	282.9	349.4	304.3	334.8	746.7	495.1	4,605.9	3
18.6	2,728.5	102.1	274.5	25.1	132.5	124.0	32.6	120.3	16.6	162.4	.....	3,009.8	4
.....	236.0	63.6	12.3	47.5	27.0	5.0	5.0	24.0	18.5	8.6	35.0	20.8	5
.....	14.1	73.8	174.6	262.1	365.3	308.9	8.8	1,618.6	.....	179.0	150.6	326.2	6
.....	8.5	76.7	19.9	237.6	369.5	305.4	14.3	1,944.5	4.0	199.2	42.5	486.2	7
.....	.....	50.7	1.8	114.2	195.2	282.2	1.0	599.1	4.0	83.0	13.0	85.6	8
.....	.....	.....	.....	1.0	.....	.....	.....	.....	.....	.....	200.0	55.3	9
.....	61.7	0.8	95.4	7.2	.....	181.3	24.5	5.0	23.0	72.4	143.2	1,537.6	10
.....	215.9	.....	74.8	.....	.....	12.0	2.5	2.0	33.0	76.8	121.4	1,389.5	11
.....	59.8	.....	9.5	.....	.....	.....	26.0	2.0	.....	.....	.....	1,131.1	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25.0	0.1	13
.....	186	.....	2,292	(?)	6	.....	2,025	.....	22	1,305	4,218	42,959	14
.....	510	.....	1,435	.....	.....	.....	10,789	.....	18	982	2,173	41,748	15
.....	.....	.....	285	.....	.....	.....	175	20	.....	.....	.....	28,526	16
.....	42,982	.....	211,850	(?)	900	.....	71,000	.....	2,700	240,750	742,923	5,727,757	17
.....	33,930	.....	171,675	.....	.....	.....	458,750	.....	900	184,500	488,800	5,548,600	18
.....	.....	.....	36,200	.....	.....	.....	33,660	2,700	.....	.....	.....	4,699,042	19
.....	17,990	.....	53,938	(?)	80	.....	92,378	.....	200	26,745	51,795	1,220,062	20
.....	21,079	.....	40,434	.....	.....	.....	130,000	.....	50	19,857	59,386	1,022,062	21
.....	.....	.....	7,912	.....	.....	.....	25,000	1,400	.....	.....	.....	604,446	22
.....	2	.....	57	(?)	4	.....	30	.....	.....	3	14	373	23
.....	44	.....	6	.....	.....	.....	172	.....	.....	.....	1	218	24
1,971,350	14,047,181	2,827,839	7,567,032	5,594,856	4,890,317	5,722,121	1,119,242	4,869,273	1,337,647	5,332,842	5,482,012	70,144,044	25
2,293,598	12,002,949	1,879,296	5,112,444	5,250,573	4,358,866	3,279,371	1,875,100	4,772,000	1,349,774	4,637,576	4,165,549	66,451,698	26
76,415	5,700,805	664,990	1,668,569	1,176,962	1,081,875	1,710,796	414,425	1,005,473	117,951	1,397,419	200,000	47,687,153	27
1,971,350	14,503,278	2,928,579	8,177,119	5,728,123	4,972,698	5,772,121	1,146,242	4,941,273	1,357,657	5,367,442	5,951,454	70,780,023	28
2,303,798	12,186,628	1,989,427	5,345,944	5,593,032	4,385,866	3,474,631	2,005,100	4,804,000	1,400,174	4,655,076	4,843,647	67,251,088	29
77,415	6,400,805	846,466	1,788,569	1,667,367	1,285,070	2,906,296	1,026,425	2,870,773	117,851	1,436,419	200,000	54,021,627	30
9.97	3.44	7.86	12.40	18.32	10.62	16.87	3.84	24.45	8.85	13.23	17.06	26.54	31
13.54	4.23	11.87	14.24	22.79	11.99	19.71	6.29	30.78	8.59	12.68	22.94	30.11	32
6.37	2.95	5.02	27.67	17.46	7.49	20.73	25.89	25.22	7.39	15.13	50.00	48.74	33
1,971,350	10,162,665	1,780,637	2,064,932	⁵ 1,417,344	1,817,279	2,255,508	95,500	350,934	303,186	2,272,258	851,035	2,959,729	34
8.97	2.67	11.83	10.43	⁸ 8.19	10.62	22.37	42.00	5.59	3.98	5.05	8.90	13.87	35
.....	978,909	.....	144,000	67,000	.....	1,546,885	.....	.....	.....	313,959	23,100	3,511,518	36
.....	6.18	.....	55.38	10.96	.....	16.77	.....	.....	.....	21.94	18.75	13.56	37
.....	.....	.....	370,000	18,582	125,673	231,412	158,477	670,325	.....	433,676	.....	240,140	38
.....	.....	.....	73.76	81.14	58.05	23.50	35.67	26.44	.....	25.17	.....	32.55	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37,721	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16.94	41
.....	1,027,641	252,570	1,274,670	4,118,106	2,863,284	1,212,801	40,000	3,720,014	.....	1,127,759	438,273	597,876	42
.....	8.73	1.35	17.72	31.35	9.98	15.62	22.22	36.50	.....	22.34	4.13	18.38	43
.....	.....	.....	.....	.....	.....	598,450	30,000	200,000	.....	100,000	.....	276,353	44
.....	.....	.....	.....	.....	.....	19.47	18.93	16.67	.....	10.58	.....	11.49	45
.....	2,334,063	.....	4,674,905	(?)	60,721	.....	980,742	.....	1,054,471	1,119,790	4,639,046	63,256,686	46
.....	17.51	.....	12.10	(?)	6.06	.....	3.35	.....	13.64	32.45	31.83	29.62	47
.....	17,048	.....	64,083	(?)	1,523	.....	6,000	.....	19,534	24,938	81,460	966,998	48
.....	2	.....	19	1	.....	.....	1	.....	1	14	25	111	49
.....	107,261	.....	350,394	(?)	10,027	.....	52,378	.....	77,284	33,353	145,410	1,925,300	50
.....	0.16	.....	0.18	(?)	0.15	.....	0.11	.....	0.25	0.75	0.56	0.50	51
.....	⁶ 351,191	.....	32,713										

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 19.—REPORTS, AREA ASSESSED, AND LAND INCLUDED, BY SIZE BASED ON INTERCOUNTY

[For an enterprise embracing land in more than one county, the part in each county, for this tabulation,

DIVISION AND STATE	TOTAL									LESS THAN 100 ACRES ¹					
	Reports ²			Area assessed ³			Land ⁴			Reports		Area assessed		Land	
	1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1930	1940	1930	1940	1930
	Number	Number	Number	Acres	Acres	Acres	Acres	Acres	Acres	Number	Number	Acres	Acres	Acres	Acres
1 Total (38 States)...	79,220	67,927	47,399	132,828,451	128,495,078	95,629,231	86,967,039	84,408,093	65,495,038	10,413	6,077	525,455	324,157	242,639	175,237
GEOGRAPHIC DIVISIONS:															
2 East North Central...	67,405	57,462	40,193	67,924,976	68,730,722	59,131,679	32,682,172	33,485,754	31,627,176	10,188	5,869	511,177	310,802	230,268	165,764
3 West North Central...	7,878	7,565	5,855	30,498,943	29,223,484	21,262,129	23,468,623	23,680,882	19,217,367	177	203	11,266	12,455	9,825	8,729
4 South Atlantic ⁵	1,382	369	261	8,740,277	8,369,509	2,517,852	7,435,448	6,941,716	2,385,384	32	5	2,005	279	1,549	279
5 East South Central ⁶ ..	756	751	441	4,260,359	4,385,744	2,326,635	3,957,480	4,157,681	2,323,595	7	4	468	162	468	162
6 West South Central...	1,106	1,177	344	15,065,589	12,912,395	8,363,124	13,228,858	11,340,152	7,924,197	.....	.....	.....	.....	.....	.....
7 Mountain.....	257	218	98	2,794,992	1,973,023	810,073	2,772,730	1,969,770	810,076	1	2	75	153	75	153
8 Pacific.....	436	385	197	3,543,012	2,900,101	1,217,796	3,421,728	2,812,138	1,207,243	8	4	404	306	464	130
EAST NORTH CENTRAL:															
9 Ohio.....	29,877	26,191	18,607	25,212,061	24,010,629	23,464,812	7,729,267	8,165,494	8,107,204	3,925	2,637	226,739	149,697	126,758	85,793
10 Indiana.....	22,963	18,339	11,348	19,972,525	23,049,787	15,015,221	10,121,952	10,214,014	9,087,183	5,456	2,565	234,818	120,776	69,853	53,983
11 Illinois.....	2,080	1,919	1,365	5,897,124	5,741,916	4,090,599	5,091,364	5,032,682	3,909,049	22	10	1,319	516	1,135	328
12 Michigan.....	12,041	10,640	8,563	16,070,273	15,032,692	15,766,478	8,978,386	9,180,851	9,729,171	762	623	46,784	38,582	32,125	24,429
13 Wisconsin.....	444	373	290	772,993	895,698	794,569	761,203	892,713	794,569	23	24	1,517	1,231	1,387	1,231
WEST NORTH CENTRAL:															
14 Minnesota.....	3,059	2,885	2,340	14,702,196	14,681,505	9,974,662	10,990,409	11,474,683	9,232,709	21	57	1,436	3,423	1,236	3,374
15 Iowa.....	3,804	3,730	2,893	7,544,931	7,397,644	5,905,743	6,164,344	6,137,649	5,224,478	148	138	9,376	8,604	8,145	4,927
16 Missouri.....	384	367	238	4,434,979	4,111,570	3,104,889	3,087,063	3,150,022	2,536,204	3	.....	134	.....	134	.....
17 North Dakota.....	164	152	137	1,840,781	1,183,382	1,240,328	1,376,041	1,094,142	1,240,328	.....	.....	.....	.....	.....	.....
18 South Dakota.....	223	205	90	711,572	697,758	234,201	676,472	697,758	222,062	4	7	240	348	230	348
19 Nebraska.....	152	138	123	1,005,541	893,899	708,450	916,181	879,459	607,730	1	1	80	80	80	80
20 Kansas.....	92	88	54	258,946	257,726	93,856	258,113	257,169	93,856	.....	.....	.....	.....	.....	.....
SOUTH ATLANTIC: ⁵															
21 Delaware.....	640	.....	.....	853,562	.....	.....	395,014	.....	.....	23	.....	1,379	.....	923	.....
22 Maryland.....	131	.....	.....	190,922	.....	.....	183,337	.....	.....	1	.....	99	.....	99	.....
23 Virginia ⁵	4	3	.....	43,759	15,042	.....	43,759	15,042	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	371	130	104	899,848	688,436	552,428	825,576	679,236	542,828	4	2	302	98	302	98
25 South Carolina.....	32	31	17	204,366	208,249	140,031	204,366	208,249	140,031	1	1	40	39	40	39
26 Georgia.....	78	59	46	84,374	84,255	65,452	84,374	84,255	65,452	3	2	185	142	185	142
27 Florida.....	126	146	94	6,463,446	7,373,627	1,759,941	5,699,022	5,954,934	1,637,073	.....	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL: ⁵															
28 Kentucky.....	193	216	179	515,617	626,408	358,480	465,270	585,625	358,480	5	.....	300	.....	300	.....
29 Tennessee.....	213	191	95	618,172	599,392	363,671	601,592	593,560	363,671	1	3	75	97	75	97
30 Mississippi.....	350	344	167	3,126,870	3,159,944	1,604,484	2,890,618	2,988,486	1,601,444	1	1	93	65	93	65
WEST SOUTH CENTRAL:															
31 Arkansas.....	323	316	174	5,633,299	5,764,808	3,842,812	4,592,738	4,631,155	3,479,591	.....	.....	.....	.....	.....	.....
32 Louisiana.....	661	741	111	4,703,474	4,093,113	2,342,034	4,219,624	3,655,483	2,266,328	.....	.....	.....	.....	.....	.....
33 Oklahoma.....	29	33	5	197,646	171,118	12,150	197,646	170,158	12,150	.....	.....	.....	.....	.....	.....
34 Texas.....	93	87	54	4,531,170	2,883,356	2,166,128	4,218,850	2,883,356	2,166,128	.....	.....	.....	.....	.....	.....
MOUNTAIN:															
35 Montana.....	40	27	17	374,189	167,629	168,682	372,661	167,629	168,682	.....	.....	.....	.....	.....	.....
36 Idaho.....	57	50	13	674,532	375,464	64,642	659,136	375,464	64,642	1	2	75	153	75	153
37 Wyoming.....	28	26	15	312,662	248,316	95,474	312,662	245,703	95,474	.....	.....	.....	.....	.....	.....
38 Colorado.....	67	58	24	469,294	367,359	171,656	468,322	366,719	171,656	.....	.....	.....	.....	.....	.....
39 New Mexico.....	14	11	8	305,885	176,292	140,219	305,885	176,292	140,219	.....	.....	.....	.....	.....	.....
40 Arizona.....	5	7	3	300,907	318,931	39,640	298,633	318,931	39,640	.....	.....	.....	.....	.....	.....
41 Utah.....	37	32	17	204,150	156,052	113,823	202,058	156,052	113,823	.....	.....	.....	.....	.....	.....
42 Nevada.....	9	7	1	153,373	162,980	15,940	153,373	162,980	15,940	.....	.....	.....	.....	.....	.....
PACIFIC:															
43 Washington.....	182	172	52	433,340	394,851	105,477	405,709	367,242	94,924	5	2	285	156	285	.....
44 Oregon.....	66	51	1	353,915	211,182	4,000	348,825	211,182	4,000	2	2	177	150	177	150
45 California.....	188	162	144	2,755,757	2,294,066	1,108,319	2,667,194	2,233,714	1,108,319	1	.....	2	.....	2	.....

¹ Enterprises of less than 100 acres are included also in the group "Less than 200 acres."² Number of reports for 1940 is comparable to number of enterprises published for 1930 and 1920. See text, Number of enterprises.³ The sum of the areas in the individual enterprises, without deduction for overlapping.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

ENTERPRISES DIVIDED ON COUNTY LINES, BY DIVISIONS AND STATES: 1940, 1930, AND 1920
 was treated as a separate enterprise. For tabulation of each enterprise as a whole, see table 20]

LESS THAN 200 ACRES ¹									200 TO 499 ACRES									
Reports			Area assessed			Land			Reports			Area assessed			Land			
1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1930	1920	
Number	Number	Number	Acres	Acres	Acres	Acres	Acres	Acres	Number	Number	Number	Acres	Acres	Acres	Acres	Acres	Acres	
20,297	13,176	9,075	1,872,325	1,364,821	1,152,025	939,301	750,028	791,506	21,394	17,880	13,130	7,093,485	5,984,023	5,222,615	3,439,442	3,292,826	3,263,873	1
19,623	12,563	8,464	1,891,415	1,292,514	1,079,778	870,598	698,977	731,461	19,768	16,535	11,786	6,532,850	5,522,439	4,758,575	2,963,718	2,916,646	2,860,268	2
503	565	590	59,897	66,602	69,024	54,593	46,266	57,144	1,148	1,208	1,256	396,430	413,658	431,234	361,892	331,376	372,502	3
123	10	8	15,327	947	648	9,247	947	648	321	25	17	108,318	8,711	5,761	64,306	8,711	5,761	4
17	14	17	1,887	1,558	1,772	1,742	1,558	1,772	92	66	57	32,844	22,923	20,587	27,486	22,923	20,587	5
2	1	.....	289	110	.....	110	110	.....	5	5	6	1,802	1,708	3,497	1,522	1,003	2,597	6
4	5	1	454	617	140	454	617	140	10	4	.....	3,822	1,544	.....	3,822	1,544	.....	7
25	18	5	3,056	2,473	663	2,557	1,551	341	50	37	8	17,419	13,040	2,961	16,696	10,623	2,158	8
8,758	6,106	5,004	935,775	658,634	658,953	449,795	347,759	418,913	9,266	7,836	5,623	3,049,851	2,619,498	2,495,996	1,180,759	1,157,809	1,274,879	9
8,645	4,665	2,201	696,179	428,019	255,985	234,743	221,554	194,640	6,511	5,207	3,479	2,147,384	1,729,422	1,218,792	890,461	989,248	878,821	10
52	33	34	5,633	3,909	3,951	5,179	1,514	2,680	235	201	147	80,960	69,788	50,556	75,884	31,427	32,153	11
2,105	1,705	1,168	246,185	196,605	155,089	173,578	122,803	109,428	3,618	3,202	2,451	1,208,251	1,076,140	967,221	792,330	710,571	648,405	12
63	54	57	7,643	5,347	5,800	7,303	5,347	5,800	138	89	86	46,404	27,591	26,010	44,294	27,591	26,010	13
60	151	304	7,557	17,659	36,177	6,697	17,417	35,877	231	335	554	82,583	116,324	191,751	75,442	112,653	188,974	14
428	395	263	50,858	47,105	31,256	46,664	27,013	19,676	857	812	655	293,175	276,093	222,779	266,288	198,342	167,264	15
5	2	1	362	206	177	362	206	177	12	11	3	4,570	3,907	1,058	4,140	3,207	1,058	16
9	14	6	1,040	1,220	519	790	1,220	519	29	30	28	10,055	10,635	10,027	9,975	10,635	10,027	17
1	2	2	80	240	320	80	240	320	9	8	3	2,900	2,464	1,200	2,900	2,304	760	18
.....	1	4	.....	172	575	.....	172	575	10	12	13	3,147	4,235	4,419	3,147	4,235	4,419	19
81	.....	.....	9,933	.....	.....	4,860	.....	.....	194	.....	.....	66,404	.....	.....	28,726	.....	.....	20
8	.....	.....	1,201	.....	.....	1,201	.....	.....	27	.....	.....	10,003	.....	.....	10,003	.....	.....	21
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
22	5	2	2,835	516	120	1,828	516	120	78	15	9	23,805	5,075	2,997	17,471	5,075	2,997	23
1	1	1	40	39	40	40	39	40	.....	1	.....	.....	496	.....	.....	496	.....	24
10	4	5	1,318	392	488	1,318	392	488	18	7	8	6,601	2,316	2,764	6,601	2,316	2,764	25
.....	.....	.....	.....	.....	.....	.....	.....	.....	4	2	.....	1,505	824	.....	1,505	824	.....	26
9	6	16	919	795	1,651	774	795	1,651	41	23	45	14,808	7,536	16,537	9,858	7,536	16,537	27
7	5	1	875	368	121	875	368	121	30	23	6	11,020	8,423	2,156	10,894	8,423	2,156	28
1	3	.....	93	395	.....	93	395	.....	21	20	6	7,016	6,964	1,894	6,734	6,964	1,894	29
2	1	.....	289	110	.....	110	110	.....	3	3	3	1,080	1,038	1,140	800	333	240	30
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	462	.....	.....	462	.....	.....	31
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	1	.....	670	400	.....	670	400	32
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	2	260	.....	1,957	260	.....	1,957	33
.....	1	.....	.....	120	.....	.....	120	.....	3	1	.....	1,275	387	.....	1,275	387	.....	34
3	3	.....	329	307	.....	329	307	.....	2	1	.....	732	255	.....	732	255	.....	35
.....	.....	1	.....	.....	140	.....	.....	140	1	.....	.....	225	.....	.....	225	.....	.....	36
.....	.....	.....	.....	.....	.....	.....	.....	.....	2	2	.....	812	902	.....	812	902	.....	37
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
1	1	.....	125	190	.....	125	190	.....	1	.....	.....	378	.....	.....	378	.....	.....	41
.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	400	.....	.....	400	.....	.....	42
17	13	3	2,050	1,912	322	1,551	990	.....	32	27	5	11,062	9,314	1,625	10,739	6,897	822	43
5	5	.....	654	561	.....	654	561	.....	12	6	.....	4,100	1,910	.....	3,700	1,910	.....	44
3	.....	2	352	.....	341	352	.....	341	6	4	3	2,257	1,816	1,336	2,257	1,816	1,336	45

¹Land assessed in more than 1 enterprise is tabulated in the last organization, for 1940; in first organized, for 1930 and 1920.
²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 19.—REPORTS, AREA ASSESSED, AND LAND INCLUDED, BY SIZE BASED ON INTERCOUNTY ENTERPRISES DIVIDED ON COUNTY LINES, BY DIVISIONS AND STATES: 1940, 1930, AND 1920—Continued

DIVISION AND STATE	500 TO 999 ACRES									1,000 TO 1,999 ACRES ¹		
	Reports			Area assessed			Land			Reports	Area assessed	Land
	1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1940	1940
1 Total (38 States).....	Number 15,855	Number 15,765	Number 10,712	Acres 11,234,727	Acres 11,130,096	Acres 9,091,516	Acres 5,899,150	Acres 6,329,741	Acres 5,456,072	Number 10,467	Acres 14,558,019	Acres 8,221,932
GEOGRAPHIC DIVISIONS:												
2 East North Central.....	13,410	13,477	9,333	9,485,178	9,502,405	8,114,828	4,458,012	4,910,964	4,532,226	8,077	11,190,642	5,330,538
3 West North Central.....	1,560	1,541	1,216	1,132,850	1,114,777	862,073	997,425	949,942	764,032	1,698	2,404,079	2,126,488
4 South Atlantic ²	323	57	47	226,118	40,263	33,246	147,376	39,453	33,246	267	376,698	238,129
5 East South Central ²	105	122	63	77,057	84,791	45,397	69,256	78,311	44,597	160	225,364	205,213
6 West South Central.....	346	472	10	233,706	321,936	6,688	150,704	289,293	4,968	139	182,232	152,521
7 Mountain.....	38	27	15	27,627	18,182	10,064	27,627	17,542	10,064	41	58,905	57,377
8 Pacific.....	73	69	28	52,191	47,742	19,220	48,750	44,236	16,889	85	120,099	111,666
EAST NORTH CENTRAL:												
9 Ohio.....	5,958	6,184	4,058	4,200,927	4,364,144	3,928,812	1,452,112	1,749,864	1,625,720	3,446	4,776,053	1,632,078
10 Indiana.....	3,973	4,117	2,812	2,806,651	2,896,966	2,098,534	1,306,593	1,643,358	1,526,423	2,171	2,969,206	1,467,052
11 Illinois.....	463	441	290	330,937	320,566	210,371	305,152	216,087	169,207	529	747,792	686,549
12 Michigan.....	2,911	2,656	2,133	2,073,240	1,866,876	1,849,136	1,324,952	1,249,207	1,232,901	1,863	2,601,894	1,551,002
13 Wisconsin.....	105	79	40	73,423	53,853	27,975	69,203	52,448	27,975	68	95,697	93,857
WEST NORTH CENTRAL:												
14 Minnesota.....	517	487	437	386,722	356,396	307,812	345,942	343,443	303,215	757	1,084,817	944,838
15 Iowa.....	917	927	704	650,436	663,537	500,458	562,091	520,966	409,317	754	1,051,108	934,806
16 Missouri.....	37	37	18	28,045	28,667	13,154	25,210	21,393	10,901	55	82,679	73,162
17 North Dakota.....	1	3	1	720	2,120	640	720	2,120	640	12	18,080	15,800
18 South Dakota.....	48	43	18	37,250	33,181	13,495	35,450	33,181	13,495	68	91,140	85,580
19 Nebraska.....	17	23	22	12,894	15,649	14,570	11,229	14,169	14,570	28	42,039	38,919
20 Kansas.....	23	21	16	16,783	15,227	11,944	16,783	14,670	11,944	24	34,216	33,383
SOUTH ATLANTIC: ²												
21 Delaware.....	137	.....	.....	97,758	.....	.....	41,909	.....	.....	128	183,183	67,283
22 Maryland.....	34	.....	.....	25,675	.....	.....	24,679	.....	.....	28	40,662	36,370
23 Virginia ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	111	26	23	72,318	17,924	15,928	50,421	17,924	15,928	81	109,235	91,945
25 South Carolina.....	7	5	3	5,458	3,655	2,198	5,458	3,655	2,198	6	7,736	7,736
26 Georgia.....	31	22	16	22,399	15,704	11,750	22,399	15,704	11,750	10	15,822	15,822
27 Florida.....	3	4	5	2,510	2,980	3,370	2,510	2,170	3,370	14	20,060	18,973
EAST SOUTH CENTRAL: ²												
28 Kentucky.....	37	55	33	27,088	36,505	23,143	21,981	35,605	23,143	42	56,749	50,118
29 Tennessee.....	43	39	17	31,339	28,581	12,465	30,001	28,581	12,465	51	74,530	69,482
30 Mississippi.....	25	28	13	18,630	19,705	9,789	17,274	14,125	8,989	67	94,085	85,613
WEST SOUTH CENTRAL:												
31 Arkansas.....	19	17	5	14,523	12,060	3,669	13,623	7,700	1,949	30	39,084	31,352
32 Louisiana.....	327	454	4	219,183	309,076	2,269	137,051	280,793	2,269	105	137,499	115,520
33 Oklahoma.....	.....	.....	1	.....	.....	750	.....	.....	750	1	1,593	1,593
34 Texas.....	.....	1	.....	.....	800	.....	.....	800	.....	3	4,056	4,056
MOUNTAIN:												
35 Montana.....	7	6	2	5,336	4,093	1,307	5,336	4,093	1,307	12	17,267	15,739
36 Idaho.....	12	8	4	9,517	5,632	2,472	9,517	5,632	2,472	5	6,367	6,367
37 Wyoming.....	.....	.....	1	.....	.....	500	.....	.....	500	4	6,587	6,587
38 Colorado.....	13	9	5	9,154	5,986	3,396	9,154	5,346	3,396	9	12,415	12,415
39 New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	.....	1	1	.....	640	640	.....	640	640	2	3,385	3,385
41 Utah.....	5	3	2	3,020	1,831	1,749	3,020	1,831	1,749	9	12,884	12,884
42 Nevada.....	1	.....	.....	600	.....	.....	600	.....	.....	.....	.....	.....
PACIFIC:												
43 Washington.....	51	47	13	36,322	32,331	9,161	34,571	28,825	6,830	45	63,978	55,545
44 Oregon.....	8	7	.....	5,941	5,052	.....	5,941	5,052	.....	12	15,984	15,984
45 California.....	14	15	15	9,928	10,359	10,059	8,238	10,359	10,059	28	40,137	40,137

¹Enterprises of 1,000 to 1,999 acres are included also in the group "1,000 to 4,999 acres."²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 19.—REPORTS, AREA ASSESSED, AND LAND INCLUDED, BY SIZE BASED ON INTERCOUNTY ENTERPRISES DIVIDED ON COUNTY LINES, BY DIVISIONS AND STATES: 1940, 1930, AND 1920—Continued

DIVISION AND STATE		1,000 TO 4,999 ACRES ¹								
		Reports			Area assessed			Land		
		1940	1930	1920	1940	1930	1920	1940	1930	1920
		Number	Number	Number	Acres	Acres	Acres	Acres	Acres	Acres
1	Total (38 States).....	17,212	16,767	11,757	35,069,097	34,074,009	29,522,536	20,950,365	20,552,211	16,632,901
GEOGRAPHIC DIVISIONS:										
2	East North Central.....	12,576	12,844	9,365	24,752,738	25,369,074	24,250,222	12,021,612	12,656,847	13,792,323
3	West North Central.....	3,286	2,925	1,877	7,283,129	6,434,818	4,114,017	6,307,921	5,558,820	3,728,095
4	South Atlantic ²	443	128	95	914,510	292,049	204,161	648,695	270,864	198,431
5	East South Central ²	337	333	200	795,013	759,883	449,067	747,390	725,004	446,827
6	West South Central.....	292	273	68	666,935	594,907	181,683	587,548	535,954	150,956
7	Mountain.....	110	102	45	275,486	262,636	110,799	270,310	260,023	110,799
8	Pacific.....	168	162	87	382,286	360,642	212,567	366,889	344,699	205,470
EAST NORTH CENTRAL:										
9	Ohio.....	5,241	5,512	3,493	10,145,994	10,532,356	9,615,229	2,997,646	3,618,969	3,288,121
10	Indiana.....	3,254	3,645	2,465	6,189,895	7,256,727	5,017,315	3,216,330	3,727,747	3,528,421
11	Illinois.....	1,038	942	675	2,345,828	2,160,720	1,547,003	2,150,708	1,832,131	1,447,948
12	Michigan.....	2,928	2,631	2,674	5,623,875	5,193,743	7,902,624	3,414,222	3,454,032	5,359,782
13	Wisconsin.....	115	114	78	247,146	225,528	168,051	242,706	223,948	168,051
WEST NORTH CENTRAL:										
14	Minnesota.....	1,546	1,235	610	3,532,795	2,828,230	1,385,737	2,991,058	2,537,502	1,335,447
15	Iowa.....	1,286	1,290	1,010	2,645,729	2,639,362	2,065,762	2,321,849	2,157,626	1,794,264
16	Missouri.....	163	149	98	412,987	373,337	239,414	370,874	293,633	217,559
17	North Dakota.....	59	62	50	181,720	184,520	148,660	139,600	164,730	148,680
18	South Dakota.....	117	92	30	240,297	191,305	68,146	228,592	191,305	56,007
19	Nebraska.....	75	58	63	188,656	139,639	173,192	175,636	135,599	143,052
20	Kansas.....	40	39	16	60,945	78,425	33,066	80,112	78,425	33,066
SOUTH ATLANTIC:²										
21	Delaware.....	201	.....	.....	403,065	.....	.....	175,533	.....	.....
22	Maryland.....	58	.....	.....	128,407	.....	.....	121,818	.....	.....
23	Virginia ².....	.....	2	.....	2,146	5,504	.....	2,146	5,504	.....
24	North Carolina.....	120	52	44	224,665	117,907	96,026	197,698	115,107	93,226
25	South Carolina.....	11	11	8	25,760	27,109	19,793	25,760	27,109	19,793
26	Georgia.....	17	23	14	36,525	40,043	25,205	36,525	40,043	25,205
27	Florida.....	36	40	29	93,942	101,486	63,157	89,215	83,101	60,207
EAST SOUTH CENTRAL:²										
28	Kentucky.....	81	99	67	176,366	202,222	130,176	156,196	198,470	130,176
29	Tennessee.....	100	91	49	225,679	209,899	117,651	215,644	205,619	117,651
30	Mississippi.....	156	143	84	392,968	347,762	201,240	375,550	320,915	199,000
WEST SOUTH CENTRAL:										
31	Arkansas.....	93	91	39	238,621	235,900	103,001	200,801	187,316	80,780
32	Louisiana.....	173	146	25	348,202	258,698	64,063	307,635	249,289	55,557
33	Oklahoma.....	14	19	2	42,381	46,576	5,000	42,381	45,616	5,000
34	Texas.....	12	17	2	36,731	53,733	9,619	36,731	53,733	9,619
MOUNTAIN:										
35	Montana.....	19	13	10	39,412	34,157	23,711	37,684	34,157	23,711
36	Idaho.....	22	23	6	61,296	60,006	15,210	58,620	60,006	15,210
37	Wyoming.....	11	11	7	25,382	33,436	21,514	25,382	30,625	21,514
38	Colorado.....	28	25	11	68,615	59,784	21,260	67,843	59,784	21,260
39	New Mexico.....	2	3	.....	8,267	8,740	.....	8,267	8,740	.....
40	Arizona.....	3	3	.....	5,659	5,691	.....	5,659	5,691	.....
41	Utah.....	23	21	11	59,715	53,081	29,104	59,715	53,081	29,104
42	Nevada.....	2	3	.....	6,940	7,740	.....	6,940	7,740	.....
PACIFIC:										
43	Washington.....	67	72	26	130,806	139,169	52,620	118,076	125,986	45,723
44	Oregon.....	23	21	1	51,349	42,697	4,000	51,349	42,697	4,000
45	California.....	78	69	60	200,131	178,776	155,747	197,464	176,016	155,747

¹Enterprises of 1,000 to 1,999 acres are included also in the group "1,000 to 4,999 acres."

²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY¹

TABLE 19.—REPORTS, AREA ASSESSED, AND LAND INCLUDED, BY SIZE BASED ON INTERCOUNTY ENTERPRISES DIVIDED ON COUNTY LINES, BY DIVISIONS AND STATES: 1940, 1930, AND 1920—Continued

DIVISION AND STATE	5,000 TO 9,999 ACRES									10,000 TO 19,999 ACRES ¹		
	Reports			Area assessed			Land			Reports	Area assessed	Land
	1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1940	1940
	Number	Number	Number	Acres	Acres	Acres	Acres	Acres	Acres	Number	Acres	Acres
1 Total (38 States).....	2,357	2,291	1,472	16,387,515	15,865,002	13,357,936	10,722,187	10,354,392	9,181,006	1,228	16,964,180	11,506,321
GEOGRAPHIC DIVISION:												
2 East North Central.....	1,284	1,246	935	6,817,168	6,505,746	8,872,003	4,390,236	4,208,374	4,972,214	503	6,797,038	3,407,658
3 West North Central.....	682	686	440	4,796,366	4,651,362	3,111,888	3,740,005	3,965,475	2,895,545	427	5,954,937	4,300,866
4 South Atlantic ²	70	50	34	471,507	338,489	221,818	431,445	290,670	194,600	51	702,207	621,850
5 East South Central ²	99	103	47	708,110	701,298	328,620	679,700	603,258	328,620	62	883,327	848,101
6 West South Central.....	130	121	66	956,651	867,873	471,420	865,287	702,462	437,640	133	1,930,029	1,646,204
7 Mountain.....	37	35	17	264,188	254,056	128,883	257,611	254,056	128,883	21	276,090	276,090
8 Pacific.....	55	50	33	373,525	346,178	223,304	357,903	330,097	223,304	31	420,552	405,552
EAST NORTH CENTRAL:												
9 Ohio.....	448	373	300	3,076,820	2,549,773	2,850,517	784,263	655,813	823,323	152	2,058,764	477,886
10 Indiana.....	341	397	229	2,362,676	2,727,803	1,718,075	1,356,726	1,109,608	1,059,216	154	2,070,077	1,271,114
11 Illinois.....	196	203	144	1,342,317	1,360,351	976,666	1,188,957	1,246,534	955,019	73	1,008,760	831,889
12 Michigan.....	286	254	151	1,951,253	1,743,097	3,251,318	976,868	1,071,687	2,059,229	120	1,598,607	766,139
13 Wisconsin.....	13	19	11	84,102	124,722	75,427	83,422	124,722	75,427	4	60,630	60,630
WEST NORTH CENTRAL:												
14 Minnesota.....	357	335	177	2,519,891	2,388,231	1,250,804	1,796,235	1,760,890	1,155,678	211	2,964,592	1,937,473
15 Iowa.....	186	185	141	1,260,602	1,295,465	1,005,124	1,082,518	1,143,475	928,723	97	1,344,725	1,028,978
16 Missouri.....	54	64	48	385,082	450,062	341,884	311,483	377,976	302,068	50	683,745	520,508
17 North Dakota.....	39	53	51	302,855	394,682	358,390	252,975	366,172	358,390	42	582,086	489,786
18 South Dakota.....	9	15	3	65,929	97,962	17,788	62,969	97,962	17,788	4	49,696	47,603
19 Nebraska.....	25	23	17	166,646	149,998	115,106	160,464	144,038	110,106	16	225,381	191,808
20 Kansas.....	12	11	3	73,361	74,962	22,792	73,361	74,962	22,792	7	84,710	84,710
SOUTH ATLANTIC: ²												
21 Delaware.....	14	.....	.....	83,616	.....	.....	58,471	.....	.....	11	135,532	55,176
22 Maryland.....	4	.....	.....	25,636	.....	.....	25,636	.....	.....	.....	.....	.....
23 Virginia ².....	.....	1	.....	.....	9,536	.....	.....	9,536	.....	3	41,613	41,613
24 North Carolina.....	19	12	11	132,000	81,272	71,717	117,083	74,872	64,917	12	165,585	165,585
25 South Carolina.....	8	7	3	56,398	44,628	20,400	56,398	44,628	20,400	3	40,253	40,253
26 Georgia.....	2	2	2	17,531	15,800	15,245	17,531	15,800	15,245	.....	.....	.....
27 Florida.....	23	28	18	156,326	187,251	114,456	156,326	145,832	94,038	22	319,224	319,224
EAST SOUTH CENTRAL: ²												
28 Kentucky.....	18	19	11	130,760	122,746	79,592	121,078	113,746	79,592	5	58,070	58,070
29 Tennessee.....	21	17	13	147,473	115,598	91,612	145,372	115,598	91,612	9	132,240	129,831
30 Mississippi.....	60	67	23	429,877	462,954	157,416	413,250	373,914	157,416	48	693,017	660,200
WEST SOUTH CENTRAL:												
31 Arkansas.....	70	67	39	523,848	493,382	274,227	438,751	357,086	246,647	66	975,512	797,345
32 Louisiana.....	40	37	22	291,267	259,448	159,161	285,000	230,333	153,161	51	729,869	680,211
33 Oklahoma.....	10	9	1	70,393	60,361	6,000	70,393	60,361	6,000	4	49,880	49,880
34 Texas.....	10	8	4	71,143	54,662	32,032	71,143	54,662	32,032	12	174,768	138,768
MOUNTAIN:												
35 Montana.....	3	2	3	20,059	11,792	19,664	20,059	11,792	19,664	3	44,775	44,775
36 Idaho.....	7	8	1	52,215	60,261	6,960	47,730	60,261	6,960	2	29,775	29,775
37 Wyoming.....	9	9	4	60,181	63,067	27,400	60,181	63,067	27,400	3	37,545	37,545
38 Colorado.....	10	9	3	75,300	73,941	26,000	75,300	73,941	26,000	9	115,483	115,483
39 New Mexico.....	5	4	4	37,590	29,450	34,579	37,590	29,450	34,579	1	14,975	14,975
40 Arizona.....	.....	.....	1	.....	.....	9,000	.....	.....	9,000	.....	.....	.....
41 Utah.....	2	3	1	11,292	15,545	5,280	9,200	15,545	5,280	2	22,259	22,259
42 Nevada.....	1	.....	.....	7,551	.....	.....	7,551	.....	.....	1	11,278	11,278
PACIFIC:												
43 Washington.....	12	10	3	85,877	74,317	19,649	73,549	66,736	19,649	1	10,392	10,392
44 Oregon.....	9	8	.....	55,341	51,451	.....	53,651	51,451	.....	4	56,261	56,261
45 California.....	34	32	30	232,307	220,410	203,655	230,703	211,910	203,655	26	353,899	338,899

¹Enterprises of 10,000 to 19,999 acres are included also in the group "10,000 to 49,999 acres."²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 19.—REPORTS, AREA ASSESSED, AND LAND INCLUDED, BY SIZE BASED ON INTERCOUNTY ENTERPRISES DIVIDED ON COUNTY LINES, BY DIVISIONS AND STATES: 1940, 1930, AND 1920—Continued

DIVISION AND STATE		10,000 TO 49,999 ACRES ¹								
		Reports			Area assessed			Land		
		1940	1930	1920	1940	1930	1920	1940	1930	1920
		Number	Number	Number	Acres	Acres	Acres	Acres	Acres	Acres
1	Total (36 States).....	1,887	1,814	1,107	37,108,024	35,075,951	23,826,149	26,080,293	24,105,640	17,737,764
GEOGRAPHIC DIVISIONS:										
2	East North Central.....	696	740	359	12,499,476	13,377,514	8,611,127	6,118,424	5,952,434	3,725,483
3	West North Central.....	645	573	454	12,684,226	10,919,015	9,006,603	8,952,950	8,546,089	8,046,542
4	South Atlantic ²	80	72	46	1,598,155	1,528,046	1,009,685	1,477,734	1,162,641	940,885
5	East South Central ²	97	103	51	1,792,391	1,996,099	911,332	1,706,341	1,927,355	911,332
6	West South Central.....	268	247	145	6,058,420	5,528,438	3,257,131	5,431,839	4,837,376	3,083,251
7	Mountain.....	47	39	17	1,342,076	864,211	336,190	1,337,327	864,211	336,190
8	Pacific.....	54	40	35	1,141,280	864,628	694,081	1,055,678	815,534	694,081
EAST NORTH CENTRAL:										
9	Ohio.....	201	175	122	3,485,021	2,973,427	3,152,280	852,641	589,580	571,127
10	Indiana.....	217	274	144	4,036,299	5,088,605	2,917,817	2,289,131	1,677,442	1,486,965
11	Illinois.....	95	98	74	1,692,958	1,728,101	1,239,719	1,309,211	1,606,508	1,239,709
12	Michigan.....	175	177	5	3,110,113	3,281,204	1,072,985	1,492,366	1,772,727	199,256
13	Wisconsin.....	8	16	14	175,075	306,177	228,426	175,075	306,177	228,426
WEST NORTH CENTRAL:										
14	Minnesota.....	325	306	234	6,339,013	5,968,444	4,630,974	4,372,242	4,479,501	4,150,542
15	Iowa.....	124	116	107	2,311,653	2,054,594	1,895,497	1,684,290	1,723,309	1,732,664
16	Missouri.....	95	85	60	2,091,937	1,721,812	1,557,927	1,402,073	1,210,054	1,306,271
17	North Dakota.....	63	32	32	1,205,806	479,500	501,377	833,226	438,560	501,377
18	South Dakota.....	9	9	5	192,513	196,697	124,226	181,168	196,697	124,226
19	Nebraska.....	22	21	14	458,594	413,263	275,562	395,241	413,263	210,422
20	Kansas.....	7	4	2	84,710	84,705	21,040	84,710	84,705	21,040
SOUTH ATLANTIC: ²										
21	Delaware.....	13	.....	.....	192,786	.....	.....	85,515	.....	.....
22	Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Virginia ²	3	.....	.....	41,613	.....	.....	41,613	.....	.....
24	North Carolina.....	20	19	14	387,725	365,742	265,640	384,575	365,742	265,640
25	South Carolina.....	5	6	1	76,457	132,322	40,000	76,457	132,322	40,000
26	Georgia.....	.....	1	1	40,253	10,000	10,000	40,253	10,000	10,000
27	Florida.....	39	46	30	849,321	1,017,982	694,045	849,321	654,577	625,245
EAST SOUTH CENTRAL: ²										
28	Kentucky.....	7	13	7	58,070	200,998	107,381	58,070	183,787	107,381
29	Tennessee.....	12	16	9	201,786	236,523	139,666	198,806	234,971	139,666
30	Mississippi.....	78	74	35	1,532,535	1,558,578	664,285	1,449,465	1,508,597	664,285
WEST SOUTH CENTRAL:										
31	Arkansas.....	112	111	68	2,420,960	2,414,091	1,473,391	2,079,810	1,931,363	1,360,711
32	Louisiana.....	103	90	47	2,260,132	2,044,093	1,037,196	2,066,701	1,835,759	975,996
33	Oklahoma.....	5	3	.....	84,872	63,491	.....	84,872	63,491	.....
34	Texas.....	48	43	30	1,292,456	1,006,763	746,544	1,200,456	1,006,763	746,544
MOUNTAIN:										
35	Montana.....	7	4	1	188,628	117,080	24,000	188,628	117,080	24,000
36	Idaho.....	8	6	2	229,926	181,947	40,000	227,451	181,947	40,000
37	Wyoming.....	5	5	2	121,447	100,375	45,920	121,447	100,375	45,920
38	Colorado.....	12	13	4	205,969	226,746	71,000	205,969	226,746	71,000
39	New Mexico.....	6	3	3	163,018	54,102	31,640	163,018	54,102	31,640
40	Arizona.....	1	1	1	242,870	20,600	30,000	240,596	20,600	30,000
41	Utah.....	5	4	3	129,620	85,405	77,690	129,620	85,405	77,690
42	Nevada.....	3	3	1	60,598	77,956	15,940	60,598	77,956	15,940
PACIFIC:										
43	Washington.....	2	2	2	35,223	47,808	21,900	35,223	47,808	21,900
44	Oregon.....	8	4	.....	180,930	109,511	.....	177,930	109,511	.....
45	California.....	44	34	33	925,127	707,309	672,181	942,525	658,215	672,181

¹Enterprises of 10,000 to 19,999 acres are included also in the group "10,000 to 49,999 acres."

²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 19.—REPORTS, AREA ASSESSED, AND LAND INCLUDED, BY SIZE BASED ON INTERCOUNTY ENTERPRISES DIVIDED ON COUNTY LINES, BY DIVISIONS AND STATES: 1940, 1930, AND 1920—Continued

DIVISION AND STATE	50,000 TO 99,999 ACRES									100,000 TO 199,999 ACRES ¹		
	Reports			Area assessed			Land			Reports	Area assessed	Land
	1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1940	1940
1 Total (38 States).....	Number 157	Number 168	Number 115	Acres 10,760,472	Acres 11,403,982	Acres 8,605,536	Acres 8,026,817	Acres 8,577,771	Acres 6,508,673	Number 45	Acres 5,925,431	Acres 4,493,168
GEOGRAPHIC DIVISIONS:												
2 East North Central.....	36	42	26	2,347,052	2,887,378	2,689,347	1,281,784	1,200,366	941,752	11	1,398,459	465,742
3 West North Central.....	43	53	31	2,900,410	3,502,944	2,035,666	1,071,901	2,806,754	1,884,518	11	1,245,638	1,081,936
4 South Atlantic ²	11	11	11	766,154	732,777	662,513	694,574	594,877	662,513	4	482,958	482,958
5 East South Central ²	8	9	4	719,381	687,514	320,400	588,411	677,594	320,400	1	133,976	127,154
6 West South Central.....	44	43	40	3,006,799	2,888,050	2,708,610	2,465,231	2,592,861	2,510,490	12	1,755,482	1,426,460
7 Mountain.....	9	5	2	563,103	329,777	124,000	557,343	124,000	124,000	2	318,236	318,236
8 Pacific.....	6	5	1	457,573	375,542	65,000	457,573	375,542	65,000	4	590,682	590,682
EAST NORTH CENTRAL:												
9 Ohio.....	5	5	7	317,673	312,797	763,025	32,051	45,680	105,121	.....	.....	.....
10 Indiana.....	16	27	13	1,022,024	1,878,090	1,032,904	631,619	561,187	391,248	6	711,417	196,349
11 Illinois.....	1	1	1	98,481	98,481	62,333	56,273	98,481	62,333	.....	.....	.....
12 Michigan.....	12	7	1	769,674	445,530	568,205	422,641	342,538	120,170	5	687,042	269,393
13 Wisconsin.....	2	2	4	139,200	152,480	262,880	139,200	152,480	262,880	.....	.....	.....
WEST NORTH CENTRAL:												
14 Minnesota.....	17	28	15	1,100,804	1,836,978	944,845	747,780	1,275,578	848,414	6	732,831	655,013
15 Iowa.....	5	4	3	312,478	279,408	184,867	200,644	228,118	172,570	1	.....	.....
16 Missouri.....	14	14	8	999,189	922,594	546,213	545,998	843,894	503,793	4	512,807	426,923
17 North Dakota.....	2	2	3	149,680	122,560	231,241	149,520	122,560	231,241	.....	.....	.....
18 South Dakota.....	2	2	.....	164,488	166,758	.....	157,528	166,758	.....	.....	.....	.....
19 Nebraska.....	3	3	2	173,771	172,646	128,500	170,431	169,846	128,500	.....	.....	.....
20 Kansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SOUTH ATLANTIC: ²												
21 Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Virginia ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	1	.....	.....	56,500	.....	.....	56,500	.....	.....	.....	.....	.....
25 South Carolina.....	.....	.....	1	.....	.....	57,600	.....	.....	57,600	.....	.....	.....
26 Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Florida.....	10	11	10	709,854	732,777	604,913	638,074	594,877	604,913	4	482,958	482,958
EAST SOUTH CENTRAL: ²												
28 Kentucky.....	.....	1	.....	107,606	55,606	.....	97,313	45,686	.....	.....	.....	.....
29 Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 Mississippi.....	8	8	4	611,775	631,908	320,400	501,098	631,908	320,400	1	133,976	127,154
WEST SOUTH CENTRAL:												
31 Arkansas.....	16	18	16	1,087,472	1,228,710	1,162,120	809,451	1,096,010	964,000	7	1,060,426	781,840
32 Louisiana.....	12	11	10	762,667	664,813	628,385	651,620	502,324	628,385	3	399,216	348,780
33 Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34 Texas.....	16	14	14	1,156,660	994,527	918,105	1,004,160	994,527	918,105	2	285,840	285,840
MOUNTAIN:												
35 Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	119,479	119,479
36 Idaho.....	2	1	.....	121,760	67,057	.....	116,000	67,057	.....	1	198,757	198,757
37 Wyoming.....	2	1	.....	105,427	51,436	.....	105,427	51,436	.....	.....	.....	.....
38 Colorado.....	2	.....	1	109,244	.....	50,000	109,244	.....	50,000	.....	.....	.....
39 New Mexico.....	1	1	1	97,010	84,000	74,000	97,010	84,000	74,000	.....	.....	.....
40 Arizona.....	1	1	.....	52,378	50,000	.....	52,378	50,000	.....	.....	.....	.....
41 Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Nevada.....	1	1	.....	77,284	77,284	.....	77,284	77,284	.....	.....	.....	.....
PACIFIC:												
43 Washington.....	.....	1	.....	.....	90,000	.....	.....	90,000	.....	1	132,000	132,000
44 Oregon.....	1	.....	.....	55,600	.....	.....	55,600	.....	.....	.....	.....	.....
45 California.....	5	4	1	401,973	285,542	65,000	401,973	285,542	65,000	3	458,682	458,682

¹ Enterprises of 100,000 to 199,999 acres are included also in the group "100,000 to 499,999 acres."² Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 19.—REPORTS, AREA ASSESSED, AND LAND INCLUDED, BY SIZE BASED ON INTERCOUNTY ENTERPRISES DIVIDED ON COUNTY LINES, BY DIVISIONS AND STATES: 1940, 1930, AND 1920—Continued

DIVISION AND STATE	100,000 TO 499,999 ACRES ¹									500,000 ACRES AND OVER					
	Reports			Area assessed			Land			Reports		Area assessed		Land	
	1940	1930	1920	1940	1930	1920	1940	1930	1920	1940	1930	1940	1930	1940	1930
	Number	Number	Number	Acres	Acres	Acres	Acres	Acres	Acres	Number	Number	Acres	Acres	Acres	Acres
1 Total (38 States) ..	56	² 62	31	9,080,924	² 10,218,995	4,850,978	7,353,809	² 7,067,285	3,923,243	5	² 4	4,123,882	² 3,378,199	3,555,675	² 3,378,199
GEOGRAPHIC DIVISIONS:															
2 East North Central...	12	15	5	1,599,099	2,273,652	755,799	577,788	741,146	21,449	.....	.....	.....	.....	.....	.....
3 West North Central...	11	14	11	1,245,638	1,920,308	1,631,624	1,081,936	1,486,158	1,468,939	.....	.....	.....	.....	.....	.....
4 South Atlantic ³	8	16	3	1,741,866	5,430,327	380,000	1,621,956	4,573,553	349,300	3	3	2,908,322	(²)	2,340,115	(²)
5 East South Central ³ ..	1	1	2	133,976	131,678	249,460	127,154	131,678	249,460	.....	.....	.....	.....	.....	.....
6 West South Central...	18	15	9	3,451,427	2,709,373	1,734,095	3,036,057	2,381,093	1,734,095	1	.....	690,560	.....	690,560	.....
7 Mountain.....	2	1	1	318,236	242,000	100,000	318,236	242,000	100,000	.....	.....	.....	.....	.....	.....
8 Pacific.....	4	4	.....	590,682	889,856	.....	590,682	889,856	.....	1	1	525,000	(²)	525,000	(²)
EAST NORTH CENTRAL:															
9 Ohio.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 Indiana.....	6	7	5	711,417	1,044,155	755,799	196,349	283,870	21,449	.....	.....	.....	.....	.....	.....
11 Illinois.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Michigan.....	6	8	.....	887,682	1,229,497	.....	381,439	457,276	.....	.....	.....	.....	.....	.....	.....
13 Wisconsin.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST NORTH CENTRAL:															
14 Minnesota.....	6	8	9	732,831	1,167,243	1,226,562	655,013	947,699	1,214,562	.....	.....	.....	.....	.....	.....
15 Iowa.....	1	1	.....	142,080	.....	.....	.....	138,800	.....	.....	.....	.....	.....	.....	.....
16 Missouri.....	4	5	2	512,807	610,985	405,062	426,923	399,659	254,377	.....	.....	.....	.....	.....	.....
17 North Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18 South Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 Nebraska.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 Kansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SOUTH ATLANTIC: ³															
21 Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Virginia ³.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	.....	1	1	.....	100,000	100,000	.....	100,000	100,000	.....	.....	.....	.....	.....	.....
25 South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Florida.....	8	15	2	1,741,866	5,330,327	280,000	1,621,956	4,473,553	249,300	3	3	2,908,322	(²)	2,340,115	(²)
EAST SOUTH CENTRAL: ³															
28 Kentucky.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 Mississippi.....	1	1	2	133,976	131,678	249,460	127,154	131,678	249,460	.....	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL:															
31 Arkansas.....	8	8	4	1,346,506	1,379,517	825,264	1,049,392	1,051,237	825,264	.....	.....	.....	.....	.....	.....
32 Louisiana.....	5	3	3	821,561	556,985	450,960	771,125	556,985	450,960	.....	.....	.....	.....	.....	.....
33 Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34 Texas.....	5	4	2	1,283,360	772,871	457,871	1,215,540	772,871	457,871	1	.....	690,560	.....	690,560	.....
MOUNTAIN:															
35 Montana.....	1	.....	1	119,479	.....	100,000	119,479	.....	100,000	.....	.....	.....	.....	.....	.....
36 Idaho.....	1	.....	.....	198,757	.....	.....	198,757	.....	.....	.....	.....	.....	.....	.....	.....
37 Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38 Colorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
39 New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	.....	1	.....	242,000	.....	.....	242,000	.....	.....	.....	.....	.....	.....	.....	.....
41 Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:															
43 Washington.....	1	.....	.....	132,000	.....	.....	132,000	.....	.....	.....	.....	.....	.....	.....	.....
44 Oregon.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45 California.....	3	4	.....	458,682	889,856	.....	458,682	889,856	.....	1	1	525,000	(²)	525,000	(²)

¹ Enterprises of 100,000 to 199,999 acres are included also in the group "100,000 to 499,999 acres."
² Except in 38-State totals, data for 1 enterprise in California and 3 enterprises in Florida, each with over 500,000 acres, are included in the group "100,000 to 499,999 acres."
³ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 20.—REPORTS, AREA ASSESSED BY SIZE BASED ON INTERCOUNTY ENTERPRISES NOT DIVIDED ON COUNTY LINES, ENTERPRISES, AND LAND INCLUDED, BY DIVISIONS AND STATES, 1940

[An enterprise embracing land in more than one county, for this tabulation, was treated as one enterprise. For tabulation of the part in each county as a separate enterprise, see table 19]

1	DIVISION AND STATE	Reports ¹	AREA ASSESSED BY SIZE ²							
			Total	Less than 100	100 to 199	200 to 499	500 to 999	1,000 to 1,999	2,000 to 4,999	5,000 to 9,999
			Number	Acres	Acres	Acres	Acres	Acres	Acres	Acres
1	Total (36 States).....	79,220	132,828,451	494,566	1,353,335	6,716,953	10,782,454	14,061,925	19,676,038	15,976,364
GEOGRAPHIC DIVISIONS:										
2	East North Central.....	67,405	67,924,976	463,398	1,298,458	6,229,794	9,177,085	10,936,136	13,268,416	8,759,221
3	West North Central.....	7,878	30,498,946	8,754	40,608	343,784	1,030,194	2,247,245	4,597,940	4,728,946
4	South Atlantic ³	1,382	8,740,277	1,577	11,249	100,108	212,652	368,653	494,709	412,484
5	East South Central ³	756	4,260,659	300	619	22,417	57,636	171,073	464,525	656,910
6	West South Central.....	1,106	15,065,589	.....	179	902	232,326	174,956	429,674	810,647
7	Mountain.....	257	2,794,992	75	279	3,207	23,949	51,620	172,920	247,146
8	Pacific.....	436	3,548,012	462	1,943	16,741	48,612	112,242	247,654	361,010
EAST NORTH CENTRAL:										
9	Ohio.....	29,877	25,212,061	309,834	661,444	2,881,949	4,069,988	4,740,698	5,353,594	3,103,676
10	Indiana.....	22,963	19,972,525	229,306	444,352	2,085,856	2,760,422	2,929,114	3,182,607	2,323,379
11	Illinois.....	2,080	5,897,124	285	2,954	60,101	281,200	646,942	1,468,196	1,283,534
12	Michigan.....	12,041	16,070,273	42,788	184,289	1,149,339	2,000,421	2,522,892	3,114,080	1,978,170
13	Wisconsin.....	444	772,993	1,185	5,419	42,549	65,054	96,490	149,939	70,462
WEST NORTH CENTRAL:										
14	Minnesota.....	3,059	14,702,196	681	3,117	64,499	341,077	1,020,501	2,299,332	2,486,641
15	Iowa.....	3,804	7,544,931	7,793	36,851	262,677	604,085	984,062	1,550,423	1,301,554
16	Missouri.....	384	4,434,979	.....	.....	1,546	22,507	69,082	282,394	345,219
17	North Dakota.....	164	1,840,781	.....	.....	.....	720	18,080	149,240	309,575
18	South Dakota.....	223	711,572	80	640	9,375	33,590	93,160	144,301	51,069
19	Nebraska.....	152	1,005,541	.....	.....	2,900	12,134	31,239	129,542	163,361
20	Kansas.....	92	268,946	.....	.....	2,787	16,081	31,121	42,708	71,527
SOUTH ATLANTIC: ³										
21	Delaware.....	640	853,562	1,379	8,554	66,404	97,758	183,183	219,882	83,616
22	Maryland.....	131	190,922	99	1,102	10,003	25,675	40,662	87,745	25,636
23	Virginia ³	4	43,759	.....	.....	.....	.....	.....	2,146	.....
24	North Carolina.....	371	899,848	99	1,593	19,999	69,704	98,316	101,752	110,659
25	South Carolina.....	32	204,366	.....	.....	.....	3,115	5,168	15,467	45,690
26	Georgia.....	78	84,374	.....	.....	2,197	14,740	26,352	20,964	9,856
27	Florida.....	126	6,463,446	.....	.....	1,505	1,660	14,972	46,753	137,027
EAST SOUTH CENTRAL: ³										
28	Kentucky.....	193	515,617	300	619	14,429	24,746	50,216	98,567	121,291
29	Tennessee.....	213	618,172	.....	.....	5,202	20,530	49,110	126,329	153,678
30	Mississippi.....	350	3,126,870	.....	.....	2,786	12,360	71,747	239,629	381,941
WEST SOUTH CENTRAL:										
31	Arkansas.....	323	5,633,299	.....	179	440	13,143	34,664	167,851	417,653
32	Louisiana.....	661	4,703,474	.....	.....	462	219,183	137,499	193,867	259,695
33	Oklahoma.....	29	197,646	.....	.....	.....	.....	1,593	40,788	70,393
34	Texas.....	93	4,531,170	.....	.....	.....	.....	1,200	27,168	62,906
MOUNTAIN:										
35	Montana.....	40	374,189	.....	.....	885	4,452	17,267	15,742	26,852
36	Idaho.....	57	674,532	75	154	732	7,993	6,367	47,893	51,086
37	Wyoming.....	28	312,662	.....	.....	.....	.....	6,812	16,620	44,322
38	Colorado.....	67	469,294	.....	.....	812	7,884	6,886	41,919	76,140
39	New Mexico.....	14	305,885	.....	.....	.....	.....	.....	4,443	23,120
40	Arizona.....	5	300,907	.....	.....	.....	.....	3,385	2,274	.....
41	Utah.....	37	204,150	.....	125	378	3,020	10,903	42,029	18,075
42	Nevada.....	9	153,373	.....	.....	400	600	.....	2,000	7,551
PACIFIC:										
43	Washington.....	182	433,340	285	1,609	10,656	34,653	60,840	72,197	85,877
44	Oregon.....	66	353,915	177	334	4,100	5,941	16,127	35,365	55,341
45	California.....	188	2,755,757	.....	.....	1,985	8,018	35,275	140,292	219,792

¹For distinction between number of reports and number of enterprises, see text. Number of enterprises.

²The sum of the areas in the individual enterprises, without deduction for overlapping.

³Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 20.—REPORTS, AREA ASSESSED BY SIZE BASED ON INTERCOUNTY ENTERPRISES NOT DIVIDED ON COUNTY LINES, ENTERPRISES, AND LAND INCLUDED, BY DIVISIONS AND STATES, 1940—Continued

	DIVISION AND STATE	AREA ASSESSED BY SIZE ¹					ENTERPRISES		Land in enterprises	
		10,000 to 19,999	20,000 to 49,999	50,000 to 99,999	100,000 to 199,999	200,000 to 499,999	500,000 and over	County count		State count
1	Total (38 States).....	Acres 16,315,017	Acres 20,250,495	Acres 11,248,898	Acres 7,019,442	Acres 2,661,116	Acres 6,271,848	Number 42,363	Number 39,597	Acres 86,967,039
GEOGRAPHIC DIVISIONS:										
2	East North Central.....	6,796,685	6,089,759	2,569,577	1,913,705	422,742	.....	32,014	30,206	32,682,172
3	West North Central.....	5,692,993	6,978,948	2,810,841	1,183,620	299,884	535,189	7,106	3,520	23,468,623
4	South Atlantic ²	573,408	1,025,432	651,148	367,758	.....	4,521,099	941	839	7,435,448
5	East South Central ²	852,256	868,431	914,337	252,155	.....	.....	710	570	3,957,480
6	West South Central.....	1,789,677	3,979,628	3,100,478	2,148,457	1,708,105	690,560	918	855	13,228,858
7	Mountain.....	228,074	761,615	651,042	655,065	.....	.....	256	221	2,772,730
8	Pacific.....	381,924	566,682	551,475	498,682	230,385	525,000	418	386	3,421,728
EAST NORTH CENTRAL:										
9	Ohio.....	2,167,674	1,697,435	325,769	.....	.....	.....	12,222	11,530	7,729,267
10	Indiana.....	1,827,529	2,071,008	1,045,504	1,063,448	.....	.....	9,271	8,893	10,121,952
11	Illinois.....	1,216,954	694,294	129,552	113,112	.....	.....	1,961	1,695	5,091,364
12	Michigan.....	1,511,378	1,490,277	916,752	737,145	422,742	.....	8,130	7,692	8,978,386
13	Wisconsin.....	73,150	116,745	152,000	.....	.....	.....	430	396	761,203
WEST NORTH CENTRAL:										
14	Minnesota.....	2,821,371	3,355,118	1,387,540	622,235	299,884	.....	2,732	2,498	10,990,409
15	Iowa.....	1,265,465	1,190,623	208,013	133,385	.....	.....	3,439	3,180	6,164,344
16	Missouri.....	711,266	1,373,417	776,499	317,860	.....	535,189	338	286	3,087,063
17	North Dakota.....	531,566	681,920	149,680	.....	.....	.....	145	141	1,376,041
18	South Dakota.....	48,058	164,035	167,264	.....	.....	.....	215	202	676,472
19	Nebraska.....	220,545	213,835	121,845	110,140	.....	.....	145	125	916,181
20	Kansas.....	94,722	.....	.....	.....	.....	.....	92	88	258,113
SOUTH ATLANTIC:²										
21	Delaware.....	135,532	57,254	.....	.....	.....	.....	287	287	395,014
22	Maryland.....	.....	.....	.....	.....	.....	.....	126	126	183,337
23	Virginia.....	13,568	28,045	.....	.....	.....	.....	4	3	43,759
24	North Carolina.....	88,077	299,207	110,442	.....	.....	.....	268	246	825,576
25	South Carolina.....	51,536	83,390	.....	.....	.....	.....	32	24	204,366
26	Georgia.....	10,265	.....	.....	.....	.....	.....	78	52	84,374
27	Florida.....	274,430	557,536	540,706	367,758	.....	4,521,099	126	101	5,699,022
EAST SOUTH CENTRAL:²										
28	Kentucky.....	77,752	20,091	107,606	.....	.....	.....	160	144	465,270
29	Tennessee.....	125,166	138,157	.....	.....	.....	.....	207	155	601,592
30	Mississippi.....	649,338	710,183	806,731	252,155	.....	.....	343	271	2,890,618
WEST SOUTH CENTRAL:										
31	Arkansas.....	923,281	1,355,457	1,107,240	1,315,151	298,240	.....	287	250	4,592,738
32	Louisiana.....	627,748	1,546,231	758,978	537,466	422,345	.....	511	495	4,219,624
33	Oklahoma.....	49,880	34,962	.....	.....	.....	.....	29	29	197,646
34	Texas.....	188,768	1,042,948	1,234,260	295,840	987,520	690,560	91	81	4,218,850
MOUNTAIN:										
35	Montana.....	12,000	66,772	110,740	119,479	.....	.....	39	34	372,661
36	Idaho.....	10,635	115,709	122,124	311,764	.....	.....	57	50	659,136
37	Wyoming.....	55,579	83,902	105,427	.....	.....	.....	28	25	312,662
38	Colorado.....	86,878	70,626	178,149	.....	.....	.....	67	56	468,322
39	New Mexico.....	29,445	25,055	.....	223,822	.....	.....	14	7	305,885
40	Arizona.....	.....	242,870	52,378	.....	.....	.....	5	5	298,633
41	Utah.....	22,259	107,361	.....	.....	.....	.....	37	36	202,058
42	Nevada.....	11,278	49,320	82,224	.....	.....	.....	9	8	153,373
PACIFIC:										
43	Washington.....	10,392	24,831	.....	132,000	.....	.....	169	165	405,709
44	Oregon.....	56,261	124,669	55,600	.....	.....	.....	65	63	348,825
45	California.....	315,271	417,182	495,875	366,682	230,385	525,000	184	158	2,667,194

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 21.—LAND IN ENTERPRISES AND CAPITAL INVESTED, BY

DIVISION AND STATE	ALL ENTERPRISES		DRAINAGE DISTRICTS				COUNTY DRAINS				TOWNSHIP DRAINS			
	Land	Capital invested	Land		Capital invested		Land		Capital invested		Land		Capital invested	
	Acres	Dollars	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²
1 Total (38 States).....	86,967,039	691,724,519	34,811,053	40.0	373,358,517	54.0	46,040,391	53.0	276,101,410	39.9	232,862	0.3	768,129	0.1
GEOGRAPHIC DIVISIONS:														
2 East North Central.....	32,682,172	199,989,982	5,540,160	17.0	75,233,631	37.6	26,858,174	82.2	123,727,598	61.9	203,633	0.6	615,727	0.3
3 West North Central....	23,468,623	210,066,013	3,979,903	17.0	60,506,554	28.8	18,457,735	78.7	145,038,798	69.1	21,600	0.1	83,181	(³)
4 South Atlantic ⁴	7,435,448	53,240,835	7,289,888	98.0	52,168,345	98.0	38,580	0.5	166,279	0.3	.....	.....	.....	.....
5 East South Central ⁴ ..	3,957,480	34,709,421	3,426,599	86.6	29,556,216	85.2	476,376	12.0	4,968,503	14.3	.....	.....	.....	.....
6 West South Central....	13,228,858	78,831,043	12,144,979	91.8	70,600,195	89.5	201,146	1.5	2,108,261	2.7	.....	.....	.....	.....
7 Mountain.....	2,772,730	33,928,327	867,213	31.3	18,542,816	54.7	6,000	0.2	16,000	(³)	.....	.....	.....	.....
8 Pacific.....	3,421,728	80,958,898	1,562,311	45.7	66,750,760	82.4	2,380	0.1	75,971	0.1	7,629	0.2	69,221	0.1
EAST NORTH CENTRAL:														
9 Ohio.....	7,729,267	35,216,586	.....	.....	.....	.....	7,676,284	99.3	35,044,531	99.5	52,983	0.7	171,055	0.5
10 Indiana.....	10,121,952	47,540,385	17,644	0.2	322,274	0.7	10,103,308	99.8	47,119,446	99.1	.....	.....	.....	.....
11 Illinois.....	5,091,364	72,567,174	5,054,612	99.3	72,269,383	99.5	1,400	(³)	72,000	0.1	3,307	0.1	44,930	0.1
12 Michigan.....	8,978,386	40,412,251	.....	.....	.....	.....	8,970,826	99.9	40,402,851	100.0	.....	.....	.....	.....
13 Wisconsin.....	761,203	4,254,586	467,904	61.4	2,641,974	62.1	106,356	14.0	1,088,770	25.6	147,343	19.4	399,742	9.4
WEST NORTH CENTRAL:														
14 Minnesota.....	10,990,409	65,576,077	.....	.....	.....	.....	10,317,553	93.9	64,134,429	97.8	17,240	0.2	56,741	0.1
15 Iowa.....	6,164,344	75,374,497	233,618	3.8	3,804,204	5.0	5,875,742	95.3	70,828,445	94.0	1,200	(³)	2,160	(³)
16 Missouri.....	3,087,063	49,050,414	3,081,463	99.8	48,992,914	99.9	.....	.....	.....	.....	.....	.....	.....	.....
17 North Dakota.....	1,376,041	3,673,336	.....	.....	.....	.....	1,356,113	98.6	3,496,905	95.2	.....	.....	.....	.....
18 South Dakota.....	676,472	5,078,771	.....	.....	.....	.....	603,966	89.3	4,349,256	85.6	.....	.....	.....	.....
19 Nebraska.....	916,181	7,578,999	457,843	50.0	4,741,288	62.6	264,143	28.8	1,593,672	21.0	.....	.....	.....	.....
20 Kansas.....	258,113	3,733,919	206,981	80.2	2,968,148	79.5	40,218	15.6	636,091	17.0	3,160	1.2	24,280	0.7
SOUTH ATLANTIC: ⁴														
21 Delaware.....	395,014	454,883	395,014	100.0	454,883	100.0	.....	.....	.....	.....	.....	.....	.....	.....
22 Maryland.....	183,337	43,914	183,337	100.0	43,914	100.0	.....	.....	.....	.....	.....	.....	.....	.....
23 Virginia ⁴	43,759	611,300	43,759	100.0	611,300	100.0	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	825,576	5,467,906	728,296	88.2	4,994,302	91.4	38,580	4.7	166,279	3.0	.....	.....	.....	.....
25 South Carolina.....	204,366	1,241,300	182,426	89.3	1,108,000	89.3	.....	.....	.....	.....	.....	.....	.....	.....
26 Georgia.....	84,374	2,064,840	80,674	95.6	1,949,840	94.4	.....	.....	.....	.....	.....	.....	.....	.....
27 Florida.....	5,699,022	43,356,692	5,676,382	99.6	43,006,106	99.2	.....	.....	.....	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL: ⁴														
28 Kentucky.....	465,270	4,947,994	.....	.....	.....	.....	462,120	99.3	4,940,899	99.9	.....	.....	.....	.....
29 Tennessee.....	601,592	6,501,750	586,136	97.4	6,471,846	99.6	14,255	2.4	27,604	0.4	.....	.....	.....	.....
30 Mississippi.....	2,890,618	23,259,677	2,840,463	98.3	23,084,370	99.3	.....	.....	.....	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL:														
31 Arkansas.....	4,592,738	39,450,754	4,508,380	98.2	39,004,644	98.9	.....	.....	.....	.....	.....	.....	.....	.....
32 Louisiana.....	4,219,624	23,361,758	3,792,221	89.8	21,831,468	93.4	3,500	0.1	136,911	0.6	.....	.....	.....	.....
33 Oklahoma.....	197,646	1,971,350	.....	.....	.....	.....	197,646	100.0	1,971,350	100.0	.....	.....	.....	.....
34 Texas.....	4,218,850	14,047,181	3,844,378	91.1	9,764,083	69.5	.....	.....	.....	.....	.....	.....	.....	.....
MOUNTAIN:														
35 Montana.....	372,661	2,827,839	47,418	12.7	1,140,558	40.3	6,000	1.6	16,000	0.6	.....	.....	.....	.....
36 Idaho.....	659,136	7,567,032	123,753	18.8	3,643,801	48.2	.....	.....	.....	.....	.....	.....	.....	.....
37 Wyoming.....	312,662	5,594,866	88,803	28.4	2,315,973	41.4	.....	.....	.....	.....	.....	.....	.....	.....
38 Colorado.....	466,322	4,890,317	255,709	54.6	3,189,708	65.2	.....	.....	.....	.....	.....	.....	.....	.....
39 New Mexico.....	305,885	5,722,121	172,796	56.5	3,374,407	59.0	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	298,633	1,119,242	5,659	1.9	165,500	14.8	.....	.....	.....	.....	.....	.....	.....	.....
41 Utah.....	202,058	4,869,273	148,677	73.6	4,617,869	94.8	.....	.....	.....	.....	.....	.....	.....	.....
42 Nevada.....	153,373	1,337,647	24,398	15.9	95,000	7.1	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:														
43 Washington.....	405,709	5,332,842	256,410	63.2	4,416,541	82.8	.....	.....	.....	.....	7,629	1.9	69,221	1.3
44 Oregon.....	348,825	5,482,012	139,580	40.0	3,835,486	70.0	.....	.....	.....	.....	.....	.....	.....	.....
45 California.....	2,667,194	70,144,044	1,166,321	43.7	58,498,733	83.4	2,380	0.1	75,971	0.1	.....	.....	.....	.....

¹Percent of land in all enterprises.
²Percent of capital invested by all enterprises.
³Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

CHARACTER OF ENTERPRISE, BY DIVISIONS AND STATES, 1940

STATE PROJECTS				IRRIGATION ENTERPRISES								COMMERCIAL			INDIVIDUAL				OTHER					
Land		Capital invested		Federal				Non-Federal				Land		Capital invested	Land		Capital invested		Land		Capital invested			
				Land		Capital invested		Land		Capital invested														
Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	
621,109	0.7	1,344,680	0.2	1,955,481	2.2	19,254,857	2.8	2,285,097	2.6	11,625,594	1.7	72,976	0.1	750,911	0.1	912,070	1.0	8,417,821	1.2	36,000	(²)	102,600	(²)	1
1,223	(⁵)	37,000	(⁵)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42,982	0.1	273,426	0.1	36,000	0.1	102,600	0.1	2
619,886	2.6	1,299,400	0.6	286,629	1.2	2,147,985	1.0	.....	.....	.....	.....	2,342	(⁵)	8,040	(⁵)	100,528	0.4	982,055	0.5	.....	.....	.....	.....	3
.....	4,140	0.1	81,046	0.2	102,840	1.4	825,165	1.5	.....	.....	.....	.....	4
(⁵)	8,280	(⁵)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54,505	1.4	176,422	0.5	.....	.....	.....	.....	5
.....	74,708	0.6	1,622,872	2.1	270,984	2.0	2,701,381	3.4	65,544	0.5	643,192	0.8	471,497	3.6	1,155,142	1.5	.....	.....	.....	.....	6
.....	1,236,691	44.6	12,899,451	38.0	613,423	22.1	1,542,927	4.5	950	(⁵)	18,633	0.1	48,453	1.8	908,500	2.7	.....	.....	.....	.....	7
.....	357,453	10.4	2,584,549	3.2	1,400,690	40.9	7,381,286	9.1	.....	.....	.....	.....	91,265	2.7	4,097,111	5.1	.....	.....	.....	.....	8
.....	9
.....	1,000	(⁵)	98,665	0.2	.....	.....	.....	.....	10
1,223	(⁵)	37,000	0.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30,822	0.6	143,861	0.2	.....	.....	.....	.....	11
.....	7,560	0.1	9,400	(⁵)	.....	.....	.....	.....	12
.....	3,600	0.5	21,500	0.5	36,000	4.7	102,600	2.4	13
.....	14
619,886	5.6	1,299,400	2.0	.....	.....	.....	.....	.....	.....	.....	.....	1,280	(⁵)	2,540	(⁵)	34,450	0.3	82,967	0.1	.....	.....	.....	.....	15
.....	53,786	0.9	739,688	1.0	.....	.....	.....	.....	16
.....	5,600	0.2	57,500	0.1	.....	.....	.....	.....	17
.....	19,928	1.4	176,431	4.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
.....	72,506	10.7	729,515	14.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
.....	194,195	21.2	1,242,039	16.4	.....	.....	.....	.....	.....	.....	.....	.....	(⁵)	.....	2,000	(⁵)	.....	.....	.....	.....	20
.....	1,062	0.4	5,500	0.1	6,692	2.6	99,900	2.7	.....	.....	.....	.....	21
.....	22
.....	23
.....	58,700	7.1	307,325	5.6	.....	.....	.....	.....	24
.....	21,940	10.7	133,300	10.7	.....	.....	.....	.....	25
.....	3,700	4.4	115,000	5.6	.....	.....	.....	.....	26
.....	4,140	0.1	81,046	0.2	18,500	0.3	269,540	0.6	.....	.....	.....	.....	27
.....	28
.....	3,150	0.7	7,095	0.1	.....	.....	.....	.....	29
.....	1,200	0.2	2,300	(⁵)	.....	.....	.....	.....	30
(⁵)	8,280	(⁵)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50,155	1.7	167,027	0.7	.....	.....	.....	.....	31
.....	15,000	0.3	84,592	0.2	69,358	1.5	361,518	0.9	.....	.....	.....	.....	32
.....	11,600	0.3	67,832	0.3	50,544	1.2	558,600	2.4	361,759	8.6	766,947	3.3	.....	.....	.....	.....	33
.....	74,708	1.8	1,622,872	11.6	259,384	6.1	2,633,549	18.7	.....	.....	.....	.....	40,380	1.0	26,677	0.2	.....	.....	.....	.....	34
.....	298,291	80.0	1,503,581	53.2	13,952	3.7	55,000	1.9	.....	.....	.....	.....	7,000	1.9	112,700	4.0	.....	.....	.....	.....	35
.....	289,929	44.0	2,726,032	36.0	242,962	36.8	1,029,199	13.6	.....	.....	.....	.....	2,492	0.4	168,000	2.2	.....	.....	.....	.....	36
.....	223,859	71.6	3,278,883	58.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
.....	122,760	26.2	1,140,366	23.3	64,562	13.8	135,910	2.8	950	0.2	18,633	0.4	24,341	5.2	405,700	8.3	.....	.....	.....	.....	38
.....	125,889	41.2	2,335,214	40.8	7,200	2.3	12,500	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39
.....	52,378	17.5	722,742	64.6	240,596	80.6	231,000	20.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	41,361	20.5	57,304	1.2	.....	.....	.....	.....	.....	.....	.....	.....	12,020	5.9	194,100	4.0	.....	.....	.....	.....	41
.....	62,224	53.6	1,135,329	84.9	44,151	28.8	79,318	5.9	.....	.....	.....	.....	2,600	1.7	28,000	2.1	.....	.....	.....	.....	42
.....	43
.....	132,000	32.5	794,480	14.9	8,390	2.1	32,600	0.6	.....	.....	.....	.....	1,280	0.3	20,000	0.4	.....	.....	.....	.....	44
.....	178,642	51.2	1,209,397	22.0	30,603	8.8	437,129	8.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
.....	46,811	1.8	580,672	0.8	1,361,697	51.0	6,911,587	9.9	.....	.....	.....	.....	89,985	3.4	4,077,111	5.8	.....	.....	.....	.....	45

⁴Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.
⁵Completely-overlapped by land in "Drainage District."

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 22.—LAND IN IRRIGATION ENTERPRISES INCLUDED IN CENSUS OF DRAINAGE WITH PORTIONS TO BE SERVED BY THE DRAINAGE WORKS, BY STATES, 1940

STATE	TOTAL			FEDERAL			NON-FEDERAL		
	Land in enterprises	Land to be drained		Land in enterprises	Land to be drained		Land in enterprises	Land to be drained	
	Acres	Acres	Percent	Acres	Acres	Percent	Acres	Acres	Percent
1 All States, total.....	4,240,578	2,236,201	52.7	1,955,481	987,489	50.5	2,285,097	1,248,712	54.6
2 Arizona.....	292,974	82,000	28.0	52,378	42,000	80.2	240,596	40,000	16.6
3 California.....	1,408,508	867,389	61.6	46,811	33,311	71.2	1,361,697	834,078	61.3
4 Colorado.....	187,322	65,070	34.7	122,760	32,550	26.5	64,562	32,520	50.4
5 Idaho.....	532,891	191,346	35.9	289,929	162,996	56.2	242,962	28,350	11.7
6 Louisiana.....	11,600	11,600	100.0	.....	.....	.....	11,600	11,600	100.0
7 Montana.....	312,243	97,847	31.3	298,291	88,554	29.7	13,952	9,293	66.6
8 Nebraska.....	194,195	27,381	14.1	194,195	27,381	14.1	.....	.....	.....
9 Nevada.....	126,375	73,800	58.4	82,224	45,700	55.6	44,151	28,100	63.6
10 New Mexico.....	133,089	116,245	87.3	125,889	112,645	89.5	7,200	3,600	50.0
11 North Dakota.....	19,928	4,896	24.6	19,928	4,896	24.6	.....	.....	.....
12 Oregon.....	209,245	74,044	35.4	178,642	46,704	26.1	30,603	27,340	89.3
13 South Dakota.....	72,506	72,506	100.0	72,506	72,506	100.0	.....	.....	.....
14 Texas.....	334,092	300,341	89.9	74,708	69,010	92.4	259,384	231,331	89.2
15 Utah.....	41,361	7,886	19.1	41,361	7,886	19.1	.....	.....	.....
16 Washington.....	140,390	117,500	83.7	132,000	115,000	87.1	8,390	2,500	29.8
17 Wyoming.....	223,859	126,350	56.4	223,859	126,350	56.4	.....	.....	.....

TABLE 23.—LAND AND CAPITAL BY COMPLETION OF WORKS: 1940, 1930, AND 1920

ENTERPRISES	Land		CAPITAL					
			Total		Invested	Required for completion		
	Acres	Percent	Dollars	Percent	Dollars	Dollars	Percent of invested	
1 All enterprises.....1940..	86,967,039	100.0	695,692,376	100.0	691,724,519	3,967,857	0.6	
2	1930..	100.0	¹ 689,596,354	100.0	¹ 680,250,255	9,346,039	1.4	
3	1920..	100.0	434,594,979	100.0	372,273,567	62,321,412	16.7	
4 Enterprises completed.....1940..	83,052,740	95.5	665,759,804	95.7	665,759,804	.....	.....
5	1930..	96.6	¹ 638,142,539	92.5	¹ 638,142,539	.....	.....
6	1920..	86.7	293,857,023	67.6	293,857,023	.....	.....
7 Enterprises under construction.....1940..	3,914,299	4.5	29,932,572	4.3	25,964,715	3,967,857	15.3	
8	1930..	3.4	51,453,815	7.5	42,107,716	9,346,039	22.2	
9	1920..	13.3	140,737,956	32.4	78,416,544	62,321,412	79.5	

¹ Revised.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 24.—LAND IN ENTERPRISES AND CAPITAL INVESTED, BY COMPLETION OF WORKS, BY DIVISIONS AND STATES, 1940

DIVISION AND STATE	ALL ENTERPRISES				ENTERPRISES COMPLETED				ENTERPRISES UNDER CONSTRUCTION					
	Land	Capital			Land	Capital invested			Land	Capital				
		Total	Invested	Required for completion		Invested	Required for completion	Invested		Required for completion				
	Acres	Dollars	Dollars	Dollars	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Dollars	
1 Total (38 States)...	86,967,039	695,692,376	691,724,519	3,967,857	83,052,740	95.5	665,759,804	96.2	3,914,299	4.5	25,964,715	3.8	3,967,857	
GEOGRAPHIC DIVISIONS:														
2 East North Central...	32,682,172	200,237,943	199,989,982	247,961	32,536,777	99.6	199,427,874	99.7	145,395	0.4	562,108	0.3	247,961	
3 West North Central...	23,468,623	210,279,511	210,066,013	213,498	23,338,548	99.4	207,915,689	99.0	130,075	0.6	2,150,324	1.0	213,498	
4 South Atlantic ³	7,435,448	53,631,454	53,240,835	390,619	7,270,922	97.8	52,753,680	99.1	164,526	2.2	487,155	0.9	390,619	
5 East South Central ³ ..	3,957,480	34,718,199	34,709,421	8,778	3,957,224	100.0	34,700,664	100.0	256	(⁴)	8,757	(⁴)	8,778	
6 West South Central...	13,226,858	79,702,540	78,831,043	871,497	11,647,796	88.0	74,593,381	94.6	1,581,062	12.0	4,237,662	5.4	871,497	
7 Mountain.....	2,772,730	35,023,810	33,928,327	1,095,483	1,788,697	64.5	23,128,506	68.2	984,033	35.5	10,799,521	31.8	1,095,483	
8 Pacific.....	3,421,728	82,098,919	80,958,898	1,140,021	2,512,776	73.4	73,239,710	90.5	908,952	26.6	7,719,188	9.5	1,140,021	
EAST NORTH CENTRAL:														
9 Ohio.....	7,729,267	35,279,998	35,215,586	64,412	7,674,043	99.3	35,204,726	100.0	55,224	0.7	10,860	(⁴)	64,412	
10 Indiana.....	10,121,952	47,581,041	47,540,385	40,656	10,067,912	99.5	47,425,283	99.8	54,040	0.5	115,102	0.2	40,656	
11 Illinois.....	5,091,364	72,617,674	72,567,174	50,500	5,075,374	99.7	72,273,641	99.6	15,990	0.3	293,533	0.4	50,500	
12 Michigan.....	8,978,386	40,479,644	40,412,251	67,393	8,962,045	99.8	40,344,638	99.8	16,341	0.2	67,613	0.2	67,393	
13 Wisconsin.....	761,203	4,279,586	4,254,586	25,000	757,403	99.5	4,179,586	98.2	3,600	0.5	75,000	1.8	25,000	
WEST NORTH CENTRAL:														
14 Minnesota.....	10,990,409	65,616,075	65,576,077	39,998	10,971,046	99.8	65,300,983	99.6	19,363	0.2	275,094	0.4	39,998	
15 Iowa.....	6,164,344	75,391,497	75,374,497	17,000	6,142,864	99.7	75,230,369	99.8	21,480	0.3	144,128	0.2	17,000	
16 Missouri.....	3,087,063	49,106,914	49,050,414	56,500	3,004,331	97.3	48,319,312	98.5	82,732	2.7	731,102	1.5	56,500	
17 North Dakota.....	1,376,041	3,673,336	3,673,336	.....	1,376,041	100.0	3,673,336	100.0	.....	.....	.....	.....	.....
18 South Dakota.....	676,472	5,078,771	5,078,771	.....	676,472	100.0	5,078,771	100.0	.....	.....	.....	.....	.....
19 Nebraska.....	916,181	7,578,999	7,578,999	.....	916,181	100.0	7,578,999	100.0	.....	.....	.....	.....	.....
20 Kansas.....	258,113	3,833,919	3,733,919	100,000	251,613	97.5	2,733,919	73.2	6,500	2.5	1,000,000	26.8	100,000	
SOUTH ATLANTIC:³														
21 Delaware.....	395,014	454,963	454,883	80	394,214	99.8	454,783	100.0	800	0.2	100	(⁴)	80	
22 Maryland.....	183,337	43,914	43,914	.....	183,337	100.0	43,914	100.0	.....	.....	.....	.....	.....
23 Virginia ⁵	43,759	611,300	611,300	.....	43,759	100.0	611,300	100.0	.....	.....	.....	.....	.....
24 North Carolina.....	828,576	5,858,445	5,467,906	390,539	661,850	80.2	4,980,851	91.1	163,726	19.8	487,055	8.9	390,539	
25 South Carolina.....	204,366	1,241,300	1,241,300	.....	204,366	100.0	1,241,300	100.0	.....	.....	.....	.....	.....
26 Georgia.....	84,374	2,064,840	2,064,840	.....	84,374	100.0	2,064,840	100.0	.....	.....	.....	.....	.....
27 Florida.....	5,699,022	43,356,692	43,356,692	.....	5,699,022	100.0	43,356,692	100.0	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL:³														
28 Kentucky.....	465,270	4,947,994	4,947,994	.....	465,270	100.0	4,947,994	100.0	.....	.....	.....	.....	.....
29 Tennessee.....	601,592	6,508,428	6,501,750	6,678	601,336	100.0	6,501,273	100.0	256	(⁴)	477	(⁴)	6,678	
30 Mississippi.....	2,890,618	23,261,777	23,259,677	2,100	2,890,618	100.0	23,251,397	100.0	(⁵)	.....	8,280	(⁴)	2,100
WEST SOUTH CENTRAL:														
31 Arkansas.....	4,592,738	39,585,754	39,450,754	135,000	4,550,638	99.1	39,178,754	99.3	42,100	0.9	272,000	0.7	135,000	
32 Louisiana.....	1,219,624	23,642,158	23,361,758	280,400	1,031,457	95.5	22,051,695	94.4	188,167	4.5	1,310,063	5.6	280,400	
33 Oklahoma.....	197,646	1,971,350	1,971,350	.....	197,646	100.0	1,971,350	100.0	.....	.....	.....	.....	.....
34 Texas.....	4,218,850	14,503,278	14,047,181	456,097	2,868,055	68.0	11,391,582	81.1	1,350,795	32.0	2,655,599	18.9	456,097	
MOUNTAIN:														
35 Montana.....	372,661	2,928,579	2,827,839	100,740	184,442	49.5	2,080,665	73.6	188,219	50.5	747,174	26.4	100,740	
36 Idaho.....	659,136	8,177,119	7,567,032	610,087	435,159	66.0	5,358,281	70.8	223,977	34.0	2,208,751	29.2	610,087	
37 Wyoming.....	312,662	5,728,123	5,594,856	133,267	172,804	55.3	4,219,489	75.4	139,858	44.7	1,375,357	24.6	133,267	
38 Colorado.....	468,322	4,972,696	4,890,317	82,379	343,215	73.3	4,011,396	82.0	125,107	26.7	878,921	18.0	82,379	
39 New Mexico.....	305,885	5,772,121	5,722,121	50,000	208,875	68.3	3,530,422	61.7	97,010	31.7	2,191,699	38.3	50,000	
40 Arizona.....	298,633	1,146,242	1,119,242	27,000	246,255	82.5	396,500	35.4	52,378	17.5	722,742	64.6	27,000	
41 Utah.....	202,058	4,941,273	4,869,273	72,000	158,058	78.2	3,311,959	68.0	44,000	21.8	1,557,314	32.0	72,000	
42 Nevada.....	153,373	1,357,857	1,337,647	20,010	39,889	26.0	220,084	16.5	113,484	74.0	1,117,563	83.5	20,010	
PACIFIC:														
43 Washington.....	405,709	5,367,442	5,332,842	34,600	260,147	64.1	4,480,862	84.0	145,562	35.9	851,980	16.0	34,600	
44 Oregon.....	348,825	5,951,454	5,482,012	469,142	242,947	69.6	3,617,507	66.0	105,878	30.4	1,864,505	34.0	469,142	
45 California.....	2,657,194	70,780,023	70,144,044	635,979	2,009,682	75.3	65,141,341	92.9	657,512	24.7	5,002,703	7.1	635,979	

¹Percent of land in all enterprises.

²Percent of capital invested by all enterprises.

³Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

⁴Less than one-tenth of 1 percent.

⁵Land overlapped by later enterprise.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 25.—LAND IN ENTERPRISES, CAPITAL INVESTED, AND COST PER ACRE, BY TYPE OF DRAINAGE, BY DIVISIONS AND STATES, 1940

DIVISION AND STATE	ALL TYPES				GRAVITY DRAINAGE ONLY							
	Land		Capital invested	Cost per acre	Open ditches ¹				Tile drains ¹			
	Acre	Percent	Dollars	Dollars	Acres	Percent	Dollars	Dollars	Acres	Percent	Dollars	Dollars
1 Total (38 States) ..	86,967,039	100.0	691,724,519	7.95	63,255,581	100.0	373,435,534	5.90	7,075,713	100.0	77,997,787	11.02
GEOGRAPHIC DIVISIONS:												
2 East North Central...	32,682,172	37.6	199,989,982	6.12	21,866,558	34.5	98,209,596	4.49	3,989,615	56.4	35,033,565	8.78
3 West North Central...	23,468,623	27.0	210,066,013	8.95	15,682,713	24.8	105,809,581	6.75	3,014,578	42.6	40,681,716	13.49
4 South Atlantic ²	7,435,448	8.5	53,240,835	7.16	7,154,355	11.3	46,316,161	6.47	.....	.....	.....	.....
5 East South Central ² ..	3,957,480	4.6	34,709,421	8.77	³ 3,938,548	6.2	³ 34,619,983	8.79	.....	.....	.....	.....
6 West South Central...	13,228,858	15.2	78,831,043	5.96	12,775,384	20.2	68,006,636	5.32	.....	.....	.....	.....
7 Mountain.....	2,772,730	3.2	33,928,327	12.24	³ 1,035,691	1.6	³ 11,500,872	11.10	47,048	0.7	1,873,969	33.45
8 Pacific.....	3,421,728	3.9	80,958,898	23.66	858,578	1.4	9,419,990	10.97	24,472	0.3	708,537	28.95
EAST NORTH CENTRAL:												
9 Ohio.....	7,729,267	8.9	35,215,586	4.56	4,775,969	7.6	17,854,490	3.74	1,337,364	18.9	10,762,233	8.05
10 Indiana.....	10,121,952	11.6	47,640,385	4.70	6,668,905	10.5	25,559,874	3.83	1,405,700	19.9	11,465,952	8.16
11 Illinois.....	5,091,364	5.9	72,567,174	14.25	2,243,748	3.5	23,068,081	10.28	723,590	10.2	6,740,652	9.32
12 Michigan.....	8,978,386	10.3	40,412,251	4.50	7,624,901	12.0	29,213,061	3.83	503,806	7.1	5,780,401	11.47
13 Wisconsin.....	761,203	0.9	4,254,586	5.59	553,135	0.9	2,514,080	4.54	19,155	0.3	284,327	14.84
WEST NORTH CENTRAL:												
14 Minnesota.....	10,980,409	12.6	65,576,077	5.97	8,241,081	13.0	28,178,608	3.42	919,508	13.0	11,799,417	12.83
15 Iowa.....	6,164,344	7.1	75,374,497	12.23	1,660,884	2.6	16,515,381	9.94	2,000,256	28.3	27,646,097	13.82
16 Missouri.....	3,087,063	3.5	49,050,414	15.89	2,897,111	4.6	45,564,108	15.73	8,309	0.1	127,000	15.28
17 North Dakota.....	1,376,041	1.6	3,673,336	2.67	1,365,721	2.2	3,623,013	2.65	9,040	0.1	48,250	5.34
18 South Dakota.....	676,472	0.8	5,078,771	7.51	485,392	0.8	2,808,786	5.79	77,465	1.1	1,060,952	13.70
19 Nebraska.....	916,181	1.1	7,578,989	8.27	785,411	1.2	6,447,266	8.21	.....	.....	.....	.....
20 Kansas.....	258,113	0.3	3,733,919	14.47	247,113	0.4	2,672,419	10.81	.....	.....	.....	.....
SOUTH ATLANTIC: ²												
21 Delaware.....	395,014	0.4	454,883	1.15	395,014	0.6	454,883	1.15	.....	.....	.....	.....
22 Maryland.....	183,337	0.2	43,914	0.24	183,337	0.3	43,914	0.24	.....	.....	.....	.....
23 Virginia ²	43,759	0.1	611,300	13.97	43,759	0.1	611,300	13.97	.....	.....	.....	.....
24 North Carolina.....	825,576	0.9	5,467,906	6.62	825,576	1.3	5,467,906	6.62	.....	.....	.....	.....
25 South Carolina.....	204,366	0.2	1,241,300	6.07	204,366	0.3	1,241,300	6.07	.....	.....	.....	.....
26 Georgia.....	84,374	0.1	2,064,840	24.47	83,674	0.1	1,964,840	23.48	.....	.....	.....	.....
27 Florida.....	5,689,022	6.6	43,356,692	7.61	5,418,629	8.6	36,532,018	6.74	.....	.....	.....	.....
EAST SOUTH CENTRAL: ²												
28 Kentucky.....	465,270	0.6	4,947,994	10.63	464,650	0.7	4,932,586	10.62	.....	.....	.....	.....
29 Tennessee.....	601,592	0.7	6,501,750	10.81	601,592	1.0	6,501,750	10.81	.....	.....	.....	.....
30 Mississippi.....	2,890,618	3.3	23,259,677	8.05	³ 2,872,306	4.5	³ 23,185,647	8.07	.....	.....	.....	.....
WEST SOUTH CENTRAL:												
31 Arkansas.....	4,582,738	5.3	39,450,754	8.59	4,595,561	7.2	38,646,554	8.52	.....	.....	.....	.....
32 Louisiana.....	4,219,624	4.9	23,361,758	5.54	4,074,308	6.4	16,648,255	4.09	.....	.....	.....	.....
33 Oklahoma.....	197,646	0.2	1,971,350	9.97	197,646	0.3	1,971,350	9.97	.....	.....	.....	.....
34 Texas.....	4,218,850	4.8	14,047,181	3.33	3,967,869	6.3	10,740,477	2.71	.....	.....	.....	.....
MOUNTAIN:												
35 Montana.....	372,661	0.4	2,827,839	7.59	150,568	0.2	1,727,397	11.47	5,016	0.1	370,000	73.76
36 Idaho.....	659,136	0.8	7,587,032	11.48	200,582	0.3	2,139,245	10.66	229	(⁴)	18,582	81.14
37 Wyoming.....	312,662	0.4	5,594,856	17.89	³ 179,131	0.3	³ 1,401,517	7.82	2,165	(⁴)	125,673	58.05
38 Colorado.....	468,322	0.5	4,890,317	10.44	171,156	0.3	1,745,400	10.20	9,845	0.1	230,912	23.45
39 New Mexico.....	305,885	0.4	5,722,121	18.71	193,084	0.3	3,752,393	19.43	4,443	0.1	158,477	35.67
40 Arizona.....	298,633	0.3	1,119,242	3.75	2,274	(⁴)	95,500	42.00	.....	.....	.....	.....
41 Utah.....	202,058	0.2	4,869,273	24.10	62,797	0.1	350,934	5.59	25,360	0.4	670,325	26.44
42 Nevada.....	153,373	0.2	1,337,647	8.72	76,089	0.1	288,186	3.79	.....	.....	.....	.....
PACIFIC:												
43 Washington.....	405,709	0.5	5,332,842	13.14	296,405	0.5	2,569,717	8.67	14,868	0.2	433,676	29.17
44 Oregon.....	348,825	0.4	5,482,012	15.72	96,868	0.2	873,135	9.01	.....	.....	.....	.....
45 California.....	2,667,194	3.0	70,144,044	26.30	465,305	0.7	5,977,138	12.84	9,604	0.1	274,861	28.62

¹Each item includes those enterprises that have provided levees in addition to the kind of drain specified.

²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

³Pumping enterprises tabulated with gravity enterprises for States indicated.

⁴Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 25.—LAND IN ENTERPRISES, CAPITAL INVESTED, AND COST PER ACRE, BY TYPE OF DRAINAGE, BY DIVISIONS AND STATES, 1940—Continued

DIVISION AND STATE	GRAVITY DRAINAGE ONLY—Continued				DRAINAGE BY PUMPING							
	Open ditches and tile drains ¹				All by pumping				Part gravity and part pumping			
	Land		Capital invested	Cost per acre	Land		Capital invested	Cost per acre	Land		Capital invested	Cost per acre
	Acres	Percent	Dollars	Dollars	Acres	Percent	Dollars	Dollars	Acres	Percent	Dollars	Dollars
1 Total (38 States)...	12,268,650	100.0	117,246,453	9.56	1,510,929	100.0	80,737,923	53.44	2,856,166	100.0	42,306,822	14.81
GEOGRAPHIC DIVISIONS:												
2 East North Central...	² 6,411,647	52.3	² 40,277,601	6.28	330,211	21.9	23,352,261	70.72	² 84,141	3.0	² 3,116,959	37.04
3 West North Central...	4,568,646	37.2	58,170,246	12.73	127,184	8.4	2,993,732	23.54	75,502	2.6	2,410,738	31.93
4 South Atlantic ³...	.....	.....	.....	.....	115,400	7.6	3,103,882	26.90	165,693	5.8	3,820,792	23.06
5 East South Central ³ ...	18,932	0.2	89,438	4.72	.....	.....	.....	.....	(²)	.....	(²)	.....
6 West South Central...	127,200	1.0	1,279,841	10.06	119,016	7.9	6,573,503	55.23	207,258	7.3	2,971,063	14.34
7 Mountain...	923,335	7.5	14,622,457	15.94	83,846	5.6	2,628,795	31.35	² 682,810	23.9	² 3,602,534	5.28
8 Pacific...	222,690	1.8	2,906,870	13.05	731,512	48.4	42,013,750	57.43	1,584,476	55.5	25,909,751	16.35
EAST NORTH CENTRAL:												
9 Ohio.....	1,615,934	13.2	6,598,863	4.08	.....	.....	.....	.....	.....	.....	.....	.....
10 Indiana.....	2,031,326	16.6	10,317,787	5.08	3,912	0.3	116,134	29.69	12,109	0.4	80,638	6.66
11 Illinois.....	1,726,495	14.1	16,496,734	9.56	325,499	21.5	23,225,386	71.35	72,032	2.6	3,036,321	42.15
12 Michigan.....	848,979	6.9	5,408,048	6.37	800	0.1	10,741	13.43	.....	.....	.....	.....
13 Wisconsin.....	² 188,913	1.5	² 1,456,169	7.71	.....	.....	.....	.....	(²)	.....	(²)	.....
WEST NORTH CENTRAL:												
14 Minnesota.....	1,828,505	14.9	25,504,934	13.95	1,315	0.1	93,118	70.81	.....	.....	.....	.....
15 Iowa.....	2,415,588	19.7	29,446,138	12.19	72,422	4.8	1,127,614	15.57	15,194	0.5	639,267	42.07
16 Missouri.....	110,006	0.9	1,058,306	9.62	53,447	3.5	1,773,000	33.17	18,190	0.6	528,000	29.03
17 North Dakota.....	1,280	(⁴)	2,073	1.62	.....	.....	.....	.....	.....	.....	.....	.....
18 South Dakota.....	113,615	0.9	1,209,033	10.64	.....	.....	.....	.....	.....	.....	.....	.....
19 Nebraska.....	98,632	0.8	938,262	9.51	.....	.....	.....	.....	32,138	1.1	193,471	6.02
20 Kansas.....	1,020	(⁴)	11,500	11.27	.....	.....	.....	.....	9,960	0.4	1,050,000	105.21
SOUTH ATLANTIC: ³												
21 Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Virginia ³.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25 South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	700	(⁴)	100,000	142.86
27 Florida.....	.....	.....	.....	.....	115,400	7.6	3,103,882	26.90	164,993	5.8	3,720,792	22.55
EAST SOUTH CENTRAL: ³												
28 Kentucky.....	620	(⁴)	15,408	24.85	.....	.....	.....	.....	.....	.....	.....	.....
29 Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 Mississippi.....	18,312	0.2	74,030	4.04	.....	.....	.....	.....	(²)	.....	(²)	.....
WEST SOUTH CENTRAL:												
31 Arkansas.....	9,480	0.1	252,200	26.60	.....	.....	.....	.....	47,697	1.7	552,000	11.57
32 Louisiana.....	.....	.....	.....	.....	119,016	7.9	6,573,503	55.23	26,300	0.9	140,000	5.32
33 Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34 Texas.....	117,720	0.9	1,027,641	8.73	.....	.....	.....	.....	133,261	4.7	2,279,063	17.10
MOUNTAIN:												
35 Montana.....	217,077	1.8	730,442	3.36	.....	.....	.....	.....	.....	.....	.....	.....
36 Idaho.....	71,944	0.6	1,241,800	17.25	31,468	2.1	1,906,053	60.57	354,903	12.4	2,261,352	6.37
37 Wyoming.....	131,366	1.1	4,087,666	30.96	.....	.....	.....	.....	(²)	.....	(²)	.....
38 Colorado.....	277,294	2.2	2,853,284	10.29	.....	.....	.....	.....	10,027	0.4	60,721	6.06
39 New Mexico.....	106,358	0.9	1,811,251	16.72	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	3,385	(⁴)	70,000	20.68	52,378	3.5	722,742	13.80	240,596	8.4	231,000	0.96
41 Utah.....	113,811	0.9	3,848,014	33.78	.....	.....	.....	.....	.....	.....	.....	.....
42 Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	77,284	2.7	1,049,461	13.58
PACIFIC:												
43 Washington.....	59,826	0.5	1,227,759	20.49	18,920	1.2	636,876	33.66	15,690	0.6	464,814	29.81
44 Oregon.....	106,193	0.9	414,773	3.90	39,468	2.6	2,427,291	61.50	106,296	3.7	1,766,813	16.62
45 California.....	56,571	0.4	1,264,338	22.35	673,124	44.6	38,949,583	57.86	1,462,590	51.2	23,678,124	16.19

¹ Each item includes those enterprises that have provided levees in addition to the kind of drain specified.
² Pumping enterprises tabulated with gravity enterprises for States indicated.
³ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.
⁴ Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 26.—LAND IN ENTERPRISES, LENGTH OF DRAINS, AND ACRES DRAINED PER MILE OF DRAIN, BY TYPE OF DRAIN, BY DIVISIONS AND STATES, 1940

DIVISION AND STATE	ALL TYPES			OPEN DITCHES ONLY			TILE ONLY			OPEN DITCHES AND TILE		
	Land	Length of drains ¹	Average per mile of drains	Land	Length of drains ¹	Average per mile of drains	Land	Length of drains ¹	Average per mile of drains	Land	Length of drains ¹	Average per mile of drains
	Acres	Miles	Acres	Acres	Miles	Acres	Acres	Miles	Acres	Acres	Miles	Acres
1 Total (38 States)...	86,967,039	203,030.7	428	65,832,740	125,634.9	524	7,092,644	31,471.5	225	14,041,655	45,924.3	306
GEOGRAPHIC DIVISIONS:												
2 East North Central...	32,682,172	97,574.3	335	22,124,111	57,122.5	387	3,991,259	18,924.8	211	6,566,802	21,527.0	305
3 West North Central...	23,468,623	53,358.7	440	15,782,279	24,937.2	633	3,015,893	12,043.3	250	4,670,451	16,378.2	285
4 South Atlantic ²	7,435,448	9,964.0	746	7,434,748	9,950.0	747	.....	.....	.....	700	14.0	50
5 East South Central ² ..	3,957,480	7,126.8	555	3,938,548	7,047.5	559	.....	.....	.....	18,932	79.3	239
6 West South Central...	13,228,658	18,833.8	702	13,033,805	18,244.2	714	.....	.....	.....	195,053	589.6	331
7 Mountain.....	2,772,730	7,441.4	373	1,312,676	2,878.9	456	47,048	383.1	123	1,413,006	4,179.4	338
8 Pacific.....	3,421,728	8,731.7	392	2,206,573	5,454.6	405	38,444	120.3	320	1,176,711	3,156.8	373
EAST NORTH CENTRAL:												
9 Ohio.....	7,729,267	28,916.3	267	4,775,969	15,449.7	309	1,337,364	7,242.5	185	1,615,934	5,224.1	260
10 Indiana.....	10,121,952	32,787.3	309	6,672,611	18,041.1	370	1,405,700	7,584.0	185	2,043,641	7,162.2	285
11 Illinois.....	5,091,364	11,120.5	458	2,496,795	4,360.9	573	725,234	1,895.6	383	1,869,335	4,864.0	384
12 Michigan.....	8,978,386	22,867.0	333	7,625,601	18,063.2	422	503,806	2,130.6	236	848,979	2,673.2	318
13 Wisconsin.....	761,203	1,883.2	404	553,135	1,207.6	458	19,155	72.1	266	188,913	603.5	313
WEST NORTH CENTRAL:												
14 Minnesota.....	10,990,409	25,756.4	427	8,241,081	13,878.9	594	920,823	3,947.7	233	1,828,505	7,929.8	231
15 Iowa.....	6,164,344	18,064.5	341	1,721,000	2,981.6	577	2,000,256	7,826.2	256	2,443,088	7,256.7	337
16 Missouri.....	3,087,063	5,385.6	573	2,930,061	4,324.7	595	8,309	12.4	670	148,693	448.5	332
17 North Dakota.....	1,376,041	950.8	1,447	1,365,721	940.0	1,453	9,040	10.2	886	1,280	0.6	2,133
18 South Dakota.....	676,472	1,176.5	575	485,392	573.5	846	77,465	246.8	314	113,615	356.2	319
19 Nebraska.....	916,181	1,433.0	639	785,411	1,262.1	622	.....	.....	.....	130,770	170.9	765
20 Kansas.....	258,113	591.9	436	253,613	376.4	674	.....	.....	.....	4,500	215.5	21
SOUTH ATLANTIC: ²												
21 Delaware.....	395,014	1,484.8	266	395,014	1,484.8	266	.....	.....	.....	.....	.....	.....
22 Maryland.....	183,337	461.3	397	183,337	461.3	397	.....	.....	.....	.....	.....	.....
23 Virginia ²	43,759	89.0	492	43,759	89.0	492	.....	.....	.....	.....	.....	.....
24 North Carolina.....	825,576	1,894.6	436	825,576	1,894.6	436	.....	.....	.....	.....	.....	.....
25 South Carolina.....	204,366	459.9	444	204,366	459.9	444	.....	.....	.....	.....	.....	.....
26 Georgia.....	84,374	552.3	153	83,674	538.3	155	.....	.....	.....	700	14.0	50
27 Florida.....	5,699,022	5,022.1	1,135	5,699,022	5,022.1	1,135	.....	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL: ²												
28 Kentucky.....	465,270	1,233.8	377	464,650	1,228.6	378	.....	.....	.....	620	5.2	119
29 Tennessee.....	601,592	1,510.8	398	601,592	1,510.8	398	.....	.....	.....	.....	.....	.....
30 Mississippi.....	2,890,618	4,382.2	660	2,872,306	4,308.1	667	.....	.....	.....	18,312	74.1	247
WEST SOUTH CENTRAL:												
31 Arkansas.....	4,592,738	6,041.1	760	4,583,258	6,003.1	763	.....	.....	.....	9,480	38.0	249
32 Louisiana.....	4,219,624	7,302.0	578	4,190,324	7,181.5	583	.....	.....	.....	29,300	120.5	243
33 Oklahoma.....	197,646	334.3	591	197,646	334.3	591	.....	.....	.....	.....	.....	.....
34 Texas.....	4,218,850	5,156.4	818	4,062,577	4,725.3	860	.....	.....	.....	156,273	431.1	362
MOUNTAIN:												
35 Montana.....	372,661	558.3	667	150,568	329.3	457	5,016	13.2	380	217,077	215.8	1,006
36 Idaho.....	659,136	1,155.0	571	347,915	655.0	531	229	3.7	62	310,992	496.3	627
37 Wyoming.....	312,662	953.9	328	179,131	359.4	498	2,165	8.0	271	131,366	586.5	224
38 Colorado.....	468,322	1,365.2	343	171,156	448.8	381	9,845	71.7	137	287,321	844.7	340
39 New Mexico.....	305,885	939.1	326	193,084	495.2	390	4,443	50.0	89	108,358	393.9	275
40 Arizona.....	298,633	114.6	2,606	54,652	68.3	800	.....	.....	.....	243,981	46.3	5,270
41 Utah.....	202,058	1,910.4	106	62,797	78.0	805	25,350	236.5	107	113,911	1,595.9	71
42 Nevada.....	153,373	444.9	345	153,373	444.9	345	.....	.....	.....	.....	.....	.....
PACIFIC:												
43 Washington.....	405,709	1,072.6	378	311,368	656.5	474	16,888	66.6	254	77,453	349.5	222
44 Oregon.....	348,825	1,165.7	299	187,923	504.2	373	.....	.....	.....	160,902	661.5	243
45 California.....	2,667,194	6,493.4	411	1,707,282	4,293.9	398	21,556	53.7	401	338,356	2,145.8	437

¹ Drains constructed and authorized; length of levees not included.² Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 27.—LAND SERVED BY DRAINAGE PUMPS, CAPACITIES OF ENGINES OR MOTORS AND OF PUMPS, AVERAGE LIFT OF WATER, AND PLANT RATIO, BY DIVISIONS AND STATES, 1940

DIVISION AND STATE	Land served	Engine or motor capacity	PUMP CAPACITY			Average lift of water	Plant ratio ¹
			Total	Per acre	Depth per 24 hours		
	<i>Acres</i>	<i>Horsepower</i>	<i>Gallons per minute</i>	<i>Gallons per minute</i>	<i>Inches</i>	<i>Feet</i>	
1 Total (23 States).....	2,316,867	102,196	20,716,025	8.9	0.47	9.6	2.0
GEOGRAPHIC DIVISIONS:							
2 East North Central.....	384,849	23,788	3,766,433	9.7	0.51	11.4	2.2
3 West North Central.....	152,896	6,535	1,362,700	8.9	0.47	8.2	2.2
4 South Atlantic.....	185,893	7,364	3,414,600	18.3	0.97	4.7	1.8
5 East South Central.....	3,060	75	15,000	4.9	0.25	10.0	1.9
6 West South Central.....	144,956	11,577	5,158,582	35.6	1.89	5.4	1.6
7 Mountain.....	146,611	4,375	287,250	1.9	0.10	21.0	2.9
8 Pacific.....	1,298,602	48,482	6,711,460	5.1	0.27	14.1	2.0
EAST NORTH CENTRAL:							
9 Indiana.....	5,412	515	47,333	8.7	0.46	8.8	5.8
10 Illinois.....	375,437	23,206	3,648,100	9.7	0.51	11.6	2.2
11 Michigan.....	800	17	6,000	7.5	0.39	6.0	4.6
12 Wisconsin.....	3,200	50	65,000	20.3	1.07	5.0	0.6
WEST NORTH CENTRAL:							
13 Minnesota.....	1,315	30	10,000	7.6	0.40	7.0	1.7
14 Iowa.....	81,754	3,900	824,500	10.0	0.53	6.1	3.1
15 Missouri.....	64,527	2,115	502,000	7.7	0.41	12.0	1.4
16 Nebraska.....	300	70	2,200	7.3	0.38	20.0	6.3
17 Kansas.....	5,000	420	24,000	4.8	0.25	13.5	5.1
SOUTH ATLANTIC:							
18 Georgia.....	200	160	20,000	100.0	5.30	18.0	1.8
19 Florida.....	185,693	7,204	3,394,600	18.2	0.96	4.6	1.8
EAST SOUTH CENTRAL:							
20 Mississippi.....	3,060	75	15,000	4.9	0.25	10.0	1.9
WEST SOUTH CENTRAL:							
21 Arkansas.....	3,900	350	60,000	15.3	0.81	11.0	2.1
22 Louisiana.....	123,066	11,041	5,055,600	41.0	2.17	5.4	1.6
23 Texas.....	17,990	186	42,982	2.3	0.12	8.1	2.1
MOUNTAIN:							
24 Idaho.....	53,938	2,292	211,850	3.9	0.20	20.4	2.1
25 Colorado.....	80	6	900	11.2	0.59	15.0	1.8
26 Arizona.....	92,378	2,025	71,000	0.7	0.03	23.4	4.8
27 Nevada.....	200	22	2,700	13.5	0.71	10.0	3.2
28 Wyoming.....	15	30	800	53.3	2.82	20.0	7.4
PACIFIC:							
29 Washington.....	26,745	1,305	240,750	9.0	0.47	7.8	2.8
30 Oregon.....	51,795	4,218	742,923	4.3	0.76	11.8	1.9
31 California.....	1,220,062	42,959	5,727,787	4.5	0.24	14.7	2.0

¹The engine or motor capacity divided by the product of the pump capacity and average lift reduced to horsepower.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 28.—LAND IN ENTERPRISES, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS, BY DIVISIONS AND STATES, 1940

DIVISION AND STATE	ALL ENTERPRISES						ENTERPRISES IN ARREARS							
	Land		Capital invested to Jan. 1, 1940		Area delinquent ^a	With some delinquent land				With no delinquent land				
	Acres	Percent	Dollars	Percent		Land	Capital invested to Jan. 1, 1940	Area delinquent ^a	Land	Capital invested to Jan. 1, 1940				
	Acres	Percent	Dollars	Percent	Acres	Acres	Percent	Dollars	Percent	Acres	Acres	Percent	Dollars	Percent
1 Total (38 States)...	86,967,039	100.0	691,724,519	100.0	9,168,557	9,269,946	10.7	95,704,974	13.8	6,637,225	1,282,626	1.5	11,119,928	1.6
GEOGRAPHIC DIVISIONS:														
2 East North Central...	32,382,172	37.6	199,989,962	28.9	391,091	616,922	1.9	8,242,296	4.1	243,670	255,961	0.8	1,752,230	0.9
3 West North Central...	23,468,623	27.0	210,066,013	30.4	821,743	792,924	3.4	8,945,670	4.3	255,546	433,534	1.8	2,873,986	1.4
4 South Atlantic ¹ ...	7,435,448	8.5	53,240,835	7.7	5,502,269	5,008,597	67.4	31,227,445	58.7	4,978,189	17,477	0.2	225,848	0.4
5 East South Central ¹ ...	3,957,480	4.6	34,709,421	5.0	351,468	723,799	18.3	8,072,442	23.3	254,359	101,586	2.6	1,265,698	3.6
6 West South Central...	13,228,658	15.2	78,831,043	11.4	1,682,671	1,327,957	10.0	8,339,338	10.6	576,547	413,144	3.1	2,344,439	3.0
7 Mountain.....	2,772,730	3.2	33,928,327	4.9	158,259	218,526	7.9	5,781,857	17.0	96,887	8,602	0.3	180,504	0.5
8 Pacific.....	3,421,728	3.9	80,958,898	11.7	261,056	581,221	17.0	25,095,936	31.0	232,027	52,302	1.5	2,477,223	3.1
EAST NORTH CENTRAL:														
9 Ohio.....	7,729,267	8.9	35,215,586	5.1	19,683	11,469	0.1	70,903	0.2	3,253	.....	.....	.....	.....
10 Indiana.....	10,121,952	11.6	47,540,385	6.9	62,207	252,815	2.5	897,769	1.9	55,125	188,177	1.9	731,507	1.5
11 Illinois.....	5,091,364	5.9	72,567,174	10.5	143,747	153,651	3.0	5,951,996	8.2	48,765	47,468	0.9	845,610	1.2
12 Michigan.....	8,978,386	10.3	40,412,251	5.8	37,026	47,327	0.5	738,023	1.8	10,574	15,703	0.2	108,329	0.3
13 Wisconsin.....	761,203	0.9	4,254,586	0.6	128,428	151,660	19.9	583,605	13.7	125,953	4,633	0.6	66,784	1.6
WEST NORTH CENTRAL:														
14 Minnesota.....	10,990,409	12.6	65,576,077	9.5	278,473	101,593	0.9	697,662	1.1	18,510	225,708	2.1	953,696	1.5
15 Iowa.....	6,164,344	7.1	75,374,497	10.9	43,001	54,312	0.9	1,030,759	1.4	23,006	141,043	2.3	1,288,296	1.7
16 Missouri.....	3,087,063	3.5	49,050,414	7.1	435,261	442,279	14.3	6,309,298	12.9	180,289	66,783	2.2	631,994	1.3
17 North Dakota.....	1,376,041	1.6	3,673,336	0.5	2,086	6,320	0.5	15,000	0.4	2,086	.....	.....	.....	.....
18 South Dakota.....	676,472	0.8	5,078,771	0.8	25,225	150,438	22.2	532,633	10.5	21,215	.....	.....	.....	.....
19 Nebraska.....	916,181	1.1	7,578,999	1.1	31,960	27,653	3.0	160,318	2.1	9,280	.....	.....	.....	.....
20 Kansas.....	258,113	0.3	3,733,919	0.5	5,737	10,329	4.0	200,000	5.4	1,160	.....	.....	.....	.....
SOUTH ATLANTIC: ¹														
21 Delaware.....	395,014	0.4	454,883	0.1	1,195	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 Maryland.....	183,337	0.2	43,914	(²)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Virginia ¹	43,759	0.1	611,300	0.1	41,664	30,191	69.0	449,300	73.5	29,764	.....	.....	.....	.....
24 North Carolina.....	825,576	0.9	5,467,906	0.8	122,674	158,569	19.2	1,220,200	22.3	111,264	11,675	1.4	150,439	2.8
25 South Carolina.....	204,366	0.2	1,241,300	0.2	101,358	75,697	37.0	840,384	51.6	69,158	1,390	0.7	6,116	0.5
26 Georgia.....	84,374	0.1	2,084,840	0.3	28,195	52,010	61.6	1,303,273	63.1	28,195	448	0.5	24,753	1.2
27 Florida.....	5,699,022	6.6	43,356,692	6.2	5,206,344	4,692,130	82.3	27,614,268	63.7	4,739,808	3,964	0.1	44,540	0.1
EAST SOUTH CENTRAL: ¹														
28 Kentucky.....	465,270	0.6	4,947,994	0.7	28,674	46,543	10.4	1,000,035	20.2	16,926	54,989	11.8	844,378	17.1
29 Tennessee.....	901,682	0.7	6,501,750	0.9	163,732	439,696	73.1	5,125,524	78.8	141,121	4,217	0.7	51,520	0.8
30 Mississippi.....	2,890,618	3.3	23,259,677	3.4	159,062	235,560	8.1	1,946,883	8.4	96,312	42,390	1.5	369,800	1.6
WEST SOUTH CENTRAL:														
31 Arkansas.....	4,592,736	5.3	39,450,754	5.7	1,095,181	862,917	18.8	5,403,544	13.7	509,412	178,082	3.9	1,340,007	3.4
32 Louisiana.....	4,219,624	4.9	23,361,758	3.4	78,168	349,878	8.3	2,111,592	9.0	17,385	167,162	4.0	774,400	3.3
33 Oklahoma.....	197,646	0.2	1,971,350	0.3	20,645	21,610	10.9	299,051	15.2	11,945	.....	.....	.....	.....
34 Texas.....	4,218,850	4.8	14,047,181	2.0	488,677	93,552	2.2	525,141	3.7	37,805	67,900	1.6	230,032	1.6
MOUNTAIN:														
35 Montana.....	372,661	0.4	2,827,839	0.4	1,851	32,805	8.8	654,072	23.1	1,057	3,140	0.8	78,504	2.8
36 Idaho.....	659,136	0.8	7,567,032	1.1	32,342	43,203	6.6	1,311,289	17.3	13,498	.....	.....	.....	.....
37 Wyoming.....	312,662	0.4	5,594,856	0.8	21,680	13,465	4.3	199,800	3.6	10,275	.....	.....	.....	.....
38 Colorado.....	468,322	0.5	4,890,317	0.7	30,083	52,278	11.2	743,782	15.2	24,233	5,462	1.2	102,000	2.1
39 New Mexico.....	305,885	0.4	5,722,121	0.8	4,279	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	298,633	0.3	1,119,242	0.2	1,274	2,274	0.8	95,500	8.5	1,274	.....	.....	.....	.....
41 Utah.....	202,058	0.2	4,869,273	0.7	49,767	74,501	36.9	2,777,414	57.0	46,550	.....	.....	.....	.....
42 Nevada.....	153,373	0.2	1,337,647	0.2	16,983	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:														
43 Washington.....	405,709	0.5	5,332,842	0.8	16,763	16,099	4.0	700,949	13.1	3,890	16,115	4.0	472,099	8.9
44 Oregon.....	348,825	0.4	5,482,012	0.8	53,329	79,417	22.8	1,864,312	34.0	50,019	416	0.1	35,000	0.6
45 California.....	2,667,194	3.0	70,144,044	10.1	180,964	485,705	16.2	22,530,675	32.1	178,118	35,771	1.3	1,970,124	2.8

^a If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication. ¹ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division. ² Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 28.—LAND IN ENTERPRISES, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS, BY DIVISIONS AND STATES, 1940—Continued

DIVISION AND STATE	ENTERPRISES IN ARREARS—Continued					ENTERPRISES NOT IN ARREARS								
	With no report on delinquency					With some delinquent land					With no delinquent land			
	Land		Capital invested to Jan. 1, 1940			Land		Capital invested to Jan. 1, 1940			Area delinquent ^o	Land		Capital invested to Jan. 1, 1940
	Acres	Percent	Dollars	Percent	Acres	Percent	Dollars	Percent	Acres	Acres	Percent	Dollars	Percent	
1 Total (36 States)..	988,562	1.1	9,492,594	1.4	12,461,432	14.3	133,186,355	19.3	2,524,899	61,756,750	71.0	427,896,622	61.9	
GEOGRAPHIC DIVISIONS:														
2 East North Central...	50,189	0.2	1,374,188	0.7	856,497	2.6	11,822,759	5.9	147,199	30,501,808	93.3	172,772,782	86.4	
3 West North Central...	191,210	0.8	2,423,399	1.2	3,008,376	12.8	43,406,924	20.7	568,197	18,627,678	79.4	150,462,050	71.6	
4 South Atlantic ¹					865,596	11.6	14,890,354	28.0	524,080	1,538,298	20.7	6,871,252	12.9	
5 East South Central ¹ ..	4,240	0.1	42,000	0.1	675,058	17.1	5,695,961	16.4	97,109	2,445,242	61.8	19,561,570	56.4	
6 West South Central...	87,950	0.7	613,963	0.8	6,390,720	48.3	40,163,038	50.9	1,104,917	4,903,109	37.1	26,291,721	33.4	
7 Mountain.....	31,262	1.1	697,673	2.1	323,642	11.7	5,475,441	16.1	58,368	1,978,988	71.4	17,616,817	52.5	
8 Pacific.....	623,711	18.2	4,941,371	5.4	341,343	10.0	11,731,678	14.5	27,029	1,763,627	51.5	34,120,430	42.1	
EAST NORTH CENTRAL:														
9 Ohio.....	1,598	(²)	1,465	(²)	142,955	1.8	522,251	1.5	16,208	7,534,970	97.5	34,505,438	98.0	
10 Indiana.....	10,091	0.1	44,413	0.1	49,717	0.5	306,366	0.6	7,082	9,541,569	94.3	45,044,913	94.8	
11 Illinois.....	30,962	0.6	1,234,002	1.7	439,823	8.6	9,741,479	13.4	94,982	4,313,439	84.7	52,180,663	71.9	
12 Michigan.....	1,740	(²)	35,750	0.1	187,232	2.1	962,452	2.4	26,452	8,576,340	95.5	38,103,502	94.3	
13 Wisconsin.....	5,800	0.8	58,558	1.4	36,770	4.8	290,211	6.8	2,475	535,490	70.3	2,938,266	69.1	
WEST NORTH CENTRAL:														
14 Minnesota.....	33,106	0.3	77,650	0.1	1,111,440	10.1	13,099,012	20.0	259,963	9,159,344	83.3	49,735,659	75.8	
15 Iowa.....	68,814	1.1	1,109,928	1.5	96,160	1.6	642,036	0.9	19,995	5,762,324	93.5	70,507,002	93.5	
16 Missouri.....	89,290	2.9	1,235,921	2.5	1,453,544	47.1	25,256,912	51.5	254,972	1,033,375	33.5	15,581,289	31.8	
17 North Dakota.....										1,369,721	99.5	3,658,336	99.6	
18 South Dakota.....					31,940	4.7	493,629	9.7	4,010	494,094	73.0	4,052,509	79.8	
19 Nebraska.....					264,265	28.8	2,917,001	38.5	22,680	620,963	67.8	4,456,680	58.8	
20 Kansas.....					51,027	19.8	998,334	26.7	4,577	167,657	72.8	2,470,575	66.2	
SOUTH ATLANTIC:¹														
21 Delaware.....					12,979	3.3	6,130	1.3	1,195	382,035	96.7	448,753	98.7	
22 Maryland.....														
23 Virginia ¹					13,568	31.0	162,000	26.5	11,900					
24 North Carolina.....					23,992	2.9	259,785	4.8	11,410	625,860	75.8	3,811,546	69.7	
25 South Carolina.....					43,593	21.3	179,000	14.4	32,200	83,686	40.9	415,800	33.5	
26 Georgia.....										31,916	37.8	736,814	35.7	
27 Florida.....					764,931	13.4	14,282,441	32.9	466,536	237,997	4.2	1,415,423	3.3	
EAST SOUTH CENTRAL:¹														
28 Kentucky.....					86,917	18.7	555,157	11.2	11,748	274,821	59.1	2,548,424	51.5	
29 Tennessee.....					83,561	13.9	666,458	10.3	22,611	74,118	12.3	656,248	10.1	
30 Mississippi.....	4,240	0.1	42,000	0.2	504,580	17.5	4,472,346	19.2	62,750	2,096,303	72.5	16,356,898	70.3	
WEST SOUTH CENTRAL:														
31 Arkansas.....	29,942	0.7	215,963	0.5	2,005,073	43.7	23,063,476	58.5	584,562	1,466,180	31.9	6,677,184	22.0	
32 Louisiana.....					747,879	17.7	7,878,000	33.7	60,783	2,954,705	70.0	12,597,766	53.9	
33 Oklahoma.....	33,708	17.1	298,000	15.1	24,420	12.4	98,652	5.0	8,700	94,942	48.0	980,673	49.7	
34 Texas.....	24,300	0.6	100,000	0.7	3,613,348	85.6	9,122,910	64.9	450,872	387,272	9.2	4,036,098	28.7	
MOUNTAIN:														
35 Montana.....	12,000	3.2	210,000	7.4	5,209	1.4	191,431	6.8	794	319,009	85.6	1,683,832	59.5	
36 Idaho.....	4,202	0.6	90,000	1.2	45,878	7.0	1,101,441	14.6	16,644	506,091	76.6	3,924,102	51.9	
37 Wyoming.....	5,760	1.8	257,673	4.6	26,755	8.6	755,000	13.5	11,405	242,824	77.7	3,788,883	67.7	
38 Colorado.....	9,300	2.0	140,000	2.9	55,442	11.8	688,712	14.1	5,046	345,036	73.7	3,193,823	65.3	
39 New Mexico.....					37,727	12.3	970,595	17.0	4,279	145,170	47.5	2,606,191	45.5	
40 Arizona.....										296,359	99.2	1,023,742	91.5	
41 Utah.....					26,856	13.3	554,155	11.4	3,217	98,101	48.6	1,472,704	30.2	
42 Nevada.....					125,975	82.1	1,214,107	90.8	16,983	27,398	17.9	123,540	9.2	
PACIFIC:														
43 Washington.....					51,039	12.6	1,199,254	22.5	12,873	317,333	76.2	2,888,040	54.2	
44 Oregon.....	1,832	0.4	140,000	2.6	8,708	2.5	218,478	4.0	1,310	232,656	66.8	2,066,179	37.5	
45 California.....	622,379	23.3	4,201,371	6.0	281,596	10.6	10,314,146	14.7	12,646	1,213,438	45.5	29,176,211	41.6	

^oIf any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication. ¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division. ²Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 28.—LAND IN ENTERPRISES, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS, BY DIVISIONS AND STATES, 1940—Continued

DIVISION AND STATE	ENTERPRISES NOT IN ARREARS—Continued				ENTERPRISES NOT REPORTING ON ARREARAGE												
	With no report on delinquency				With some delinquent land				With no delinquent land				With no report on delinquency				
	Land		Capital invested to Jan. 1, 1940		Land		Capital invested to Jan. 1, 1940		Area delinquent ^a	Land		Capital invested to Jan. 1, 1940		Land		Capital invested to Jan. 1, 1940	
	Acres	Per-cent	Dollars	Per-cent	Acres	Per-cent	Dollars	Per-cent	Acres	Acres	Per-cent	Dollars	Per-cent	Acres	Per-cent	Dollars	Per-cent
1 Total (38 States)...	842,767	1.0	8,685,632	1.3	22,776	(¹)	752,779	0.1	6,433	48,855	0.1	704,324	0.1	291,325	0.3	4,181,311	0.6
GEOGRAPHIC DIVISIONS:																	
2 East North Central...	212,937	0.7	2,138,069	1.1	4,575	(¹)	1,806	(¹)	222	39,881	0.1	692,430	0.3	143,362	0.4	1,193,422	0.6
3 West North Central...	401,077	1.7	1,865,590	0.9	.....	.....	.....	.....	.....	8,764	(¹)	10,394	(¹)	5,060	(¹)	78,000	(¹)
4 South Atlantic ² ...	4,700	0.1	11,936	(¹)	.....	.....	.....	.....	.....	.....	.....	.....	.....	780	(¹)	14,000	(¹)
5 East South Central ² ...	7,555	0.2	71,750	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6 West South Central...	97,705	0.7	813,554	1.0	6,680	0.1	235,000	0.3	1,207	.....	.....	.....	.....	1,593	(¹)	30,000	(¹)
7 Mountain.....	77,357	2.8	1,326,700	3.9	6,165	0.2	354,000	1.0	3,004	.....	.....	.....	.....	127,988	4.6	2,295,335	6.8
8 Pacific.....	41,436	1.2	2,458,033	3.0	5,356	0.2	161,973	0.2	2,000	210	(¹)	1,500	(¹)	12,522	0.4	570,554	0.7
EAST NORTH CENTRAL:																	
9 Ohio.....	9,220	0.1	55,635	0.2	4,575	0.1	1,806	(¹)	222	11,958	0.2	3,755	(¹)	12,524	0.2	54,333	0.2
10 Indiana.....	21,933	0.2	154,978	0.3	.....	.....	.....	.....	.....	10,170	0.1	75,781	0.2	47,480	0.5	284,658	0.6
11 Illinois.....	53,145	1.0	1,282,925	1.8	.....	.....	.....	.....	.....	6,304	0.1	553,615	0.8	46,572	0.9	776,884	1.1
12 Michigan.....	101,789	1.1	327,369	0.8	.....	.....	.....	.....	.....	11,449	0.1	59,279	0.1	36,806	0.4	77,547	0.2
13 Wisconsin.....	26,850	3.5	317,162	7.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST NORTH CENTRAL:																	
14 Minnesota.....	350,486	3.2	1,004,104	1.5	.....	.....	.....	.....	.....	8,732	0.1	8,394	(¹)	.....	.....	.....	.....
15 Iowa.....	41,691	0.7	795,476	1.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16 Missouri.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	(¹)	2,000	(¹)	1,760	0.1	33,000	0.1
17 North Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18 South Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 Nebraska.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,300	0.4	45,000	0.6
20 Kansas.....	8,900	3.4	65,010	1.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SOUTH ATLANTIC: ²																	
21 Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Virginia ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	4,700	0.6	11,936	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	780	0.1	14,000	0.3
25 South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL: ²																	
28 Kentucky.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 Mississippi.....	7,555	0.3	71,750	0.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL:																	
31 Arkansas.....	43,854	1.0	515,580	1.3	6,680	0.1	235,000	0.6	1,207	.....	.....	.....	.....	.....	.....	.....	.....
32 Louisiana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33 Oklahoma.....	21,373	10.8	264,974	13.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,593	0.8	30,000	1.5
34 Texas.....	32,478	0.8	33,000	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MOUNTAIN:																	
35 Montana.....	498	0.1	10,000	0.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36 Idaho.....	55,401	8.4	808,200	10.7	5,361	0.8	332,000	4.4	2,200	.....	.....	.....	.....	.....	.....	.....	.....
37 Wyoming.....	18,658	6.0	443,500	7.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,000	1.6	150,000	2.7
38 Colorado.....	.....	.....	.....	.....	804	0.2	22,000	0.4	804	.....	.....	.....	.....	.....	.....	.....	.....
39 New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	122,988	40.2	2,145,335	37.5
40 Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
41 Utah.....	2,600	1.3	65,000	1.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:																	
43 Washington.....	4,653	1.1	67,000	1.3	.....	.....	.....	.....	.....	210	0.1	1,500	(¹)	260	0.1	4,000	0.1
44 Oregon.....	14,725	4.2	678,208	16.0	5,356	1.5	161,973	3.0	2,000	.....	.....	.....	.....	6,015	1.7	127,862	2.3
45 California.....	22,058	0.8	1,512,825	2.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,247	0.2	438,692	0.6

^a If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication. ¹ Less than one-tenth of 1 percent. ² Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 29.—LAND UNFIT FOR ANY CROP FOR LACK OF DRAINAGE AND IDLE LAND, IN ENTERPRISES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS, BY DIVISIONS AND STATES, 1940

DIVISION AND STATE	ALL ENTERPRISES					ENTERPRISES IN ARREARS					ENTERPRISES NOT IN ARREARS					ENTERPRISES NOT REPORTING AS TO ARREARAGE				
	All land	Unfit for any crop	Idle land			All land	Unfit for any crop	Idle land			All land	Unfit for any crop	Idle land			All land	Unfit for any crop	Idle land		
	Acres	Acres	Per-cent	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Per-cent
1 Total (38 States)...	86,967,039	7,133,943	8.2	18,836,290	21.7	11,758,093	4,077,142	34.6	6,126,758	52.1	74,805,259	3,047,292	4.1	12,640,766	16.9	393,687	9,509	2.4	68,786	17.5
GEOGRAPHIC DIVISIONS:																				
2 East North Central...	32,682,172	674,693	2.1	3,506,999	10.7	882,438	36,308	4.1	248,060	28.1	31,611,893	630,823	2.0	3,238,497	10.2	187,841	7,562	4.0	20,442	10.9
3 West North Central...	23,468,623	587,334	2.5	3,854,366	16.4	1,414,568	47,922	3.4	243,996	17.2	22,040,231	539,412	2.4	3,608,163	16.4	13,824	.....	.....	2,207	16.0
4 South Atlantic...	7,435,448	3,298,108	44.4	5,484,219	73.8	5,025,074	3,135,848	62.4	4,221,758	84.0	2,408,594	162,260	6.7	1,262,181	52.4	780	.....	.....	280	35.9
5 East South Central...	3,957,480	798,773	20.2	1,508,207	38.1	829,625	278,448	33.6	435,296	52.5	3,127,855	520,325	16.6	1,072,911	34.3	.....	.....	.....	.....	.....
6 West South Central...	13,228,858	1,492,766	11.3	3,690,612	27.9	1,829,051	435,740	23.8	719,276	39.3	11,391,534	1,056,633	9.3	2,969,607	26.1	8,273	393	4.8	1,729	20.9
7 Mountain...	2,772,730	112,394	4.1	388,537	14.0	529,103	17,803	3.4	62,996	11.9	2,078,746	93,631	4.5	282,299	13.6	164,881	960	0.6	43,242	26.2
8 Pacific...	3,421,728	169,875	5.0	403,350	11.8	1,257,234	125,073	9.9	195,376	15.5	2,146,406	44,208	2.1	207,108	9.6	18,088	594	3.3	866	4.8
EAST NORTH CENTRAL:																				
9 Ohio.....	7,729,267	12,482	0.2	422,255	5.5	11,469	2,625	22.9	2,817	24.6	7,688,738	9,857	0.1	416,861	5.4	29,060	.....	.....	2,577	8.9
10 Indiana.....	10,121,952	162,953	1.6	1,396,258	13.8	408,525	11,681	2.9	77,225	18.9	9,655,777	150,840	1.6	1,315,220	13.6	57,650	432	0.7	3,813	6.6
11 Illinois...	5,091,364	146,657	2.9	273,248	5.4	232,081	12,262	5.3	20,248	8.7	4,806,407	132,739	2.8	243,416	5.1	52,876	1,656	3.1	9,594	18.1
12 Michigan...	8,978,386	248,196	2.8	1,082,024	12.1	68,270	5,697	8.3	20,559	30.1	8,861,861	237,025	2.7	1,056,997	11.9	48,255	5,474	11.3	4,468	9.3
13 Wisconsin...	761,203	104,405	13.7	333,214	43.8	162,093	4,043	2.5	127,211	78.5	599,110	100,362	16.8	206,003	34.4	.....	.....	.....	.....	.....
WEST NORTH CENTRAL:																				
14 Minnesota...	10,990,409	423,256	3.9	2,742,654	25.0	360,407	7,587	2.1	58,027	16.1	10,621,270	415,669	3.9	2,683,382	25.3	8,732	.....	.....	1,245	14.3
15 Iowa.....	6,164,344	33,626	0.5	98,727	1.6	264,169	5,050	1.9	14,642	5.5	5,900,175	28,576	0.5	84,085	1.4	.....	.....	.....	.....	.....
16 Missouri...	3,087,063	105,858	3.4	527,289	17.1	595,252	35,245	5.9	128,512	21.6	2,490,019	70,613	2.8	398,715	16.1	1,792	.....	.....	62	3.5
17 North Dakota...	1,376,041	4,300	0.3	242,493	17.6	6,320	.....	.....	1,420	22.5	1,369,721	4,300	0.3	241,073	17.6	.....	.....	.....	.....	.....
18 South Dakota...	676,472	3,160	0.5	118,654	17.5	150,436	.....	.....	34,590	23.0	526,034	3,160	0.6	84,064	16.0	.....	.....	.....	.....	.....
19 Nebraska...	916,181	16,628	1.8	114,696	12.5	27,653	40	0.1	6,605	23.9	885,228	16,588	1.9	107,191	12.1	3,300	.....	.....	900	27.3
20 Kansas.....	258,113	506	0.2	9,853	3.8	10,329	.....	.....	200	1.9	247,784	506	0.2	9,653	3.9	.....	.....	.....	.....	.....
SOUTH ATLANTIC: ¹																				
21 Delaware...	395,014	33,908	8.6	170,080	43.1	.....	.....	.....	.....	.....	395,014	33,908	8.6	170,080	43.1	.....	.....	.....	.....	.....
22 Maryland...	183,337	2,990	1.6	63,067	34.4	.....	.....	.....	.....	.....	183,337	2,990	1.6	63,067	34.4	.....	.....	.....	.....	.....
23 Virginia...	43,759	10,511	24.0	25,078	57.3	30,191	10,511	34.8	19,593	64.9	13,568	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina...	825,576	57,942	7.0	378,478	45.8	170,244	13,473	7.9	100,292	58.9	654,552	44,469	6.8	277,906	42.5	780	.....	.....	280	35.9
25 South Carolina...	204,366	1,500	0.7	110,851	54.2	77,087	.....	.....	40,637	52.7	127,279	1,500	1.2	70,214	55.2	.....	.....	.....	.....	.....
26 Georgia...	84,374	500	0.6	45,954	54.5	52,458	.....	.....	29,153	55.6	31,916	500	1.6	16,801	52.6	.....	.....	.....	.....	.....
27 Florida...	5,699,022	3,190,757	56.0	4,690,711	82.3	4,696,094	3,111,864	66.3	4,032,083	85.9	1,002,928	78,893	7.9	658,628	65.7	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL: ¹																				
28 Kentucky...	465,270	32,228	6.9	132,591	28.5	103,532	21,219	20.5	56,913	55.0	361,738	11,009	3.0	75,678	20.9	.....	.....	.....	.....	.....
29 Tennessee...	601,592	264,956	44.0	359,113	59.7	443,913	196,691	44.3	261,891	59.0	157,679	68,265	43.3	97,222	61.7	.....	.....	.....	.....	.....
30 Mississippi...	2,890,618	501,589	17.4	1,016,503	35.2	282,180	60,538	21.5	116,492	41.3	2,608,438	441,051	16.9	900,011	34.5	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL:																				
31 Arkansas...	4,592,738	373,212	8.1	1,593,470	34.7	1,070,941	159,081	14.9	562,755	52.5	3,515,117	214,131	6.1	1,029,379	29.3	6,680	.....	.....	1,336	20.0
32 Louisiana...	4,219,624	729,488	17.3	655,011	15.5	517,040	201,921	39.1	48,261	9.3	3,702,584	527,567	14.2	607,750	16.4	.....	.....	.....	.....	.....
33 Oklahoma...	197,646	7,726	3.9	19,693	10.0	55,318	2,033	3.7	4,600	8.3	140,735	5,300	3.8	14,700	10.4	1,593	393	24.7	393	24.7
34 Texas.....	4,218,850	382,340	9.1	1,421,438	33.7	185,752	72,705	39.1	103,660	55.8	4,033,098	309,635	7.7	1,317,778	32.7	.....	.....	.....	.....	.....
MOUNTAIN:																				
35 Montana...	372,661	16,963	4.6	24,401	6.5	47,945	772	1.6	4,278	8.9	324,716	16,191	5.0	20,123	6.2	.....	.....	.....	.....	.....
36 Idaho.....	659,136	18,957	2.9	34,605	5.3	318,118	5,869	1.8	8,284	2.6	304,929	12,923	4.2	25,711	8.4	36,089	165	0.5	610	1.7
37 Wyoming...	312,662	13,274	4.2	69,629	22.3	19,225	3,000	15.6	295	1.5	288,437	10,274	3.6	69,334	24.0	5,000	.....	.....	.....	.....
38 Colorado...	468,322	9,928	2.1	82,996	17.7	67,040	2,221	3.3	20,274	30.2	400,478	6,912	1.7	61,943	15.5	804	795	98.9	779	96.9
39 New Mexico...	305,885	11,810	3.9	79,093	25.9	.....	.....	.....	.....	.....	182,897	11,810	6.5	37,240	20.4	122,988	.....	.....	41,853	34.0
40 Arizona...	298,633	300	0.1	23,247	7.8	2,274	.....	.....	.....	.....	296,359	300	0.1	23,247	7.8	.....	.....	.....	.....	.....
41 Utah.....	202,058	41,162	20.4	35,768	17.7	74,501	5,941	8.0	29,865	40.1	127,557	35,221	27.6	5,903	4.6	.....	.....	.....	.....	.....
42 Nevada...	153,373	.....	.....	38,798	25.3	.....	.....	.....	.....	.....	153,373	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:																				
43 Washington...	405,709	5,903	1.5	13,197	3.3	32,214	755	2.3	3,407	10.6	373,025	5,125	1.4	9,777	2.6	470	23	4.9	13	2.8
44 Oregon...	348,825	28,610	8.2	52,360	15.0	81,165	3,499	4.3	7,762	9.6	256,289	24,770	9.7	43,725	17.1	11,371	341	3.0	859	7.5
45 California...	2,667,194	135,362	5.1	337,793	12.7	1,143,855	120,819	10.6	184,187	16.1	1,517,092	14,313	0.9	153,606	10.1	6,247	230	3.7	.....	.....

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 30.—LAND IN ENTERPRISES, AREA ASSESSED, AND CAPITAL INVESTED,

1	DIVISION AND STATE	ALL ENTERPRISES						1935-1939					
		Land		Area assessed ¹	Overlapped	Capital invested to Jan. 1, 1940		Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940	
		Acres	Per-cent	Acres	Acres	Dollars	Per-cent	Acres	Per-cent	Acres	Acres	Dollars	Per-cent
1	Total (38 States) ..	86,967,039	100.0	132,828,451	45,861,412	691,724,519	100.0	3,873,679	4.5	4,002,505	128,826	6,492,382	0.9
GEOGRAPHIC DIVISIONS:													
2	East North Central...	32,692,172	37.6	67,924,976	35,242,804	199,989,982	28.9	1,760,979	5.4	1,887,661	126,682	3,139,056	1.6
3	West North Central...	23,468,623	27.0	30,498,946	7,030,323	210,066,013	30.4	127,975	0.5	127,975	.....	568,071	0.3
4	South Atlantic ²	7,435,448	8.5	8,740,277	1,304,828	53,240,835	7.7	317,802	4.3	319,546	1,744	253,448	0.5
5	East South Central ² ..	3,957,480	4.6	4,260,659	303,179	34,709,421	5.0	65,996	1.7	66,396	400	67,642	0.2
6	West South Central...	13,228,858	15.2	15,065,589	1,836,731	78,831,043	11.4	1,434,282	10.8	1,434,282	.....	867,019	1.1
7	Mountain.....	2,772,730	3.2	2,794,992	22,262	33,928,327	4.9	104,281	3.8	104,281	.....	761,711	2.2
8	Pacific.....	3,421,728	3.9	3,543,012	121,284	80,958,898	11.7	62,364	1.8	62,364	.....	815,435	1.0
EAST NORTH CENTRAL:													
9	Ohio.....	7,729,267	8.9	25,212,061	17,482,794	35,215,586	5.1	944,372	12.2	1,013,019	68,647	1,016,410	2.9
10	Indiana.....	10,121,952	11.6	19,972,525	9,850,573	47,540,385	6.9	311,147	3.1	337,094	25,947	639,125	1.3
11	Illinois.....	5,091,364	5.9	5,897,124	805,760	72,567,174	10.5	78,450	1.5	78,450	.....	355,108	0.5
12	Michigan.....	8,978,386	10.3	16,070,273	7,091,887	40,412,251	5.8	420,710	4.7	452,318	31,608	1,080,013	2.7
13	Wisconsin.....	761,203	0.9	772,993	11,790	4,254,586	0.6	6,300	0.8	6,780	480	48,400	1.1
WEST NORTH CENTRAL:													
14	Minnesota.....	10,990,409	12.6	14,702,196	3,711,787	65,576,077	9.5	23,443	0.2	23,443	.....	212,845	0.3
15	Iowa.....	6,164,344	7.1	7,544,931	1,380,587	75,374,497	10.9	36,462	0.6	36,462	.....	229,680	0.3
16	Missouri.....	3,087,063	3.5	4,434,979	1,347,916	49,050,414	7.1	47,819	1.5	47,819	.....	91,627	0.2
17	North Dakota.....	1,376,041	1.6	1,840,781	464,740	3,873,336	0.5	.....	.....	.....	.....	.....	.....
18	South Dakota.....	676,472	0.8	711,572	35,100	5,078,771	0.7	.....	.....	.....	.....	.....	.....
19	Nebraska.....	916,181	1.1	1,005,541	89,360	7,578,999	1.1	11,489	1.3	11,489	.....	27,940	0.4
20	Kansas.....	258,113	0.3	258,946	833	3,733,919	0.6	8,762	3.4	8,762	.....	5,979	0.2
SOUTH ATLANTIC: ²													
21	Delaware.....	395,014	0.4	853,562	458,548	454,883	0.1	97,578	24.7	98,969	1,391	64,577	14.2
22	Maryland.....	183,337	0.2	190,922	7,585	43,914	(³)	125,865	68.7	125,865	.....	16,570	37.7
23	Virginia ²	43,759	0.1	43,759	.....	611,300	0.1	.....	.....	.....	.....	.....	.....
24	North Carolina.....	825,576	0.9	899,848	74,272	5,467,906	0.8	91,223	11.0	91,576	353	117,231	2.1
25	South Carolina.....	204,366	0.2	204,366	.....	1,241,300	0.2	.....	.....	.....	.....	.....	.....
26	Georgia.....	84,374	0.1	84,374	.....	2,064,840	0.3	.....	.....	.....	.....	.....	.....
27	Florida.....	5,699,022	6.6	6,463,446	764,424	43,356,692	6.2	3,136	0.1	3,136	.....	55,070	0.1
EAST SOUTH CENTRAL: ²													
28	Kentucky.....	465,270	0.6	515,617	50,347	4,947,994	0.7	453	0.1	453	.....	1,829	(³)
29	Tennessee.....	601,592	0.7	618,172	16,580	6,501,750	0.9	26,197	4.4	26,597	400	57,945	0.9
30	Mississippi.....	2,890,618	3.3	3,128,870	236,252	23,259,677	3.4	39,346	1.4	39,346	.....	7,868	(³)
WEST SOUTH CENTRAL:													
31	Arkansas.....	4,592,738	5.3	5,633,299	1,040,561	39,450,754	5.7	23,766	0.5	23,766	.....	168,596	0.4
32	Louisiana.....	4,219,624	4.8	4,703,474	483,850	23,361,758	3.4	297,419	7.0	297,419	.....	516,171	2.2
33	Oklahoma.....	197,646	0.2	197,646	.....	1,971,350	0.3	5,600	2.8	5,600	.....	5,679	0.3
34	Texas.....	4,218,850	4.9	4,531,170	312,320	14,047,181	2.0	1,107,497	26.3	1,107,497	.....	196,573	1.4
MOUNTAIN:													
35	Montana.....	372,661	0.4	374,189	1,528	2,827,839	0.4	8,361	2.2	8,361	.....	106,626	3.8
36	Idaho.....	659,136	0.8	674,532	15,396	7,567,032	1.1	12,157	1.8	12,157	.....	217,483	2.9
37	Wyoming.....	312,662	0.4	312,662	.....	5,594,856	0.8	.....	.....	.....	.....	.....	.....
38	Colorado.....	466,322	0.5	469,294	972	4,890,317	0.7	72,107	15.4	72,107	.....	428,921	8.8
39	New Mexico.....	305,885	0.4	305,885	.....	5,722,121	0.8	.....	.....	.....	.....	.....	.....
40	Arizona.....	298,633	0.3	300,907	2,274	1,119,242	0.2	.....	.....	.....	.....	.....	.....
41	Utah.....	202,058	0.2	204,150	2,092	4,869,273	0.7	378	0.2	378	.....	5,000	0.1
42	Nevada.....	153,373	0.2	153,373	.....	1,337,647	0.2	11,278	7.4	11,278	.....	3,681	0.3
PACIFIC:													
43	Washington.....	405,709	0.5	433,340	27,631	5,332,842	0.8	14,515	3.6	14,515	.....	33,260	0.6
44	Oregon.....	348,825	0.4	353,915	5,090	5,482,012	0.8	14,748	4.2	14,748	.....	128,900	2.4
45	California.....	2,667,194	3.0	2,755,757	88,563	70,144,044	10.1	33,101	1.2	33,101	.....	653,275	0.9

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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BY DATE OF ORGANIZATION, BY DIVISIONS AND STATES, 1940

1930-1934						1925-1929						1920-1924												
Land		Area assessed		Overlapped		Capital invested to Jan. 1, 1940		Land		Area assessed		Overlapped		Capital invested to Jan. 1, 1940		Land		Area assessed		Overlapped		Capital invested to Jan. 1, 1940		
Acres	Per-cent	Acres	Acres	Dollars	Per-cent	Acres	Per-cent	Acres	Acres	Dollars	Per-cent	Acres	Per-cent	Acres	Acres	Dollars	Per-cent	Acres	Acres	Dollars	Per-cent	Acres	Per-cent	
2,092,568	2.4	2,339,718	247,150	8,510,186	1.2	7,410,814	8.5	8,658,734	1,247,920	48,491,083	7.0	11,272,180	13.0	12,876,529	1,604,349	111,956,591	16.2							
1,353,012	4.1	1,599,962	246,950	4,310,050	2.2	4,047,355	12.4	5,195,485	1,148,130	17,878,747	8.9	3,082,679	9.4	4,336,647	1,253,968	18,182,652	9.1							
123,730	0.5	123,730		814,363	0.4	906,056	3.9	925,384	19,328	8,573,299	4.1	2,880,444	12.7	3,158,462	178,018	35,420,369	16.9							
63,946	0.9	64,146	200	331,937	0.6	514,587	6.9	518,050	3,463	4,391,016	8.2	865,194	11.6	891,561	26,367	9,687,090	18.2							
28,231	0.7	28,231		108,875	0.3	246,917	6.2	247,597	690	1,584,373	4.6	1,219,554	30.8	1,267,966	48,412	13,152,263	37.9							
414,225	3.1	414,225		1,988,170	2.5	1,043,534	7.9	1,108,671	65,137	8,821,974	8.7	1,994,164	15.1	2,081,754	87,590	16,768,075	21.3							
37,696	1.4	37,696		635,703	1.9	435,058	15.7	441,990	6,932	7,506,267	22.1	491,378	17.7	494,982	3,604	6,943,469	20.5							
71,728	2.1	71,728		321,068	0.4	217,307	6.4	221,557	4,250	1,735,407	2.1	638,767	18.7	645,157	6,390	11,802,703	14.6							
379,991	4.9	433,082	53,091	549,324	1.6	1,156,023	15.0	1,687,071	531,048	2,920,279	8.3	743,624	9.6	1,257,972	514,348	2,922,629	8.3							
568,447	5.6	686,187	117,740	1,847,169	3.9	1,389,543	13.7	1,796,466	406,923	5,573,838	11.7	987,964	9.8	1,399,584	411,620	5,078,133	10.7							
122,902	2.4	122,902		667,127	0.9	352,612	6.9	363,262	10,650	4,087,702	5.6	269,663	5.3	282,463	12,800	4,282,652	5.9							
281,162	3.1	357,281	76,119	1,245,258	3.1	1,135,169	12.6	1,334,678	199,509	5,079,557	12.6	994,702	11.1	1,308,982	314,280	5,024,864	12.4							
510	0.1	510		1,172	(*)	14,008	1.8	14,008		217,371	5.1	86,726	11.4	87,646	920	874,374	20.6							
49,941	0.5	49,941		129,819	0.2	192,787	1.8	203,044	10,257	1,201,646	1.8	1,378,494	12.5	1,479,103	100,609	15,666,747	23.9							
35,203	0.6	35,203		191,135	0.3	186,644	3.0	192,347	5,703	2,060,785	2.7	653,505	10.6	683,790	30,225	10,502,801	13.9							
13,653	0.4	13,653		253,000	0.5	246,374	8.0	248,452	2,078	3,407,257	6.9	407,453	13.2	430,915	23,462	5,836,818	11.9							
						79,488	5.8	79,488		256,993	7.0	168,960	12.3	180,480	11,520	481,140	13.1							
						1,470	0.2	1,480	10	11,550	0.2	249,202	36.8	256,242	7,040	1,697,384	33.4							
19,755	2.2	19,755		136,648	1.8	161,425	17.6	162,705	1,290	1,159,515	15.3	100,052	10.9	105,214	5,162	1,049,555	13.8							
5,178	2.0	5,178		103,781	2.8	37,868	14.7	37,868		475,553	12.7	22,778	8.8	22,778		185,924	5.0							
16,804	4.3	16,804		7,072	1.6	27,660	7.0	30,183	2,523	8,282	1.8	32,536	8.2	49,622	17,066	11,398	2.5							
						12,774	7.0	12,774		4,431	10.1	19,429	10.6	19,429		10,861	24.7							
						15,714	35.9	15,714		201,900	32.9													
30,142	3.7	30,342	200	74,865	1.4	53,499	6.5	54,439	940	478,294	8.7	230,528	27.9	236,169	5,641	1,598,761	29.2							
						65,107	31.9	65,107		316,582	25.5	64,964	31.8	64,964		317,800	25.6							
						700	0.8	700		100,000	4.8	4,755	5.6	4,755		114,659	5.6							
17,000	0.3	17,000		250,000	0.6	339,133	6.0	339,133		3,282,127	7.6	512,982	9.0	516,622	3,640	7,633,381	17.6							
18,131	3.9	18,131		55,175	1.1	32,030	6.9	32,030		240,350	4.9	145,802	31.3	164,826	19,024	2,031,191	41.1							
1,963	0.3	1,963		5,000	0.1	2,561	0.4	2,561		28,700	0.4	119,484	19.9	119,671	187	1,652,317	25.4							
8,137	0.3	8,137		48,700	0.2	212,326	7.3	213,006	680	1,315,323	5.7	954,268	33.0	983,469	29,201	9,468,755	40.7							
85,531	1.9	85,531		426,582	1.1	344,024	7.5	367,956	23,932	2,858,515	7.2	812,312	17.7	893,122	80,810	6,895,939	17.5							
258,083	6.1	258,083		1,058,615	4.5	502,676	11.9	523,881	21,205	2,661,950	11.4	812,944	19.3	819,724	6,780	7,149,167	30.6							
19,720	10.0	19,720		168,973	8.6	33,600	17.0	33,600		251,189	12.7	48,781	24.7	48,781		477,151	24.2							
50,891	1.2	50,891		334,000	2.4	163,234	3.9	183,234	20,000	1,050,320	7.5	320,127	7.6	320,127		2,245,818	16.0							
8,811	2.4	8,811		97,160	3.4	99,583	26.7	99,583		697,692	24.7	107,176	28.8	108,704	1,528	1,532,598	54.2							
16,508	2.5	16,508		469,203	6.2	103,110	15.6	110,042	6,832	1,804,674	23.8	27,529	4.2	29,033	1,504	1,030,937	13.6							
						46,388	14.8	46,388		1,896,999	33.9	152,721	48.8	152,721		1,604,657	28.7							
2,852	0.6	2,852		33,700	0.7	15,467	3.3	15,467		169,046	3.5	164,614	35.1	165,186	572	2,152,471	44.0							
7,200	2.4	7,200		12,500	0.2	122,988	40.2	122,988		2,145,335	37.5													
												3,859	1.3	3,859		125,500	11.2							
1,925	1.0	1,925		22,600	0.5	22,600	11.2	22,600		728,100	15.0	27,928	13.8	27,928		486,690	10.0							
400	0.3	400		540	(*)	24,822	16.2	24,822		64,421	4.8	7,551	4.9	7,551		10,676	0.8							
311	0.1	311		4,556	0.1	16,671	4.1	16,671		190,279	3.6	59,687	14.7	63,010	3,323	1,239,874	23.2							
61,795	17.7	61,795		192,778	3.5	53,791	15.4	53,791		455,760	8.3	75,387	21.6	75,787	400	1,817,906	33.2							
9,622	0.4	9,622		123,734	0.2	146,845	5.5	151,085	4,250	1,089,368	1.6	503,693	18.9	506,360	2,667	8,744,323	12.5							

* Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 30.—LAND IN ENTERPRISES, AREA ASSESSED, AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, BY DIVISIONS AND STATES, 1940—Continued

DIVISION AND STATE	1915-1919						1910-1914					
	Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940		Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940	
	Acres	Per-cent	Acres	Acres	Dollars	Per-cent	Acres	Per-cent	Acres	Acres	Dollars	Per-cent
1 Total (38 States)...	18,012,061	20.7	21,177,254	3,165,193	175,305,253	25.3	19,573,521	22.5	25,480,317	5,906,796	142,210,576	20.6
GEOGRAPHIC DIVISIONS:												
2 East North Central...	4,582,929	14.0	6,761,659	2,178,730	26,935,691	13.5	4,127,480	12.6	7,097,821	2,970,341	26,669,160	13.3
3 West North Central...	6,777,991	28.9	7,479,649	701,658	69,722,432	33.2	5,535,219	23.6	6,878,450	1,343,231	41,290,070	19.7
4 South Atlantic ¹	1,112,072	15.0	1,138,781	26,709	16,436,352	30.9	4,260,137	57.3	5,064,509	804,372	21,025,678	38.5
5 East South Central ¹ ..	1,153,134	29.1	1,178,776	25,642	11,376,832	32.8	933,237	23.6	1,007,132	73,885	6,069,144	17.5
6 West South Central...	2,782,046	21.0	3,006,095	224,049	23,814,073	30.2	3,364,229	25.4	4,054,227	689,998	18,488,548	23.5
7 Mountain.....	923,142	33.3	927,627	4,485	12,158,997	35.8	251,443	9.1	253,535	2,092	3,879,692	10.8
8 Pacific.....	680,747	19.9	684,667	3,920	14,860,876	18.4	1,101,776	32.2	1,124,643	22,867	24,988,284	30.9
EAST NORTH CENTRAL:												
9 Ohio.....	712,703	9.2	1,318,054	605,351	3,603,946	10.2	838,945	10.9	1,899,561	1,060,616	3,821,657	10.9
10 Indiana.....	1,386,554	13.7	2,041,428	654,874	7,004,117	14.7	1,094,314	10.8	1,998,404	904,090	5,935,818	12.5
11 Illinois.....	389,340	7.6	396,512	7,172	6,126,515	8.4	780,275	15.3	857,123	76,848	10,794,761	14.9
12 Michigan.....	1,865,166	20.8	2,773,859	908,693	8,973,550	22.2	1,288,142	14.3	2,215,969	927,227	5,334,384	13.2
13 Wisconsin.....	229,166	30.1	231,806	2,640	1,227,563	28.9	125,804	16.5	127,364	1,560	782,540	18.4
WEST NORTH CENTRAL:												
14 Minnesota.....	3,485,901	31.7	3,894,201	408,300	25,852,769	39.4	3,090,918	28.1	3,824,110	733,192	12,793,449	19.5
15 Iowa.....	1,903,026	30.9	2,030,564	127,538	29,037,165	38.5	1,466,100	23.8	1,726,209	260,109	17,295,313	23.0
16 Missouri.....	685,099	22.2	771,859	86,760	10,068,764	20.5	584,799	18.9	901,836	317,037	8,740,543	17.8
17 North Dakota.....	303,295	22.0	374,975	71,680	1,161,529	31.6	140,800	10.2	150,000	9,200	183,122	5.0
18 South Dakota.....	141,514	20.9	145,154	3,640	1,273,208	25.1	74,057	10.9	78,337	4,280	812,591	16.0
19 Nebraska.....	192,288	21.0	196,028	3,740	1,545,440	20.4	134,146	14.6	153,559	19,413	1,110,125	14.6
20 Kansas.....	66,868	25.9	66,868	.....	783,557	21.0	44,399	17.2	44,399	.....	354,927	9.5
SOUTH ATLANTIC: ¹												
21 Delaware.....	19,846	5.0	42,074	22,228	15,207	3.3	19,488	4.9	40,733	21,245	15,202	3.3
22 Maryland.....	18,037	9.8	18,037	.....	6,276	14.3	2,977	1.6	5,651	2,674	1,995	4.5
23 Virginia ¹	28,045	64.1	28,045	.....	410,000	67.1	.....	.....	.....	.....	.....	.....
24 North Carolina.....	60,086	7.3	64,567	4,481	723,775	13.2	250,625	30.4	271,381	20,756	1,794,569	32.8
25 South Carolina.....	66,520	32.5	66,520	.....	537,418	43.3	7,775	3.8	7,775	.....	69,500	5.6
26 Georgia.....	63,257	75.0	63,257	.....	1,692,920	82.0	12,662	15.0	12,662	.....	142,061	6.9
27 Florida.....	856,281	15.0	856,281	.....	13,050,756	30.1	3,966,610	69.6	4,726,307	759,697	19,002,351	43.8
EAST SOUTH CENTRAL: ¹												
28 Kentucky.....	136,455	29.3	141,920	5,465	1,750,273	35.4	39,238	8.4	52,922	13,684	170,001	3.4
29 Tennessee.....	335,710	55.8	343,959	8,249	3,583,525	55.1	115,677	19.2	123,421	7,744	1,174,263	18.1
30 Mississippi.....	680,969	23.6	692,897	11,928	6,043,034	26.0	778,322	26.9	830,789	52,467	4,724,680	20.3
WEST SOUTH CENTRAL:												
31 Arkansas.....	1,550,777	33.8	1,683,829	133,052	17,540,829	44.5	1,448,702	31.5	1,947,420	498,718	9,628,776	24.4
32 Louisiana.....	707,024	16.8	787,021	79,997	3,137,591	13.4	859,208	20.4	967,388	106,180	4,933,237	21.1
33 Oklahoma.....	2,590	1.3	2,590	.....	8,500	0.4	14,483	7.3	14,483	.....	112,841	5.7
34 Texas.....	521,655	12.4	532,655	11,000	3,127,153	22.3	1,041,836	24.7	1,124,936	83,100	3,813,694	27.1
MOUNTAIN:												
35 Montana.....	125,479	33.7	125,479	.....	71,263	2.5	3,007	0.8	3,007	.....	48,000	1.7
36 Idaho.....	250,222	38.0	254,707	4,485	1,594,314	21.1	123,387	18.7	123,387	.....	1,263,853	16.7
37 Wyoming.....	97,958	31.3	97,958	.....	1,781,200	31.8	15,595	5.0	15,595	.....	312,000	5.6
38 Colorado.....	122,309	26.1	122,309	.....	1,630,769	33.3	20,820	4.4	20,820	.....	190,000	3.9
39 New Mexico.....	123,586	40.4	123,586	.....	2,696,483	47.1	27,056	8.8	27,056	.....	738,097	12.9
40 Arizona.....	1,900	0.6	1,900	.....	40,000	3.6	52,378	17.5	52,378	.....	722,742	64.6
41 Utah.....	95,166	47.1	95,166	.....	3,114,639	64.0	9,200	4.6	11,292	2,092	405,000	8.3
42 Nevada.....	106,622	69.5	106,622	.....	1,230,329	32.0	.....	.....	.....	.....	.....	.....
PACIFIC:												
43 Washington.....	35,414	8.7	37,644	2,230	884,421	16.6	207,225	51.1	220,427	13,202	2,120,077	39.8
44 Oregon.....	87,993	25.2	89,683	1,690	2,021,560	36.9	15,877	4.6	15,877	.....	116,738	2.2
45 California.....	557,340	20.9	557,340	.....	11,954,895	17.0	878,674	32.9	888,339	9,665	22,749,469	32.4

¹ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 30.—LAND IN ENTERPRISES, AREA ASSESSED, AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, BY DIVISIONS AND STATES, 1940—Continued

1	DIVISION AND STATE	1905-1909						1900-1904					
		Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940		Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940	
		Acres	Percent	Acres	Acres	Dollars	Percent	Acres	Percent	Acres	Acres	Dollars	Percent
1	Total (38 States) ..	12,191,576	14.0	20,008,077	7,816,501	93,378,598	13.5	5,769,509	6.6	13,328,522	7,559,013	33,025,974	4.8
GEOGRAPHIC DIVISIONS:													
2	East North Central...	4,310,983	13.2	8,579,703	4,288,720	34,706,629	17.4	3,874,911	11.9	9,904,558	6,029,647	21,190,941	10.6
3	West North Central...	5,295,123	22.6	8,069,442	2,798,319	42,790,003	20.4	1,199,481	5.1	2,551,784	1,352,303	7,621,552	3.6
4	South Atlantic ¹	103,408	1.4	139,968	36,550	346,122	0.7	43,817	0.6	95,174	51,357	140,613	0.3
5	East South Central ¹ ..	219,391	5.5	358,704	139,313	1,613,300	4.6	87,044	2.2	95,790	8,746	694,248	2.0
6	West South Central...	1,671,822	12.6	2,232,845	561,023	6,583,445	8.4	155,168	1.2	266,979	111,811	956,763	1.2
7	Mountain.....	175,307	6.3	175,307	.....	872,723	2.6	351,825	12.7	356,974	5,149	1,341,765	4.0
8	Pacific.....	415,542	12.1	428,118	12,576	6,466,376	8.0	57,263	1.7	57,263	.....	1,080,092	1.3
EAST NORTH CENTRAL:													
9	Ohio.....	950,062	12.3	2,530,439	1,580,377	4,568,432	13.0	624,190	8.1	2,629,294	2,005,104	3,410,989	9.7
10	Indiana.....	1,104,018	10.9	2,292,817	1,188,804	5,005,929	10.5	1,174,122	11.6	2,629,190	1,455,068	5,068,723	10.7
11	Illinois.....	931,347	18.3	1,039,140	107,793	19,319,918	26.6	572,455	11.2	695,164	122,709	5,862,956	8.1
12	Michigan.....	1,204,860	13.4	2,594,916	1,390,056	5,358,641	13.3	1,375,416	15.3	3,822,142	2,446,726	6,264,488	15.5
13	Wisconsin.....	120,701	15.9	122,391	1,690	453,709	10.7	128,728	16.9	128,768	40	583,785	13.7
WEST NORTH CENTRAL:													
14	Minnesota.....	2,069,336	18.8	3,504,924	1,435,588	7,411,316	11.3	505,282	4.6	1,141,204	635,922	1,663,500	2.5
15	Iowa.....	1,369,491	22.2	2,000,695	631,204	12,172,162	16.1	387,570	6.3	640,379	252,809	2,884,343	3.8
16	Missouri.....	901,185	29.2	1,371,897	470,732	17,505,928	35.7	146,958	4.8	516,970	370,012	2,760,022	5.6
17	North Dakota.....	464,240	33.7	676,200	211,960	1,115,427	30.4	147,238	10.7	240,798	93,560	224,808	6.1
18	South Dakota.....	210,229	31.1	230,359	20,130	1,284,038	25.3	.....	.....	.....	.....	.....	.....
19	Nebraska.....	235,671	25.7	264,376	28,705	1,913,692	25.2	3,890	0.4	3,890	.....	8,800	0.1
20	Kansas.....	44,991	17.4	44,991	.....	1,387,440	37.2	8,543	3.3	8,543	.....	80,079	2.1
SOUTH ATLANTIC:¹													
21	Delaware.....	60,475	15.3	85,352	24,877	27,470	6.0	22,906	5.8	67,126	44,220	44,256	9.7
22	Maryland.....	2,913	1.6	5,210	2,297	2,141	4.9	158	0.1	158	.....	152	0.3
23	Virginia ¹.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	North Carolina.....	38,108	4.6	47,484	9,376	264,159	4.8	18,785	2.3	24,835	6,050	65,550	1.2
25	South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	Florida.....	1,912	(2)	1,912	.....	52,352	0.1	1,968	(2)	3,055	1,087	30,655	0.1
EAST SOUTH CENTRAL:¹													
28	Kentucky.....	10,613	2.3	12,087	1,474	18,543	0.4	78,572	16.9	83,181	4,609	637,888	12.9
29	Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	Mississippi.....	206,778	7.2	346,617	137,839	1,594,757	6.9	8,472	0.3	12,609	4,137	56,360	0.2
WEST SOUTH CENTRAL:													
31	Arkansas.....	327,626	7.1	631,675	304,049	1,931,517	4.9	.....	.....	.....	.....	.....	.....
32	Louisiana.....	257,714	6.1	352,468	94,754	673,469	2.9	155,168	3.7	230,979	75,611	706,582	3.0
33	Oklahoma.....	72,872	36.9	72,872	.....	947,017	48.0	.....	.....	.....	.....	.....	.....
34	Texas.....	1,013,610	24.0	1,176,830	162,220	3,031,442	21.6	.....	.....	36,000	36,000	248,181	1.8
MOUNTAIN:													
35	Montana.....	15,794	4.2	15,794	.....	206,500	7.4	4,450	1.2	4,450	.....	66,000	2.3
36	Idaho.....	29,264	4.4	29,264	.....	237,303	3.1	96,959	14.7	99,434	2,475	949,265	12.5
37	Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Colorado.....	63,833	13.6	63,833	.....	239,910	4.9	6,320	1.3	6,720	400	45,500	0.9
39	New Mexico.....	25,055	8.2	25,055	.....	129,706	2.3	.....	.....	.....	.....	.....	.....
40	Arizona.....	.....	.....	.....	.....	.....	.....	240,596	80.6	242,870	2,274	231,000	20.6
41	Utah.....	41,361	20.5	41,361	.....	57,304	1.2	3,500	1.7	3,500	.....	50,000	1.0
42	Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:													
43	Washington.....	24,781	6.1	33,857	8,876	635,144	11.9	30,272	7.5	30,272	.....	82,407	1.5
44	Oregon.....	39,234	11.2	42,234	3,000	746,370	13.6	.....	.....	.....	.....	.....	.....
45	California.....	351,527	13.2	352,227	700	5,084,862	7.2	26,991	1.0	26,991	.....	997,685	1.4

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division. ²Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 30.—LAND IN ENTERPRISES, AREA ASSESSED, AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, BY DIVISIONS AND STATES, 1940—Continued

DIVISION AND STATE	1890-1899						1880-1889					
	Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940		Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940	
	Acres	Percent	Acres	Acres	Dollars	Percent	Acres	Percent	Acres	Acres	Dollars	Percent
1 Total (38 States) ..	3,742,588	4.3	11,331,068	7,588,480	29,275,245	4.2	2,429,435	2.8	8,906,253	6,476,818	27,704,109	4.0
GEOGRAPHIC DIVISIONS:												
2 East North Central...	2,846,980	8.7	9,713,183	6,866,203	17,621,941	8.8	2,286,552	7.0	8,617,863	6,331,311	24,737,734	12.4
3 West North Central...	486,207	2.1	1,066,330	580,123	3,129,259	1.5	23,722	0.1	61,080	37,358	99,327	(¹)
4 South Atlantic ²	38,871	0.5	147,872	109,001	137,471	0.3	23,218	0.4	95,423	67,205	85,478	0.2
5 East South Central ² ..	3,976	0.1	10,067	6,091	42,744	0.1	.....	.....	.....	.....	.....	.....
6 West South Central...	276,034	2.1	303,096	27,062	2,335,556	3.0	50,024	0.4	89,364	39,340	128,680	0.2
7 Mountain.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8 Pacific.....	90,520	2.6	90,520	.....	6,008,274	7.4	40,919	1.2	42,523	1,604	2,652,890	3.3
EAST NORTH CENTRAL:												
9 Ohio.....	726,816	9.4	4,669,947	3,943,131	4,900,714	13.9	453,893	5.9	4,399,472	3,945,579	5,097,347	14.5
10 Indiana.....	1,071,678	10.6	3,058,228	1,986,550	5,343,802	11.2	867,979	8.6	2,934,332	2,066,353	4,925,307	10.4
11 Illinois.....	635,868	12.5	794,933	159,065	5,387,387	7.4	923,504	18.1	1,224,822	301,318	14,617,920	20.1
12 Michigan.....	398,889	4.4	1,175,296	776,407	1,968,647	4.9	11,565	0.1	27,396	15,831	59,734	0.1
13 Wisconsin.....	13,729	1.8	14,779	1,050	21,391	0.5	29,611	3.9	31,841	2,230	37,426	0.9
WEST NORTH CENTRAL:												
14 Minnesota.....	173,030	1.6	537,474	364,444	575,657	0.9	21,277	0.2	44,752	23,475	68,329	0.1
15 Iowa.....	111,563	1.8	151,374	39,811	940,426	1.2	2,105	(¹)	15,308	13,203	23,439	(¹)
16 Missouri.....	53,403	1.7	131,238	77,835	384,896	0.8	340	(¹)	340	.....	1,559	(¹)
17 North Dakota.....	72,020	5.2	138,840	66,820	250,317	6.8	.....	.....	.....	.....	.....	.....
18 South Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 Nebraska.....	57,465	6.3	87,845	30,380	621,284	8.2	.....	.....	680	680	6,000	0.1
20 Kansas.....	18,726	7.3	19,559	833	356,679	9.6	.....	.....	.....	.....	.....	.....
SOUTH ATLANTIC: ²												
21 Delaware.....	28,188	7.1	132,321	104,133	87,416	19.2	19,012	4.8	78,426	59,414	34,053	7.5
22 Maryland.....	204	0.1	1,822	1,618	363	0.8	980	0.5	1,976	996	1,125	2.6
23 Virginia ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	7,479	0.9	10,729	3,250	34,692	0.6	8,226	1.0	15,021	6,795	50,300	0.9
25 South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 Georgia.....	3,000	3.6	3,000	.....	15,000	0.7	.....	.....	.....	.....	.....	.....
27 Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL: ²												
28 Kentucky.....	3,976	0.9	10,067	6,091	42,744	0.9	.....	.....	.....	.....	.....	.....
29 Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 Mississippi.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL:												
31 Arkansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32 Louisiana.....	276,034	6.5	303,096	27,062	2,335,556	10.0	50,024	1.2	89,364	39,340	128,680	0.6
33 Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34 Texas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MOUNTAIN:												
35 Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36 Idaho.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37 Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38 Colorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
39 New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
41 Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:												
43 Washington.....	16,833	4.1	16,833	.....	142,824	2.7	.....	.....	.....	.....	.....	.....
44 Oregon.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45 California.....	73,687	2.8	73,687	.....	5,865,450	8.4	40,919	1.5	42,523	1,604	2,652,890	3.8

¹Less than one-tenth of 1 percent.²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 30.—LAND IN ENTERPRISES, AREA ASSESSED, AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, BY DIVISIONS AND STATES, 1940—Continued

DIVISION AND STATE	1870-1879						BEFORE 1870					
	Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940		Land		Area assessed	Overlapped	Capital invested to Jan. 1, 1940	
	Acres	Percent	Acres	Acres	Dollars	Percent	Acres	Percent	Acres	Acres	Dollars	Percent
1 Total (38 States)..	427,759	0.5	3,480,851	3,053,092	11,716,391	1.7	171,349	0.2	1,238,623	1,067,274	3,658,131	0.5
GEOGRAPHIC DIVISIONS:												
2 East North Central...	352,307	1.1	3,268,215	2,915,908	4,099,284	2.0	56,005	0.2	962,219	906,214	518,097	0.3
3 West North Central...	12,675	0.1	32,660	19,985	37,248	(1)	.....	.....	.....	.....	.....	.....
4 South Atlantic ²	19,508	0.3	74,789	55,281	75,021	0.1	67,888	0.9	190,468	122,580	330,839	0.6
5 East South Central ²..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6 West South Central...	12,874	0.1	20,115	7,241	11,345	(1)	30,456	0.2	53,936	23,480	47,395	0.1
7 Mountain.....	2,600	0.1	2,600	.....	28,000	0.1	.....	.....	.....	.....	.....	.....
8 Pacific.....	27,795	0.8	82,472	54,677	7,465,493	9.2	17,000	0.5	32,000	15,000	2,762,000	3.4
EAST NORTH CENTRAL:												
9 Ohio.....	154,702	2.0	2,476,970	2,322,288	1,996,307	5.7	43,946	0.6	897,180	853,234	407,552	1.2
10 Indiana.....	156,357	1.5	740,358	584,001	1,029,105	2.2	9,834	0.1	58,437	48,603	89,319	0.2
11 Illinois.....	34,948	0.7	42,353	7,405	1,065,128	1.5	.....	.....	.....	.....	.....	.....
12 Michigan.....	380	(1)	1,434	1,054	1,889	(1)	2,225	(1)	6,602	4,377	21,226	0.1
13 Wisconsin.....	5,920	0.8	7,100	1,180	6,855	0.2	.....	.....	.....	.....	.....	.....
WEST NORTH CENTRAL:												
14 Minnesota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 Iowa.....	12,675	0.2	32,660	19,985	37,248	(1)	.....	.....	.....	.....	.....	.....
16 Missouri.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17 North Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18 South Dakota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 Nebraska.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 Kansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
SOUTH ATLANTIC:²												
21 Delaware.....	11,858	3.0	63,789	51,931	37,811	8.3	38,663	9.8	148,163	109,500	102,139	22.5
22 Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Virginia ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 North Carolina.....	7,650	0.9	11,000	3,350	37,210	0.7	29,225	3.5	42,305	13,080	228,500	4.2
25 Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL:²												
28 Kentucky.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 Mississippi.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL:												
31 Arkansas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32 Louisiana.....	12,874	0.3	20,115	7,241	11,345	(1)	30,456	0.7	53,936	23,480	47,395	0.2
33 Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34 Texas.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MOUNTAIN:												
35 Montana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36 Idaho.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37 Wyoming.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38 Colorado.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
39 New Mexico.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
41 Utah.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Nevada.....	2,600	1.7	2,600	.....	28,000	2.1	.....	.....	.....	.....	.....	.....
PACIFIC:												
43 Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44 Oregon.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45 California.....	27,795	1.0	82,472	54,677	7,465,493	10.6	17,000	0.6	32,000	15,000	2,762,000	3.9

¹Less than one-tenth of 1 percent. ²Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 31.—ENTERPRISES REPORTING COST OF MAINTENANCE AND OPERATION, AND COST PER ACRE, BY TYPE OF DRAINAGE, BY DIVISIONS AND STATES, 1939

DIVISION AND STATE	ALL ENTERPRISES REPORTING COST OF MAINTENANCE AND OPERATION						GRAVITY DRAINAGE ONLY									
	Land reporting		Cost reported				Total for gravity enterprises					Open ditches only				
	Total ¹	Incurring M. and O. cost	Total amount	Per acre on—			Land reporting		Cost reported			Total ¹	Incurring M. and O. cost	Per acre on—		
				Total re- port- ing	Area in- cur- ring		Total ¹	Incurring M. and O. cost	Total amount	Total re- port- ing	Area in- cur- ring					
Acres	Acres	Dollars	Dollars	Dollars		Acres	Acres	Dollars	Dollars	Dollars	Acres	Acres	Dollars	Dollars	Dollars	
1 Total (38 States) ..	86,160,078	31,966,182	5,996,672	0.07	0.19	281,863,305	227,833,859	23,701,079	0.05	0.13	255,826,308	16,322,616	1,825,838	0.03	0.11	
GEOGRAPHIC DIVISIONS:																
2 East North Central...	32,440,401	3,588,975	1,320,014	0.04	0.37	232,041,640	23,214,644	2760,544	0.02	0.24	21,253,789	1,659,090	308,184	0.01	0.19	
3 West North Central...	23,342,260	7,536,069	1,010,497	0.04	0.13	23,139,574	7,338,057	873,973	0.04	0.12	13,862,423	2,169,903	366,777	0.03	0.17	
4 South Atlantic ³	7,382,828	5,406,083	463,481	0.06	0.09	7,101,735	5,124,990	226,258	0.03	0.04	4,824,752	2,866,700	112,365	0.02	0.04	
5 East South Central ³ ..	3,642,827	1,462,203	183,194	0.05	0.13	23,642,827	21,462,203	2183,194	0.05	0.13	23,243,070	21,448,109	2182,479	0.06	0.13	
6 West South Central...	13,228,273	8,638,220	1,333,374	0.10	0.15	12,901,999	8,322,676	1,143,264	0.09	0.14	11,176,099	7,086,336	600,817	0.05	0.08	
7 Mountain.....	2,737,405	2,175,868	407,143	0.15	0.19	1,949,768	1,633,299	309,436	0.16	0.19	882,242	730,182	155,069	0.18	0.21	
8 Pacific.....	3,386,084	2,858,764	1,278,969	0.38	0.45	1,105,523	754,701	205,573	0.19	0.27	583,933	346,056	100,734	0.17	0.29	
EAST NORTH CENTRAL:																
9 Ohio.....	7,660,740	55,233	26,274	(4)	0.48	7,660,740	55,233	26,274	(4)	0.48	4,727,715	28,841	25,389	0.01	0.88	
10 Indiana.....	10,097,138	173,999	45,638	(4)	0.26	10,097,138	173,999	45,638	(4)	0.26	6,594,617	34,965	10,444	(4)	0.30	
11 Illinois.....	5,026,590	2,309,525	1,049,344	0.21	0.45	4,632,399	1,935,644	490,414	0.11	0.25	1,839,923	796,770	138,883	0.08	0.17	
12 Michigan.....	8,900,800	753,859	179,318	0.02	0.24	8,900,000	753,409	178,778	0.02	0.24	7,549,379	608,938	125,472	0.02	0.21	
13 Wisconsin.....	755,163	296,359	19,440	0.03	0.07	751,363	296,359	19,440	0.02	0.07	542,155	189,576	7,996	0.01	0.04	
WEST NORTH CENTRAL:																
14 Minnesota.....	10,946,170	1,878,499	142,988	0.01	0.08	10,944,855	1,877,184	142,237	0.01	0.08	8,199,199	346,212	35,286	(4)	0.10	
15 Iowa.....	6,118,637	2,713,505	327,001	0.05	0.12	6,031,021	2,627,083	247,519	0.04	0.09	1,492,412	436,512	85,160	0.06	0.20	
16 Missouri.....	3,053,146	2,141,480	429,740	0.14	0.20	2,981,509	2,069,843	400,609	0.13	0.19	1,825,672	1,117,815	219,550	0.12	0.20	
17 North Dakota.....	1,376,041	58,648	4,420	(4)	0.08	1,376,041	58,648	4,420	(4)	0.08	1,365,721	58,648	4,420	(4)	0.08	
18 South Dakota.....	676,472	104,146	2,311	(4)	0.02	676,472	104,146	2,311	(4)	0.02	483,232	23,176	115	(4)	(4)	
19 Nebraska.....	913,681	452,079	61,999	0.07	0.14	881,543	419,941	59,839	0.07	0.14	423,479	147,695	19,797	0.05	0.13	
20 Kansas.....	258,113	187,712	42,038	0.16	0.22	248,133	181,212	17,038	0.07	0.09	72,708	39,745	2,449	0.03	0.06	
SOUTH ATLANTIC: ³																
21 Delaware.....	355,879	29,582	5,051	0.01	0.17	355,879	29,582	5,051	0.01	0.17	355,879	29,582	5,051	0.01	0.17	
22 Maryland.....	183,337	15,199	1,540	0.01	0.10	183,337	15,199	1,540	0.01	0.10	183,337	15,199	1,540	0.01	0.10	
23 Virginia ³	43,759	15,714	(5)			43,759	15,714	(5)			43,759	15,714	(5)			
24 North Carolina.....	823,131	55,743	15,413	0.02	0.28	823,131	55,743	15,413	0.02	0.28	817,979	55,743	15,413	0.02	0.28	
25 South Carolina.....	204,366	5,600	800	(4)	0.14	204,366	5,600	800	(4)	0.14	204,366	5,600	800	(4)	0.14	
26 Georgia.....	84,374	700	600	0.01	0.86	83,674					83,674					
27 Florida.....	5,687,982	5,283,545	439,497	0.08	0.08	5,407,589	5,003,152	202,874	0.04	0.04	3,135,758	2,764,862	88,981	0.03	0.03	
EAST SOUTH CENTRAL: ³																
28 Kentucky.....	457,023	353,586	64,992	0.14	0.18	457,023	353,586	64,992	0.14	0.18	456,403	353,586	64,992	0.14	0.18	
29 Tennessee.....	601,592	109,154	5,832	0.01	0.05	601,592	109,154	5,832	0.01	0.05	592,097	109,154	5,832	0.01	0.05	
30 Mississippi.....	2,584,212	999,463	112,370	0.04	0.11	2,584,212	999,463	112,370	0.04	0.11	2,194,570	985,369	111,655	0.05	0.11	
WEST SOUTH CENTRAL:																
31 Arkansas.....	4,592,738	1,927,500	590,232	0.13	0.31	4,545,041	1,883,233	582,532	0.13	0.31	3,758,444	1,279,789	195,642	0.04	0.13	
32 Louisiana.....	4,219,039	3,305,042	374,903	0.09	0.11	4,073,723	3,161,026	233,794	0.06	0.07	3,410,436	2,757,139	131,605	0.04	0.05	
33 Oklahoma.....	197,646					197,646					197,646					
34 Texas.....	4,218,850	3,405,678	368,239	0.09	0.11	4,085,589	3,278,417	326,938	0.08	0.10	3,809,573	3,049,408	303,570	0.08	0.10	
MOUNTAIN:																
35 Montana.....	372,661	295,151	32,713	0.09	0.11	372,661	295,151	32,713	0.09	0.11	150,568	129,358	22,739	0.15	0.18	
36 Idaho.....	627,611	558,226	86,153	0.14	0.15	272,765	207,832	22,070	0.08	0.11	197,992	172,583	15,434	0.08	0.09	
37 Wyoming.....	312,662	299,694	36,137	0.12	0.12	260,176	247,208	29,570	0.11	0.12	120,532	120,532	3,697	0.03	0.03	
38 Colorado.....	468,322	430,212	127,688	0.27	0.30	458,285	420,185	126,165	0.28	0.30	171,156	142,588	84,055	0.49	0.59	
39 New Mexico.....	305,885	291,415	71,675	0.23	0.25	305,885	291,415	71,675	0.23	0.25	100,894	100,894	21,337	0.21	0.21	
40 Arizona.....	298,633	55,763	6,400	0.02	0.11	5,659	3,385	400	0.07	0.12	2,274					
41 Utah.....	198,258	121,372	22,100	0.11	0.18	198,258	121,372	22,100	0.11	0.18	62,797	17,536	3,064	0.05	0.17	
42 Nevada.....	153,373	124,035	24,277	0.16	0.20	76,089	46,751	4,743	0.06	0.10	76,089	46,751	4,743	0.06	0.10	
PACIFIC:																
43 Washington.....	405,492	215,242	68,904	0.17	0.32	370,982	181,889	43,966	0.12	0.24	282,095	106,202	18,223	0.06	0.17	
44 Oregon.....	348,825	213,863	98,126	0.28	0.46	203,061	68,453	16,666	0.08	0.24	95,636	34,285	10,359	0.11	0.30	
45 California.....	2,631,767	2,429,659	1,111,939	0.42	0.46	531,480	504,359	144,941	0.27	0.29	206,202	205,569	72,152	0.35	0.35	

¹Includes enterprises reporting that no cost was incurred for maintenance or operation in 1939.
²Where less than 3 pumping enterprises reported in a State, the data are included in those shown for gravity enterprises in the same State and division, but in the 38-State totals are included in the figures for the pumping enterprises.
³Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.
⁴Less than 1 cent per acre.
⁵Data not shown because less than 3 enterprises reported.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 31.—ENTERPRISES REPORTING COST OF MAINTENANCE AND OPERATION, AND COST PER ACRE, BY TYPE OF DRAINAGE, BY DIVISIONS AND STATES, 1939—Continued

DIVISION AND STATE		GRAVITY DRAINAGE ONLY—Continued														
		Open ditches and levees					Tile drains only					Tile drains and levees				
		Land reporting		Cost reported			Land reporting		Cost reported			Land reporting		Cost reported		
		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—	
Total re- port- ing	Area in- cur- ring				Total re- port- ing	Area in- cur- ring				Total re- port- ing	Area in- cur- ring					
		Acres	Acres	Dollars	Dollars	Dollars	Acres	Acres	Dollars	Dollars	Dollars	Acres	Acres	Dollars	Dollars	Dollars
1	Total (38 States) ..	26,801,815	25,398,825	21,097,708	0.16	0.20	7,004,344	1,514,411	151,175	0.02	0.11	14,002	4,275	582	0.04	0.14
GEOGRAPHIC DIVISIONS:																
2	East North Central...	2,452,777	2,328,341	2,137,619	0.30	0.42	3,965,498	209,091	77,702	0.02	0.37	3,466				
3	West North Central...	1,736,703	1,356,896	237,522	0.14	0.18	2,973,570	1,249,252	71,232	0.02	0.06	8,309	2,048	265	0.03	0.13
4	South Atlantic ³	2,276,983	2,238,290	113,893	0.05	0.05										
5	East South Central ³ ..	2,380,825	(²)	(²)												
6	West South Central...	1,598,700	1,142,120	520,402	0.33	0.46										
7	Mountain.....	100,963	98,363	28,669	0.28	0.29	43,248	36,559	7,215	0.17	0.20					
8	Pacific.....	274,645	247,766	60,179	0.22	0.24	22,028	19,509	5,026	0.23	0.26	2,227	2,227	317	0.14	0.14
EAST NORTH CENTRAL:																
9	Ohio.....	3,013					1,327,424	22,206	260	(⁴)	0.01	52				
10	Indiana.....	275,838	216,250	29,290	0.12	0.57	1,400,691	26,440	6,707	(⁴)	0.25	741				
11	Illinois.....	366,256	307,151	128,029	0.35	0.42	717,226	95,171	37,842	0.05	0.40	2,170				
12	Michigan.....	2,730					501,002	56,887	31,566	0.06	0.55	503				
13	Wisconsin.....	4,940	4,940	300	0.06	0.06	18,155	8,387	1,327	0.07	0.16					
WEST NORTH CENTRAL:																
14	Minnesota.....	2,495					919,508	506,131	26,582	0.03	0.05					
15	Iowa.....	160,689	95,471	10,330	0.06	0.11	1,967,557	738,201	44,321	0.02	0.06					
16	Missouri.....	1,037,522	939,269	180,094	0.17	0.19						8,309	2,048	265	0.03	0.13
17	North Dakota.....						9,040									
18	South Dakota.....	2,160					77,465	4,920	329	(⁴)	0.07					
19	Nebraska.....	359,432	181,709	32,709	0.09	0.18										
20	Kansas.....	174,405	140,447	14,389	0.08	0.10										
SOUTH ATLANTIC:³																
21	Delaware.....															
22	Maryland.....															
23	Virginia ³															
24	North Carolina.....	5,152														
25	South Carolina.....															
26	Georgia.....															
27	Florida.....	2,271,831	2,238,290	113,893	0.05	0.05										
EAST SOUTH CENTRAL:³																
28	Kentucky.....															
29	Tennessee.....	9,495														
30	Mississippi.....	2,371,330	(²)	(²)												
WEST SOUTH CENTRAL:																
31	Arkansas.....	777,117	603,444	416,890	0.54	0.69										
32	Louisiana.....	663,287	403,887	102,189	0.15	0.25										
33	Oklahoma.....															
34	Texas.....	158,296	134,789	1,323	0.01	0.01										
MOUNTAIN:																
35	Montana.....						5,016	4,016	1,635	0.33	0.41					
36	Idaho.....	2,600					229									
37	Wyoming.....	6,113	6,113	1,209	0.20	0.20	2,165	2,165	500	0.23	0.23					
38	Colorado.....						9,845	9,285	2,423	0.25	0.26					
39	New Mexico.....	92,250	92,250	27,460	0.30	0.30	4,443	4,443	1,257	0.28	0.28					
40	Arizona.....															
41	Utah.....						21,550	16,650	1,400	0.06	0.08					
42	Nevada.....															
PACIFIC:																
43	Washington.....	14,310	12,550	7,231	0.51	0.58	14,651	12,134	2,321	0.16	0.19					
44	Oregon.....	1,232	912	562	0.46	0.62										
45	California.....	259,103	234,304	52,886	0.20	0.22	7,377	7,375	2,705	0.37	-0.37	2,227	2,227	317	0.14	0.14

¹Includes enterprises reporting that no cost was incurred for maintenance or operation in 1939.
²Where less than 3 pumping enterprises reported in a State, the data are included in those shown for gravity enterprises in the same State and division, but in the 36-State totals are included in the figures for the pumping enterprises.
³Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.
⁴Less than 1 cent per acre.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 31.—ENTERPRISES REPORTING COST OF MAINTENANCE AND OPERATION, AND COST PER ACRE, BY TYPE OF DRAINAGE, BY DIVISIONS AND STATES, 1939—Continued

DIVISION AND STATE		GRAVITY DRAINAGE ONLY—Continued									
		Open ditches and tile drains					Open ditches, tile drains and levees				
		Land reporting		Cost reported			Land reporting		Cost reported		
		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—	
					Total reporting	Area incur-ring				Total reporting	Area incur-ring
	Acres	Acres	Dollars	Dollars	Dollars	Acres	Acres	Dollars	Dollars	Dollars	
1	Total (38 States) ..	12,030,848	4,453,133	576,088	0.05	0.13	185,988	140,589	39,878	0.21	0.28
GEOGRAPHIC DIVISIONS:											
2	East North Central...	6,327,771	1,013,176	229,139	0.04	0.23	38,339	4,945	7,900	0.21	1.60
3	West North Central...	4,518,239	2,529,837	185,966	0.04	0.08	40,330	30,021	2,211	0.05	0.07
4	South Atlantic ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	East South Central ² ..	18,932	14,094	715	0.04	0.05	.....	.....	.....	.....	.....
6	West South Central...	127,200	94,220	22,045	0.17	0.23	.....	.....	.....	.....	.....
7	Mountain.....	849,512	694,372	98,256	0.12	0.14	73,823	73,823	20,227	0.27	0.27
8	Pacific.....	189,194	107,334	29,977	0.16	0.28	33,496	31,809	9,340	0.28	0.29
EAST NORTH CENTRAL:											
9	Ohio.....	1,600,785	4,186	625	(³)	0.15	1,751	.....	.....	.....	.....
10	Indiana.....	2,013,207	95,344	19,197	0.01	0.20	12,044	.....	.....	.....	.....
11	Illinois.....	1,682,720	731,606	177,760	0.11	0.24	24,104	4,946	7,900	0.33	1.60
12	Michigan.....	845,946	87,584	21,740	0.03	0.25	440	.....	.....	.....	.....
13	Wisconsin.....	185,113	93,456	9,817	0.05	0.11	.....	.....	.....	.....	.....
WEST NORTH CENTRAL:											
14	Minnesota.....	1,821,173	1,022,361	79,857	0.04	0.08	2,480	2,480	512	0.21	0.21
15	Iowa.....	2,386,316	1,343,061	106,909	0.04	0.08	24,047	13,738	799	0.03	0.06
16	Missouri.....	100,223	928	200	(³)	0.22	9,783	9,783	500	0.05	0.05
17	North Dakota.....	1,280	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	South Dakota.....	113,615	76,050	1,867	0.02	0.02	.....	.....	.....	.....	.....
19	Nebraska.....	95,632	87,537	7,133	0.07	0.08	3,000	3,000	200	0.07	0.07
20	Kansas.....	.....	.....	.....	.....	.....	1,020	1,020	200	0.20	0.20
SOUTH ATLANTIC: ²											
21	Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Virginia ².....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	North Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	Florida.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
EAST SOUTH CENTRAL: ²											
28	Kentucky.....	620	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	Tennessee.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	Mississippi.....	18,312	14,094	715	0.04	0.05	.....	.....	.....	.....	.....
WEST SOUTH CENTRAL:											
31	Arkansas.....	9,480	.....	.....	.....	.....	.....	.....	.....	.....	.....
32	Louisiana.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34	Texas.....	117,720	94,220	22,045	0.19	0.23	.....	.....	.....	.....	.....
MOUNTAIN:											
35	Montana.....	187,577	132,277	1,832	0.01	0.01	29,500	29,500	6,507	0.22	0.22
36	Idaho.....	71,944	35,249	5,536	0.09	0.19	.....	.....	.....	.....	.....
37	Wyoming.....	131,366	118,398	24,154	0.18	0.20	.....	.....	.....	.....	.....
38	Colorado.....	277,294	268,312	39,687	0.14	0.15	.....	.....	.....	.....	.....
39	New Mexico.....	77,620	63,150	9,051	0.12	0.14	30,738	30,738	12,570	0.41	0.41
40	Arizona.....	1,800	1,800	250	0.13	0.14	1,585	1,585	150	0.09	0.09
41	Utah.....	101,911	75,186	16,636	0.16	0.22	12,000	12,000	1,000	0.08	0.08
42	Nevada.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:											
43	Washington.....	50,475	41,552	11,991	0.24	0.29	9,451	9,451	4,200	0.44	0.44
44	Oregon.....	106,193	33,256	5,745	0.05	0.17	.....	.....	.....	.....	.....
45	California.....	32,526	32,526	12,241	0.38	0.38	24,045	22,358	5,140	0.21	0.23

¹ Includes enterprises reporting that no cost was incurred for maintenance or operation in 1939.² Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.³ Less than 1 cent per acre.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 31.—ENTERPRISES REPORTING COST OF MAINTENANCE AND OPERATION, AND COST PER ACRE, BY TYPE OF DRAINAGE, BY DIVISIONS AND STATES, 1939—Continued

DIVISION AND STATE		PUMPING FOR DRAINAGE														
		Total					All drainage by pumping					Part pumping and part gravity				
		Land reporting		Cost reported			Land reporting		Cost reported			Land reporting		Cost reported		
		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—		Total ¹	Incurring M. and O. cost	Total amount	Per acre on—	
Total re- port- ing	Area in- cur- ring				Total re- port- ing	Area in- cur- ring				Total re- port- ing	Area in- cur- ring					
Acres	Acres	Dollars	Dollrs	Dollrs	Acres	Acres	Dollars	Dollars	Dollrs	Acres	Acres	Dollars	Dollars	Dollrs		
1	Total (38 States) ..	² 4,293,773	² 3,822,323	² 2,295,593	0.53	0.60	² 1,491,398	² 1,349,864	² 1,550,417	1.04	1.15	² 2,805,375	² 2,482,459	² 745,176	0.27	0.30
GEOGRAPHIC DIVISIONS:																
2	East North Central...	² 399,761	² 374,331	² 559,470	1.35	1.49	² 322,929	² 303,522	² 498,595	1.54	1.64	² 75,832	² 70,809	² 60,874	0.80	0.85
3	West North Central...	202,685	198,012	136,524	0.67	0.69	127,184	127,184	98,938	0.78	0.78	75,502	70,828	37,589	0.50	0.53
4	South Atlantic ³	281,093	281,093	237,223	0.84	0.84	115,400	115,400	157,073	1.36	1.36	155,593	165,693	80,150	0.48	0.48
5	East South Central ³ ..	(²)	(²)	(²)			(²)	(²)	(²)							
6	West South Central...	325,274	315,544	190,110	0.58	0.60	119,016	119,016	136,114	1.14	1.14	207,258	196,523	53,996	0.26	0.27
7	Mountain.....	787,617	542,569	97,707	0.12	0.18	83,846	79,394	23,871	0.28	0.30	703,771	463,175	73,836	0.10	0.16
8	Pacific.....	2,280,551	2,104,063	1,073,395	0.47	0.51	715,351	600,746	635,155	0.89	1.05	1,565,210	1,503,317	438,231	0.28	0.29
EAST NORTH CENTRAL:																
9	Ohio.....															
10	Indiana.....	(²)	(²)	(²)			(²)	(²)	(²)			(²)	(²)	(²)		
11	Illinois.....	394,161	373,881	558,930	1.42	1.49	322,129	303,072	498,056	1.55	1.64	72,032	70,809	60,874	0.85	0.85
12	Michigan.....	800	450	540	0.68	1.20	800	450	540	0.68	1.20					
13	Wisconsin.....	3,800										3,800				
WEST NORTH CENTRAL:																
14	Minnesota.....	1,315	1,315	751	0.57	0.57	1,315	1,315	751	0.57	0.57					
15	Iowa.....	87,616	86,422	79,482	0.91	0.92	72,422	72,422	72,455	1.00	1.00	15,194	14,000	7,025	0.46	0.50
16	Missouri.....	71,637	71,637	29,131	0.41	0.41	53,447	53,447	25,728	0.48	0.48	18,190	18,190	3,403	0.19	0.19
17	North Dakota.....															
18	South Dakota.....															
19	Nebraska.....	32,138	32,138	2,160	0.07	0.07						32,138	32,138	2,160	0.07	0.07
20	Kansas.....	9,980	6,500	25,000	2.51	3.85						9,980	6,500	25,000	2.51	3.85
SOUTH ATLANTIC: ³																
21	Delaware.....															
22	Maryland.....															
23	Virginia ³															
24	North Carolina.....															
25	South Carolina.....															
26	Georgia.....	700	700	600	0.85	0.86						700	700	600	0.86	0.86
27	Florida.....	280,393	280,393	236,623	0.84	0.84	115,400	115,400	157,073	1.36	1.36	164,993	164,993	79,550	0.48	0.48
EAST SOUTH CENTRAL: ³																
28	Kentucky.....															
29	Tennessee.....															
30	Mississippi.....	(²)	(²)	(²)			(²)	(²)	(²)							
WEST SOUTH CENTRAL:																
31	Arkansas.....	47,997	44,267	7,700	0.15	0.17						47,697	44,267	7,700	0.15	0.17
32	Louisiana.....	145,316	144,016	141,109	0.97	0.98	119,016	119,016	136,114	1.14	1.14	26,300	25,000	4,995	0.19	0.20
33	Oklahoma.....															
34	Texas.....	133,261	127,261	41,301	0.31	0.32						133,261	127,261	41,301	0.31	0.32
MOUNTAIN:																
35	Montana.....															
36	Idaho.....	354,846	350,394	64,083	0.18	0.18	31,468	27,016	17,871	0.57	0.66	323,378	323,378	46,212	0.14	0.14
37	Wyoming.....	52,486	52,486	6,567	0.13	0.13						52,486	52,486	6,567	0.13	0.13
38	Colorado.....	10,027	10,027	1,523	0.15	0.15						10,027	10,027	1,523	0.15	0.15
39	New Mexico.....															
40	Arizona.....	292,974	52,378	6,000	0.02	0.11	52,378	52,378	6,000	0.11	0.11	240,596				
41	Utah.....															
42	Nevada.....	77,284	77,284	19,534	0.25	0.25						77,284	77,284	19,534	0.25	0.25
PACIFIC:																
43	Washington.....	34,510	33,353	24,938	0.72	0.75	18,920	17,763	14,991	0.78	0.84	15,590	15,590	9,947	0.64	0.64
44	Oregon.....	145,764	145,410	81,460	0.56	0.56	39,468	39,114	42,696	1.08	1.09	106,296	106,296	38,764	0.36	0.36
45	California.....	2,100,287	1,925,300	966,998	0.46	0.50	656,963	543,869	577,478	0.88	1.06	1,443,324	1,381,431	389,520	0.27	0.28

¹ Includes enterprises reporting that no cost was incurred for maintenance or operation in 1939.
² Where less than 3 pumping enterprises reported in a State, the data are included in those shown for gravity enterprises in the same State and division, but in the 38-State totals are included in the figures for the pumping enterprises.
³ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 32.—LAND IN ENTERPRISES AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND WHETHER MAINTENANCE IS SYSTEMATIC, BY DIVISIONS AND STATES, 1940

1	DIVISION AND STATE	ALL ENTERPRISES		METHOD OF MAINTENANCE													
		Land	Capital invested	By district forces						By contract				Work apportioned to landowners			
				Land		Capital invested		Land		Capital invested		Land		Capital invested			
				Acres	Dollars	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²
Total (38 States)...	86,967,039	691,724,519	30,413,184	35.0	289,547,364	41.9	30,715,178	35.3	230,497,356	33.3	9,022,866	10.4	59,551,296	8.6			
GEOGRAPHIC DIVISIONS:																	
2	East North Central...	32,682,172	199,969,982	3,869,756	11.9	36,874,439	18.4	21,960,705	67.2	128,132,974	64.1	4,454,159	13.6	21,078,615	10.5		
3	West North Central...	23,468,623	210,066,013	12,811,864	54.6	115,630,569	55.0	4,769,429	20.3	51,705,112	24.6	1,460,295	6.2	9,350,209	4.5		
4	South Atlantic ³	7,435,448	53,240,835	1,201,650	16.2	17,948,069	33.7	435,120	5.8	4,181,284	7.9	96,672	1.3	485,484	0.9		
5	East South Central ³ ..	3,957,480	34,709,421	1,009,467	25.5	8,773,550	25.3	375,394	9.5	2,775,986	8.0	1,945,672	49.2	15,717,098	45.3		
6	West South Central...	13,228,858	78,831,043	6,589,124	49.9	32,152,047	40.8	2,650,403	20.1	22,353,999	28.4	612,658	4.6	2,091,471	2.6		
7	Mountain.....	2,772,730	33,928,327	2,489,528	89.8	29,968,531	88.3	53,813	1.9	729,428	2.2	60,594	2.2	1,093,382	3.2		
8	Pacific.....	3,421,728	80,958,898	2,441,795	71.4	48,200,159	59.5	470,314	13.7	20,618,573	25.5	392,916	11.5	9,735,037	12.0		
EAST NORTH CENTRAL:																	
9	Ohio.....	7,729,267	35,215,586	526,492	6.8	2,221,613	6.3	6,075,826	78.6	28,320,380	80.4	620,443	8.0	2,565,020	7.3		
10	Indiana.....	10,121,952	47,540,385	225,154	2.2	871,631	1.8	5,872,966	58.0	27,632,435	58.1	3,184,591	31.5	14,527,347	30.6		
11	Illinois.....	5,091,364	72,567,174	767,585	15.1	21,760,889	30.0	3,537,999	69.5	42,576,827	58.7	407,817	8.0	3,368,969	4.6		
12	Michigan.....	8,978,386	40,412,251	2,056,227	22.9	9,919,675	24.5	6,430,482	71.6	29,045,256	71.9	102,940	1.2	211,711	0.5		
13	Wisconsin.....	761,203	4,254,586	294,298	38.7	2,100,631	49.4	43,432	5.7	558,076	13.1	138,368	18.2	405,568	9.5		
WEST NORTH CENTRAL:																	
14	Minnesota.....	10,990,409	65,576,077	5,950,988	54.1	40,962,564	62.5	1,300,622	11.8	7,302,435	11.1	1,269,411	11.6	6,899,094	10.5		
15	Iowa.....	6,164,344	75,374,497	3,108,576	50.4	39,700,283	52.7	2,284,871	37.1	24,694,708	32.7	78,915	1.3	1,258,853	1.7		
16	Missouri.....	3,087,063	49,050,414	1,065,204	34.5	17,515,924	35.7	1,153,882	37.4	19,271,188	39.3	60,591	2.0	907,385	1.8		
17	North Dakota.....	1,376,041	3,673,336	1,131,623	82.3	2,972,617	80.9	.....	.....	.....	.....	.....	.....	.....	.....
18	South Dakota.....	676,472	5,078,771	636,912	94.2	5,008,197	98.6	.....	.....	.....	.....	.....	.....	.....	.....
19	Nebraska.....	916,181	7,578,999	710,052	77.5	6,152,841	81.2	8,364	0.9	192,000	2.5	24,965	2.7	124,682	1.7		
20	Kansas.....	258,113	3,733,919	208,309	80.7	3,318,143	88.8	21,690	8.4	244,781	6.6	26,413	10.2	160,195	4.3		
SOUTH ATLANTIC:³																	
21	Delaware.....	395,014	454,883	123,279	31.2	106,587	23.4	.....	.....	.....	.....	8,339	2.1	4,575	1.0
22	Maryland.....	183,337	43,914	17,794	9.7	3,396	7.7	.....	.....	.....	.....	.....	.....	.....	.....
23	Virginia ³	43,759	611,300	15,714	35.9	201,300	32.9	.....	.....	.....	.....	.....	.....	.....	.....
24	North Carolina.....	825,576	5,467,906	119,072	14.4	424,278	7.8	361,896	43.8	3,085,278	56.4	72,595	8.8	223,909	4.1		
25	South Carolina.....	204,366	1,241,300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	Georgia.....	84,374	2,064,840	.....	.....	.....	.....	.....	.....	.....	.....	700	0.8	100,000	4.8
27	Florida.....	5,699,022	43,356,692	925,791	16.2	17,212,508	39.7	73,224	1.3	1,096,006	2.5	15,038	0.3	157,000	0.4		
EAST SOUTH CENTRAL:³																	
28	Kentucky.....	465,270	4,947,994	383,389	82.4	3,475,766	70.2	13,593	2.9	158,547	3.2	16,025	3.5	270,447	5.5		
29	Tennessee.....	601,582	6,501,750	6,808	1.1	1,700	(⁴)	.....	.....	.....	.....	28,125	4.7	160,497	2.5
30	Mississippi.....	2,890,618	23,259,677	619,270	21.4	5,296,064	22.8	361,801	12.5	2,617,439	11.2	1,901,522	65.8	15,286,154	65.7		
WEST SOUTH CENTRAL:																	
31	Arkansas.....	4,582,738	39,450,754	862,797	18.8	6,317,414	16.0	908,682	19.8	14,922,239	37.8	40,090	0.9	261,950	0.7		
32	Louisiana.....	4,219,624	23,361,758	2,560,528	60.7	16,216,272	69.4	819,062	19.4	4,216,590	18.1	566,595	13.4	1,798,871	7.7		
33	Oklahoma.....	197,646	1,871,350	.....	.....	.....	.....	.....	.....	.....	.....	1,593	0.8	30,000	1.5
34	Texas.....	4,218,850	14,047,181	3,165,799	75.0	9,618,361	68.5	922,659	21.9	3,215,170	22.9	4,380	0.1	650	(⁴)		
MOUNTAIN:																	
35	Montana.....	372,661	2,827,839	331,431	89.0	2,235,920	79.1	20,541	5.5	248,428	8.8	13,899	3.7	243,585	8.6		
36	Idaho.....	659,136	7,567,032	642,996	97.6	7,229,267	95.5	640	0.1	21,000	0.3	2,035	0.3	102,282	1.4		
37	Wyoming.....	312,662	5,594,856	282,938	90.5	5,163,779	92.3	1,465	0.5	19,800	0.4	1,680	0.5	40,000	0.7		
38	Colorado.....	468,322	4,890,317	290,270	62.0	2,795,122	57.2	29,167	6.2	424,200	8.7	32,905	7.0	462,450	9.4		
39	New Mexico.....	305,885	5,722,121	305,885	100.0	5,722,121	100.0	.....	.....	.....	.....	.....	.....	.....	.....
40	Arizona.....	298,633	1,119,242	298,633	100.0	1,119,242	100.0	.....	.....	.....	.....	.....	.....	.....	.....
41	Utah.....	202,058	4,869,273	187,002	92.5	4,392,973	90.2	.....	.....	.....	.....	9,075	4.5	232,525	4.8
42	Nevada.....	153,373	1,337,647	150,373	98.0	1,309,107	97.9	2,000	1.3	16,000	1.2	1,000	0.7	12,540	0.9		
PACIFIC:																	
43	Washington.....	405,709	5,332,842	336,428	82.9	4,452,359	83.5	10,279	2.5	105,208	2.0	46,421	11.5	617,337	11.6		
44	Oregon.....	348,825	5,482,012	206,925	59.3	3,537,576	64.5	12,786	3.7	401,774	7.3	53,802	15.4	436,351	8.0		
45	California.....	2,667,194	70,144,044	1,698,442	71.2	40,210,224	57.3	447,249	16.7	20,111,591	28.7	282,693	11.0	8,681,349	12.4		

¹Percent of land in all enterprises.²Percent of capital invested by all enterprises.³Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.⁴Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 32.—LAND IN ENTERPRISES AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND WHETHER MAINTENANCE IS SYSTEMATIC, BY DIVISIONS AND STATES, 1940—Continued

DIVISION AND STATE	METHOD OF MAINTENANCE—CON.				WHETHER MAINTENANCE IS SYSTEMATIC											
	"None" or not reported				Reporting "Yes"				Reporting "No"				Not reporting			
	Land		Capital invested		Land		Capital invested		Land		Capital invested		Land		Capital invested	
	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²	Acres	Per-cent ¹	Dollars	Per-cent ²
1 Total (38 States)...	16,815,711	19.3	112,128,503	16.2	39,068,195	44.9	391,591,464	56.6	17,241,528	54.3	295,304,902	42.7	657,316	0.8	4,828,153	0.7
GEOGRAPHIC DIVISIONS:																
2 East North Central...	2,397,552	7.3	13,903,954	7.0	13,831,806	42.3	101,672,061	50.9	18,643,376	57.0	96,871,401	48.4	206,990	0.7	1,446,520	0.7
3 West North Central...	4,427,035	18.9	33,380,123	15.9	9,314,223	39.7	109,240,411	52.0	13,788,436	58.7	98,150,709	46.7	365,964	1.6	2,674,893	1.3
4 South Atlantic ³	5,702,006	76.7	30,625,998	57.5	1,276,486	17.2	18,243,595	34.3	6,151,456	82.7	34,996,130	65.7	7,506	0.1	1,110	(4)
5 East South Central ³ ...	626,947	15.8	7,442,787	21.4	1,128,592	28.5	9,371,860	27.0	2,787,222	70.4	24,924,856	71.8	41,666	1.1	412,705	1.2
6 West South Central...	3,376,673	25.5	22,233,526	28.2	8,330,730	63.0	51,684,463	65.6	4,870,560	36.8	27,038,655	34.3	27,568	0.2	107,925	0.1
7 Mountain.....	168,795	6.1	2,136,986	6.3	2,278,674	82.2	26,688,268	78.7	486,434	17.5	7,045,059	20.8	7,622	0.3	185,000	0.5
8 Pacific.....	116,703	3.4	2,405,129	3.0	2,907,684	85.0	74,680,806	92.2	514,044	15.0	6,278,092	7.8	.....	.....	.....	.....
EAST NORTH CENTRAL:																
9 Ohio.....	506,506	6.6	2,108,573	6.0	67,039	0.9	772,478	2.2	7,615,225	98.5	34,199,944	97.1	47,003	0.6	243,164	0.7
10 Indiana.....	839,241	8.3	4,508,972	9.5	4,458,162	44.0	21,553,127	45.3	5,633,592	55.7	25,821,766	54.3	30,198	0.3	165,492	0.4
11 Illinois.....	377,963	7.4	4,860,489	6.7	2,654,097	52.1	47,173,611	65.0	2,377,444	46.7	24,698,943	34.0	59,823	1.2	694,620	1.0
12 Michigan.....	388,737	4.3	1,235,609	3.1	6,333,246	70.5	29,877,578	73.9	2,578,264	28.7	10,210,770	25.3	66,876	0.8	323,903	0.8
13 Wisconsin.....	285,105	37.4	1,190,311	28.0	319,262	41.9	2,295,267	53.9	438,851	57.7	1,939,978	45.6	3,090	0.4	19,341	0.5
WEST NORTH CENTRAL:																
14 Minnesota.....	2,469,388	22.5	10,411,984	15.9	2,109,553	19.2	26,374,026	40.2	8,648,847	78.7	38,030,142	58.0	232,009	2.1	1,171,909	1.8
15 Iowa.....	691,982	11.2	9,720,653	12.9	2,639,591	42.8	31,679,618	42.0	3,515,019	57.0	43,525,497	57.8	9,734	0.2	169,382	0.2
16 Missouri.....	807,386	26.1	11,355,917	23.2	2,023,377	65.5	35,029,590	71.4	1,017,982	33.0	13,308,505	27.1	45,704	1.5	712,319	1.5
17 North Dakota.....	244,218	17.7	700,719	19.1	1,132,663	82.3	2,948,148	80.3	243,378	17.7	725,188	19.7	.....	.....	.....	.....
18 South Dakota.....	39,560	5.8	70,574	1.4	636,912	94.2	5,008,197	98.6	39,560	5.8	70,574	1.4	.....	.....	.....	.....
19 Nebraska.....	172,800	18.9	1,109,476	14.6	589,519	64.3	5,168,270	68.2	248,145	27.1	1,789,446	23.6	78,517	8.6	621,283	8.2
20 Kansas.....	1,701	0.7	10,800	0.3	182,608	70.7	3,032,562	81.2	75,505	29.3	701,357	18.8	.....	.....	.....	.....
SOUTH ATLANTIC:³																
21 Delaware.....	263,396	66.7	343,721	75.6	102,937	26.1	86,707	19.1	289,307	73.2	367,486	80.8	2,770	0.7	690	0.1
22 Maryland.....	165,543	90.3	40,518	92.3	17,794	9.7	3,396	7.7	180,807	87.7	40,098	91.3	4,736	2.6	420	1.0
23 Virginia ³	28,045	64.1	410,000	67.1	15,714	35.9	201,300	32.9	28,045	64.1	410,000	67.1	.....	.....	.....	.....
24 North Carolina.....	272,013	33.0	1,734,441	31.7	186,412	22.6	748,582	13.7	639,164	77.4	4,719,324	86.3	.....	.....	.....	.....
25 South Carolina.....	204,366	100.0	1,241,300	100.0	5,800	2.7	25,000	2.0	198,766	97.3	1,216,300	98.0	.....	.....	.....	.....
26 Georgia.....	83,674	99.2	1,964,840	95.2	700	0.8	100,000	4.8	83,674	99.2	1,964,840	95.2	.....	.....	.....	.....
27 Florida.....	4,684,969	82.2	24,891,178	57.4	947,329	16.6	17,078,610	39.4	4,751,693	83.4	26,278,082	60.6	.....	.....	.....	.....
EAST SOUTH CENTRAL:³																
28 Kentucky.....	52,263	11.2	1,043,234	21.1	355,403	76.4	3,306,019	66.8	109,667	23.6	1,641,975	33.2	.....	.....	.....	.....
29 Tennessee.....	566,659	94.2	6,339,553	97.5	34,933	5.8	162,197	2.5	562,504	93.5	6,308,058	97.0	4,155	0.7	31,495	0.5
30 Mississippi.....	8,025	0.3	60,000	0.3	738,256	25.5	5,903,644	25.4	2,114,851	73.2	16,974,823	73.0	37,511	1.3	381,210	1.6
WEST SOUTH CENTRAL:																
31 Arkansas.....	2,781,169	60.5	17,949,151	45.5	1,913,395	41.7	22,457,973	56.9	2,679,343	58.3	16,992,781	43.1	.....	.....	.....	.....
32 Louisiana.....	273,439	6.5	1,130,025	4.8	2,847,160	67.5	18,951,150	81.1	1,346,489	31.9	4,332,683	18.6	25,975	0.6	77,925	0.3
33 Oklahoma.....	196,053	99.2	1,941,350	98.5	.....	.....	.....	.....	196,053	99.2	1,941,350	98.5	1,593	0.8	30,000	1.5
34 Texas.....	126,012	3.0	1,213,000	8.6	3,570,175	84.6	10,275,340	73.1	648,675	15.4	3,771,841	26.9	.....	.....	.....	.....
MOUNTAIN:																
35 Montana.....	6,790	1.8	99,906	3.5	206,640	55.5	2,161,172	76.4	165,821	44.5	666,667	23.6	.....	.....	.....	.....
36 Idaho.....	13,465	2.0	214,483	2.8	623,188	94.6	7,146,465	94.5	31,172	4.7	341,967	4.5	4,776	0.7	78,600	1.0
37 Wyoming.....	26,579	8.5	371,277	6.6	221,085	70.7	2,700,185	48.3	91,577	29.3	2,894,671	51.7	.....	.....	.....	.....
38 Colorado.....	115,980	24.8	1,207,545	24.7	306,469	65.5	3,132,763	64.1	161,281	34.4	1,746,654	35.7	572	0.1	10,900	0.2
39 New Mexico.....	.....	.....	.....	.....	308,885	100.0	5,722,121	100.0	.....	.....	.....	.....	.....	.....	.....	.....
40 Arizona.....	.....	.....	.....	.....	296,359	99.2	1,023,742	91.5	.....	.....	.....	.....	2,274	0.8	95,500	8.5
41 Utah.....	5,981	3.0	243,775	5.0	165,475	81.9	3,474,173	71.3	36,583	18.1	1,395,100	28.7	.....	.....	.....	.....
42 Nevada.....	.....	.....	.....	.....	153,373	100.0	1,337,647	100.0	.....	.....	.....	.....	.....	.....	.....	.....
PACIFIC:																
43 Washington.....	12,581	3.1	157,938	2.9	238,771	58.9	4,172,178	78.2	166,935	41.1	1,160,664	21.8	.....	.....	.....	.....
44 Oregon.....	75,312	21.6	1,106,311	20.2	257,809	73.9	3,210,668	58.6	91,016	26.1	2,271,344	41.4	.....	.....	.....	.....
45 California.....	28,810	1.1	1,140,880	1.6	2,411,101	90.4	67,297,960	95.9	256,093	9.6	2,846,084	4.1	.....	.....	.....	.....

¹Percent of land in all enterprises.

²Percent of capital invested by all enterprises.

³Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia and shown in the South Atlantic Division.

⁴Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 33.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, FOR ALL ENTERPRISES, FOR ENTERPRISES OWNING POWER EQUIPMENT FOR MAINTENANCE, AND FOR ENTERPRISES PROTECTED BY LEVEES OF OUTSIDE AGENCIES, BY STATES, 1940

STATE	ALL ENTERPRISES					ENTERPRISES OWNING POWER EQUIPMENT FOR MAINTENANCE			
	Land in enterprises	Capital invested	Drainage works			Land in enterprises	Capital invested		
			Open ditches	Tile drains	Levees			Acres	Percent	Dollars	Percent
	Acres	Dollars	Miles	Miles	Miles	Acres	Percent	Dollars	Percent
1 Total (38 States)	86,967,039	691,724,519	146,152.3	55,734.0	6,792.9	10,119,394	11.6	133,656,336	19.3
2 Arizona	298,633	1,119,242	100.8	8.8	24.5	52,378	17.5	722,742	64.6
3 Arkansas	4,592,738	39,450,754	6,030.3	10.8	332.4	573,190	12.5	13,364,947	33.9
4 California	2,667,194	70,144,044	6,091.1	326.2	1,537.6	1,635,812	61.3	37,269,717	53.1
5 Colorado	468,322	4,890,317	972.9	365.3	.....	42,176	9.0	702,724	14.4
6 Delaware	395,014	454,863	1,482.3	.....	.....	.....	.....	.....	.....
7 Florida	5,699,022	43,356,692	5,022.1	.....	470.6	1,498,006	26.3	23,287,926	53.7
8 Georgia	84,374	2,064,840	550.3	2.0	5.0	.....	.....	.....	.....
9 Idaho	659,136	7,567,032	966.1	174.6	95.4	503,461	76.4	5,021,034	66.4
10 Illinois	5,091,364	72,567,174	6,862.2	4,246.6	1,157.8	271,693	5.3	9,369,042	12.9
11 Indiana	10,121,952	47,540,385	22,008.1	10,754.7	139.0	28,195	0.3	193,044	0.4
12 Iowa	6,164,344	75,374,497	5,189.7	12,873.2	456.8	71,019	1.2	1,099,049	1.5
13 Kansas	258,113	3,733,919	381.4	210.5	278.3	21,060	8.2	1,292,500	34.6
14 Kentucky	465,270	4,947,994	1,231.8	2.0	.....	114,313	24.6	1,275,000	25.8
15 Louisiana	4,219,624	23,361,758	7,105.5	6.0	624.4	429,763	10.2	6,784,800	29.0
16 Maryland	183,337	43,914	461.3	.....	.....	.....	.....	.....	.....
17 Michigan	8,978,386	40,412,251	19,608.6	3,229.5	13.6	49,289	0.5	194,199	0.5
18 Minnesota	10,990,409	65,576,077	15,856.7	9,893.4	0.4	.....	.....	.....	.....
19 Mississippi	2,890,618	23,259,677	4,344.1	34.1	190.5	319,209	11.0	2,230,150	9.6
20 Missouri	3,087,063	49,050,414	5,191.5	170.3	687.1	315,613	10.3	3,234,549	6.6
21 Montana	372,661	2,827,839	420.9	73.8	0.8	200,203	53.7	1,043,243	36.9
22 Nebraska	916,181	7,578,999	1,406.7	26.3	230.3	248,695	27.1	1,798,221	23.7
23 Nevada	153,373	1,337,647	426.4	.....	23.0	89,775	58.5	1,146,005	85.7
24 New Mexico	305,885	5,722,121	625.2	308.9	181.3	256,077	83.7	4,493,049	78.5
25 North Carolina	825,576	5,467,906	1,846.6	.....	4.0	50,919	6.2	290,799	5.3
26 North Dakota	1,376,041	3,673,336	940.4	10.4	.....	19,928	1.4	176,431	4.8
27 Ohio	7,729,267	35,215,566	18,732.2	10,163.9	5.2	93,729	1.2	288,293	0.8
28 Oklahoma	197,646	1,971,350	334.3	.....	.....	.....	.....	.....	.....
29 Oregon	348,825	5,482,012	780.1	150.6	143.2	178,652	51.2	2,448,893	44.7
30 South Carolina	204,366	1,241,300	459.9	.....	.....	.....	.....	.....	.....
31 South Dakota	676,472	5,078,771	840.7	335.8	7.4	74,186	11.0	821,315	16.2
32 Tennessee	601,592	6,501,750	1,508.0	.....	30.0	.....	.....	.....	.....
33 Texas	4,218,850	14,047,181	4,906.3	14.1	61.7	2,582,151	61.2	7,735,373	55.1
34 Utah	202,058	4,869,273	267.8	1,618.6	5.0	119,361	59.1	2,534,618	52.1
35 Virginia ¹	43,759	611,300	89.0	.....	.....	.....	.....	.....	.....
36 Washington	405,709	5,332,842	865.0	179.0	72.4	9,244	2.3	163,684	3.1
37 Wisconsin	761,203	4,254,586	1,580.7	282.5	8.0	.....	.....	.....	.....
38 Wyoming	312,662	5,594,856	643.3	262.1	7.2	268,097	85.7	4,674,999	83.6

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 33.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, FOR ALL ENTERPRISES, FOR ENTERPRISES OWNING POWER EQUIPMENT FOR MAINTENANCE, AND FOR ENTERPRISES PROTECTED BY LEVEES OF OUTSIDE AGENCIES, BY STATES, 1940—Continued

STATE	ENTERPRISES OWNING POWER EQUIPMENT FOR MAINTENANCE—Continued						ENTERPRISES PROTECTED BY OUTSIDE AGENCY									
	Drainage works						Land in enterprises	Capital invested	Drainage works							
	Open ditches		Tile drains		Levees				Open ditches		Tile drains		Levees			
	Miles	Per-cent	Miles	Per-cent	Miles	Per-cent	Acres	Per-cent	Dollars	Per-cent	Miles	Per-cent	Miles	Per-cent	Miles	Per-cent
1 Total (38 States)..	16,656.1	11.4	2,374.8	4.3	1,910.7	28.1	10,566,767	12.2	117,686,566	17.0	14,910.6	10.2	202.7	0.4	1,826.4	26.9
2 Arizona.....	57.3	56.8	.....	.....	24.0	98.0	52,378	17.5	722,742	64.6	57.3	56.8	.....	.....	24.0	98.0
3 Arkansas.....	1,492.9	24.8	7.0	64.8	180.0	54.2	2,071,000	45.1	19,114,539	48.5	3,011.1	49.9	7.0	64.8	177.0	53.2
4 California.....	3,762.2	61.8	178.9	54.8	567.5	36.9	502,039	18.8	18,673,359	26.6	1,114.7	18.3	66.3	26.5	210.9	13.7
5 Colorado.....	149.5	15.4	8.9	2.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6 Delaware.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7 Florida.....	1,969.5	39.2	.....	.....	159.5	33.9	2,223,800	39.0	12,997,306	30.0	1,468.6	29.2	.....	.....	225.0	47.8
8 Georgia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9 Idaho.....	605.5	62.5	124.5	71.3	45.0	47.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 Illinois.....	434.9	6.3	78.0	1.8	269.9	23.3	415,225	8.2	9,646,399	13.3	672.9	9.8	20.5	0.5	310.4	26.8
11 Indiana.....	52.4	0.2	70.4	0.7	6.9	5.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Iowa.....	51.9	1.0	285.4	2.2	.....	.....	55,178	0.9	791,008	1.0	78.5	1.5	25.8	0.2	65.8	14.4
13 Kansas.....	15.3	4.0	210.0	99.8	59.5	21.4	1,020	0.4	11,500	0.3	2.0	0.5	0.5	0.2	2.0	0.7
14 Kentucky.....	112.0	9.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 Louisiana.....	1,022.7	14.4	1.0	16.7	149.0	23.9	1,746,547	41.4	13,268,068	56.8	3,078.2	43.3	6.0	100.0	375.6	60.2
16 Maryland.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17 Michigan.....	98.9	0.5	11.8	0.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18 Minnesota.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 Mississippi.....	277.0	6.4	23.0	67.4	.....	.....	2,105,050	72.8	16,673,218	71.7	2,669.1	61.4	23.1	67.7	156.5	82.2
20 Missouri.....	540.2	10.4	17.0	10.0	97.5	14.2	800,041	25.9	18,575,018	37.9	1,408.2	27.1	1.2	0.7	267.4	38.9
21 Montana.....	162.0	38.5	58.0	78.6	0.8	100.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 Nebraska.....	325.0	23.1	15.0	57.0	45.0	19.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Nevada.....	342.4	80.3	.....	.....	23.0	100.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 New Mexico.....	609.6	97.5	6.9	2.2	181.3	100.0	104,210	34.1	2,204,199	38.5	252.3	40.4	1.0	0.3	.....	.....
25 North Carolina.....	223.3	12.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 North Dakota.....	35.0	3.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Ohio.....	257.1	1.4	12.2	0.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 Oregon.....	473.4	60.7	14.0	9.3	66.5	46.4	2,127	0.6	28,692	0.5	18.0	2.3	.....	.....	.....	.....
30 South Carolina.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31 South Dakota.....	208.8	24.8	18.2	5.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32 Tennessee.....	.....	.....	.....	.....	.....	.....	3,150	0.5	33,150	0.5	5.0	0.3	.....	.....	.....	.....
33 Texas.....	2,672.5	54.5	13.1	92.9	12.0	19.4	461,935	10.9	4,166,111	29.7	902.2	18.4	8.1	57.4	1.0	1.6
34 Utah.....	127.5	47.6	1,022.0	63.1	5.0	100.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35 Virginia ¹.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36 Washington.....	26.1	2.9	2.6	1.5	11.1	15.3	38,327	9.4	737,099	13.8	159.0	18.0	18.2	10.2	10.6	14.6
37 Wisconsin.....	.....	.....	.....	.....	.....	.....	4,740	0.6	44,156	1.0	13.5	0.9	5.0	1.8	.....	.....
38 Wyoming.....	551.2	85.7	196.9	75.1	7.2	100.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 34.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS OF ENTERPRISES RECEIVING FEDERAL AID IN MAINTENANCE, BY AGENCY GIVING THE AID, BY STATES, 1940

STATE	ALL ENTERPRISES REPORTING FEDERAL AID RECEIVED					WORK PROJECTS ADMINISTRATION				
	Land in enterprises	Capital invested	Drainage works			Land in enterprises	Capital invested	Drainage works		
			Ditches	Tile	Levees			Ditches	Tile	Levees
Total (38 States)..	Acres	Dollars	Miles	Miles	Miles	Acres	Dollars	Miles	Miles	Miles
1	14,762,880	158,728,812	24,419.2	4,396.6	2,406.1	7,934,093	66,940,370	14,301.2	2,651.0	975.3
2	Arizona.....									
3	Arkansas.....	1,050,710	16,917,828	1,713.1		170.1	546,786	3,750,682	536.6	0.1
4	California.....	236,656	13,425,797	702.7	79.1	199.2	150,801	10,294,847	618.9	77.9
5	Colorado.....	33,442	515,000	90.8	17.5		33,442	615,000	90.8	17.5
6	Delaware.....	283,669	226,992	961.7			113,104	81,559	526.5	
7	Florida.....	1,183,258	3,530,218	543.2		33.0	89,585	825,084	330.2	5.0
8	Georgia.....	12,106	244,174	50.0	2.0	5.0	11,408	144,174	39.0	
9	Idaho.....	248,774	4,305,439	529.5	6.2	57.4	241,699	3,823,139	507.2	5.2
10	Illinois.....	923,684	26,921,594	1,433.3	382.8	553.4	297,869	3,256,522	500.0	206.2
11	Indiana.....	469,589	2,157,780	548.6	144.7	33.2	162,981	903,686	148.1	13.1
12	Iowa.....	853,956	10,122,592	885.7	1,407.9	71.4	271,783	3,157,455	229.3	576.5
13	Kansas.....	27,403	1,290,028	14.3		56.2	27,403	1,290,028	14.3	56.2
14	Kentucky.....	298,516	3,084,793	503.1			90,067	1,107,328	112.2	
15	Louisiana.....	1,765,417	14,162,172	2,546.8	1.0	376.1	823,021	9,878,222	1,169.1	1.0
16	Maryland.....	178,106	39,978	443.0						
17	Michigan.....	2,256,968	9,356,645	5,307.1	481.8	1.2	2,152,911	9,004,694	5,138.9	480.7
18	Minnesota.....	298,454	3,121,149	268.9	976.0	0.1	215,947	2,160,947	205.0	582.0
19	Mississippi.....	199,381	2,111,176	233.7		42.0	24,933	152,025	58.2	
20	Missouri.....	1,548,099	28,024,197	2,597.8	106.6	446.9	425,986	5,023,927	753.9	84.1
21	Montana.....	7,221	243,889	11.5	3.6		3,759	178,889	7.0	2.2
22	Nebraska.....	30,459	451,818	43.0	7.5	2.0	9,489	279,000	28.0	7.5
23	Nevada.....	150,373	1,309,107	414.4		23.0				
24	New Mexico.....	122,988	2,145,335	341.4	2.5	181.3	122,988	2,145,335	341.4	2.5
25	North Carolina.....	314,561	1,403,779	597.3			278,200	1,217,748	496.9	
26	North Dakota.....									
27	Ohio.....	378,201	989,795	717.9	95.5	0.5	148,883	748,402	400.0	65.3
28	Oklahoma.....									
29	Oregon.....	167,856	3,524,224	444.6	119.5	78.2	26,157	701,859	102.3	14.6
30	South Carolina.....	67,481	334,000	129.0			67,481	334,000	129.0	
31	South Dakota.....									
32	Tennessee.....	21,064	29,304	31.2			21,064	29,304	31.2	
33	Texas.....	1,156,080	1,983,291	1,055.5	1.1		1,156,080	1,983,291	1,055.5	1.1
34	Utah.....	21,890	474,000	22.2	294.9	5.0	21,890	474,000	22.2	294.9
35	Virginia ¹									
36	Washington.....	119,678	1,971,101	312.2	57.7	67.4	113,541	1,682,148	277.0	57.7
37	Wisconsin.....	284,977	1,747,025	434.1	74.5	3.5	284,837	1,745,975	433.5	74.5
38	Wyoming.....	61,853	2,463,594	291.6	134.2					

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 34.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS OF ENTERPRISES RECEIVING FEDERAL AID IN MAINTENANCE, BY AGENCY GIVING THE AID, BY STATES, 1940—Continued

STATE	CIVILIAN CONSERVATION CORPS					CORPS OF ENGINEERS, U. S. ARMY					W. P. A. AND C. C. C.					
	Land in enterprises	Capital invested	Drainage works			Land in enterprises	Capital invested	Drainage works			Land in enterprises	Capital invested	Drainage works			
			Ditches	Tile	Levees			Ditches	Tile	Levees			Ditches	Tile	Levees	
Total (38 States) ..	Acres	Dollars	Miles	Miles	Miles	Acres	Dollars	Miles	Miles	Miles	Acres	Dollars	Miles	Miles	Miles	
1	3,190,441	27,041,471	5,987.7	1,098.9	233.0	525,687	10,226,947	474.1	105.5	454.8	829,875	18,785,495	1,598.5	206.1	250.1	
2	Arizona.....															
3	Arkansas.....					14,359	199,800	14.0		14.0						
4	California.....					77,865	1,659,700	53.5		18.5						
5	Colorado.....															
6	Delaware.....	82,713	92,819	231.1							74,802	51,374	184.5			
7	Florida.....															
8	Georgia.....	700	100,000	12.0	2.0	5.0										
9	Idaho.....															
10	Illinois.....	271,807	5,492,150	474.8	139.2	55.5	112,333	2,809,849	125.2	3.5	169.9	21,578	1,252,460	29.2	8.0	42.2
11	Indiana.....	259,517	1,101,556	459.4	130.6		15,406	72,713	14.9		18.6	1,480	14,612	3.7		
12	Iowa.....	595,871	6,161,585	609.0	632.7	71.4						55,968	792,377	47.4	198.1	
13	Kansas.....															
14	Kentucky.....	198,449	1,977,465	490.9												
15	Louisiana.....	843,866	3,383,950	1,293.7		27.1										
16	Maryland.....	178,106	39,978	443.0												
17	Michigan.....										230	5,850	4.1			
18	Minnesota.....															
19	Mississippi.....						129,903	1,590,618	91.1		42.0					
20	Missouri.....	266,594	3,537,198	431.7	20.5	54.0	156,009	2,131,000	69.7	2.0	93.0	655,987	16,537,072	1,286.5		217.9
21	Montana.....															
22	Nebraska.....	16,170	58,818	10.0												
23	Nevada.....	150,373	1,309,107	414.4		23.0										
24	New Mexico.....															
25	North Carolina.....	2,861	68,781	24.8							20,000	30,750	43.0			
26	North Dakota.....															
27	Ohio.....	208,877	179,412	287.8	22.2											
28	Oklahoma.....															
29	Oregon.....	121,684	1,075,048	243.5	17.5		17,654	1,482,317	85.0	100.0	54.1					
30	South Carolina.....															
31	South Dakota.....															
32	Tennessee.....															
33	Texas.....															
34	Utah.....															
35	Virginia ¹															
36	Washington.....						3,337	283,953	29.7		44.7					
37	Wisconsin.....															
38	Wyoming.....	61,853	2,468,594	291.6	134.2											

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 34.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS OF ENTERPRISES RECEIVING FEDERAL AID IN MAINTENANCE, BY AGENCY GIVING THE AID, BY STATES, 1940—Continued

STATE	W.P.A. AND CORPS ENGINEERS					C.C.C. AND CORPS ENGINEERS					OTHER AND NOT REPORTED				
	Land in enterprises	Capital invested	Drainage works			Land in enterprises	Capital invested	Drainage works			Land in enterprises	Capital invested	Drainage works		
			Ditches	Tile	Levees			Ditches	Tile	Levees			Ditches	Tile	Levees
Total (38 States) ..	Acres	Dollars	Miles	Miles	Miles	Acres	Dollars	Miles	Miles	Miles	Acres	Dollars	Miles	Miles	Miles
1	167,823	9,109,673	212.8	2.0	55.9	10,541	279,000	20.0	1.3	12.0	2,094,240	25,345,856	2,124.9	331.8	412.0
2
3	52,904	554,800	60.0	.....	.....	.....	.....	.....	.....	.....	436,662	12,312,544	1,102.5	.....	155.0
4	8,000	1,502,250	30.3	1.2	17.0
5
6	13,050	1,240	19.5	.....	.....
7	1,093,673	2,705,134	213.0	.....	28.0
8
9	7,075	482,300	22.3	.....	22.3
10	69,042	7,946,340	50.6	.....	51.4	10,541	279,000	20.0	1.3	12.0	140,414	5,888,166	233.5	24.6	155.6
11	20,203	65,213	22.5	1.0	5.1
12	634	11,175	.....	0.5	.....
13
14
15	98,530	900,000	114.0	.....	21.0
16
17	103,797	345,101	164.1	1.1	.....
18	82,507	960,202	83.9	294.0	.....
19	44,545	368,533	94.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	43,523	695,000	55.0	.....	.....
21	3,462	65,000	4.5	1.4	.....
22	4,800	114,000	5.0	.....	2.0
23
24
25	13,500	86,500	32.6	.....	.....
26
27	20,441	61,981	30.1	8.0	.....
28
29	1,332	140,000	7.8	2.0	4.5	.....	.....	.....	.....	.....	1,029	125,000	5.0	.....	5.0
30
31
32
33
34
35
36	2,800	25,000	5.5	.....	.....
37	140	50	0.6	.....	.....
38

¹Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 35.—EMPLOYMENT AND PAY ROLL OF ENTERPRISES, BY CHARACTER OF ENTERPRISE, BY STATES, 1939

STATE	ALL ENTERPRISES		DRAINAGE DISTRICTS		COUNTY AND TOWNSHIP DRAINS AND STATE PROJECTS		IRRIGATION ENTERPRISES ¹		COMMERCIAL DEVELOPMENTS AND INDIVIDUAL OWNERSHIP	
	Employees ²	Wages and salaries ³	Employees	Wages and salaries	Employees	Wages and salaries	Employees	Wages and salaries	Employees	Wages and salaries
	Number	Dollars	Number	Dollars	Number	Dollars	Number	Dollars	Number	Dollars
1 Total (38 States) ..	6,573	2,835,243	3,498	1,962,900	2,041	418,186	380	334,503	654	119,654
2 Arizona.....	3	6,000	.....	.....	.....	.....	3	6,000	.....	.....
3 Arkansas.....	252	256,523	247	256,423	.....	.....	.....	.....	5	1,100
4 California.....	501	406,535	291	250,574	.....	.....	134	91,323	76	64,638
5 Colorado.....	89	108,904	35	32,474	.....	.....	54	75,414	.....	1,016
6 Delaware.....	.....	3,218	.....	3,218	.....	.....	.....	.....	.....	.....
7 Florida.....	293	199,285	264	190,547	.....	.....	.....	.....	29	8,738
8 Georgia.....	.....	600	.....	.....	.....	.....	.....	.....	.....	600
9 Idaho.....	82	40,772	61	23,340	.....	.....	21	17,412	.....	20
10 Illinois.....	545	556,200	524	556,040	.....	.....	.....	.....	21	160
11 Indiana.....	264	7,382	.....	235	264	7,147	.....	.....	.....	.....
12 Iowa.....	400	83,593	20	12,623	380	70,970	.....	.....	.....	.....
13 Kansas.....	45	13,537	45	11,525	.....	2,012	.....	.....	.....	.....
14 Kentucky.....	89	50,678	.....	.....	89	50,678	.....	.....	.....	.....
15 Louisiana.....	1,385	184,506	868	144,175	3	1,300	.....	.....	514	39,033
16 Maryland.....	.....	1,540	.....	1,540	.....	.....	.....	.....	.....	.....
17 Michigan.....	1,151	188,003	.....	.....	1,151	188,003	.....	.....	.....	.....
18 Minnesota.....	82	78,540	.....	.....	82	78,540	.....	.....	.....	.....
19 Mississippi.....	151	40,292	151	39,042	.....	.....	.....	.....	.....	1,250
20 Missouri.....	457	141,620	457	141,620	.....	.....	.....	.....	.....	.....
21 Montana.....	41	20,959	20	8,261	.....	.....	21	12,698	.....	.....
22 Nebraska.....	33	34,214	24	26,017	.....	1,450	9	6,747	.....	.....
23 Nevada.....	56	9,007	.....	.....	.....	.....	56	8,757	.....	250
24 New Mexico.....	17	21,551	14	5,452	.....	.....	3	16,099	.....	.....
25 North Carolina.....	3	13,388	3	13,388	.....	.....	.....	.....	.....	.....
26 North Dakota.....	1	2,420	.....	.....	.....	719	1	1,701	.....	.....
27 Ohio.....	37	12,683	.....	.....	37	12,683	.....	.....	.....	.....
28 Oklahoma.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 Oregon.....	63	42,045	37	23,678	.....	.....	26	18,367	.....	.....
30 South Carolina.....	.....	800	.....	.....	.....	.....	.....	.....	.....	800
31 South Dakota.....	2	1,275	.....	.....	.....	534	2	741	.....	.....
32 Tennessee.....	23	2,469	18	930	5	1,539	.....	.....	.....	.....
33 Texas.....	307	175,158	273	139,618	.....	.....	27	33,940	7	1,400
34 Utah.....	41	20,291	41	20,041	.....	.....	.....	.....	.....	250
35 Virginia ⁴.....	.....	580	.....	580	.....	.....	.....	.....	.....	.....
36 Washington.....	98	45,297	93	44,882	4	173	1	242	.....	.....
37 Wisconsin.....	30	9,019	2	6,182	26	2,438	.....	.....	2	399
38 Wyoming.....	32	56,357	10	11,295	.....	.....	22	45,062	.....	.....

¹ For irrigation enterprises, the data relate only to employment and pay roll for drainage work.

² Number of persons employed during week ending April 29, 1939.

³ The amount paid for the year 1939, whether for maintenance or original construction.

⁴ Data for 2 enterprises in Alabama combined with those for 2 enterprises in Virginia.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

TABLE 36.—PRECIPITATION BY MONTHS FOR THE YEAR 1939, WITH DEPARTURES FROM NORMAL, FOR THE 38 DRAINAGE STATES

[Data compiled from records of United States Weather Bureau]

	STATE	ANNUAL		JANUARY		FEBRUARY		MARCH		APRIL		MAY	
		Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹
		Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
1	Alabama.....	59.32	+5.45	4.81	-0.03	10.21	+5.00	5.15	-0.60	3.52	-0.98	5.48	+1.36
2	Arizona.....	12.88	-1.01	1.12	-0.16	1.20	-0.13	0.66	-0.39	0.56	-0.07	0.04	-0.28
3	Arkansas.....	50.16	+1.91	6.21	+1.74	8.56	+5.13	3.71	-1.00	7.13	+2.29	4.85	-0.13
4	California.....	15.90	-7.92	3.23	-1.52	2.25	-2.22	2.90	-0.79	0.52	-1.10	0.97	+0.03
5	Colorado.....	10.68	-5.70	1.30	+0.53	1.09	+0.10	1.14	-0.17	0.91	-0.83	1.03	-0.86
6	Delaware.....	45.60	+2.90	3.81	+0.43	5.70	+2.56	5.10	+1.37	5.66	+2.20	0.58	-2.74
7	Florida.....	54.54	+0.94	1.62	-1.24	2.25	-0.85	1.54	-1.69	4.32	+1.46	5.01	+0.44
8	Georgia.....	48.96	-0.99	3.77	-0.49	9.11	+4.19	4.42	-0.40	3.65	-0.20	4.12	+0.66
9	Idaho.....	13.73	-4.23	1.69	-0.49	2.01	+0.28	1.29	-0.51	0.68	-0.73	0.81	-0.83
10	Illinois.....	35.82	-0.80	3.10	+0.70	3.33	+1.40	3.34	+0.16	5.00	+1.49	2.43	-1.61
11	Indiana.....	38.91	-0.52	4.12	+0.96	4.15	+1.71	3.97	+0.21	5.83	+2.29	1.56	-2.43
12	Iowa.....	25.16	-6.30	0.86	-0.23	1.75	+0.65	1.79	+0.06	2.07	-0.65	2.07	-1.99
13	Kansas.....	20.08	-6.35	0.78	+0.11	1.22	+0.22	1.72	+0.28	1.96	-0.56	2.35	-1.48
14	Kentucky.....	47.35	+1.72	5.56	+0.99	8.03	+4.59	5.78	+1.06	6.07	+2.07	1.37	-2.60
15	Louisiana.....	51.51	-3.94	5.62	+0.68	5.69	+1.15	2.89	-1.78	2.40	-2.22	6.72	+2.12
16	Maryland.....	43.10	+1.79	3.65	+0.36	5.15	+2.23	3.74	+0.20	5.03	+1.58	1.14	-2.28
17	Michigan.....	30.30	-0.39	2.23	+0.34	2.68	+1.04	1.75	-0.36	2.74	+0.29	2.38	-0.81
18	Minnesota.....	21.90	-3.18	1.22	+0.45	1.41	+0.65	0.61	-0.56	1.45	-0.64	2.30	-0.91
19	Mississippi.....	54.02	+1.02	6.84	+1.64	8.15	+3.25	5.55	-0.18	3.89	-0.99	5.53	+1.17
20	Missouri.....	38.25	-2.03	2.74	+0.33	3.17	+1.08	3.08	-0.18	5.01	+1.08	4.17	-0.60
21	Montana.....	12.83	-2.40	0.70	-0.24	0.81	+0.05	0.72	-0.27	0.78	-0.33	1.89	-0.22
22	Nebraska.....	16.28	-6.28	0.70	+0.18	0.87	+0.17	1.21	+0.11	1.40	-0.97	2.53	-0.91
23	Nevada.....	6.48	-0.39	0.96	-0.22	0.78	-0.29	0.95	-0.04	0.79	+0.02	0.73	-0.14
24	New Mexico.....	13.22	-1.21	1.39	+0.81	0.61	-0.11	0.76	+0.01	0.88	+0.02	0.72	-0.46
25	North Carolina.....	48.97	-0.84	3.98	+0.18	7.73	+3.65	3.80	-0.40	3.48	-0.14	2.89	-1.17
26	North Dakota.....	14.15	-2.72	0.47	-0.01	0.63	+0.16	0.39	-0.37	0.87	-0.54	1.55	-0.75
27	Ohio.....	37.63	-0.40	2.78	-0.34	4.28	+1.66	4.09	+0.66	5.00	+1.83	1.25	-2.41
28	Oklahoma.....	26.71	-5.56	2.79	+1.34	1.67	+0.29	1.82	-0.38	2.44	-0.86	3.76	-0.95
29	Oregon.....	20.77	-6.40	2.90	-0.94	3.53	+0.37	2.23	-0.55	0.44	-1.54	1.06	-0.65
30	South Carolina.....	46.40	-1.37	3.10	-0.48	8.87	+4.63	3.47	-0.43	3.15	-0.01	3.45	-0.13
31	South Dakota.....	15.71	-3.16	0.95	+0.39	0.69	+0.13	0.35	-0.75	1.03	-1.01	2.32	-0.55
32	Tennessee.....	49.75	-0.20	6.04	+1.10	9.88	+5.48	5.06	-0.31	4.92	+0.48	3.38	-0.79
33	Texas.....	24.69	-5.49	3.10	+1.41	1.86	+0.08	1.04	-0.99	1.47	-1.56	3.16	-0.48
34	Utah.....	11.49	-1.46	1.37	+0.16	1.29	+0.01	0.94	-0.48	0.78	-0.38	0.86	-0.36
35	Virginia.....	41.26	-0.70	3.34	+0.01	5.25	+2.11	3.15	-0.55	3.15	-0.19	1.67	-2.02
36	Washington.....	32.00	-4.14	5.79	+0.29	4.44	+0.42	2.45	-1.16	0.91	-1.43	1.52	-0.46
37	Wisconsin.....	26.37	-4.03	1.88	+0.63	1.75	+0.53	1.01	-0.73	2.29	-0.25	2.74	-0.84
38	Wyoming.....	10.27	-3.78	0.78	-0.01	0.85	+0.07	0.68	-0.48	0.96	-0.60	1.57	-0.50

¹ A plus sign (+) denotes excess; a minus sign (-) denotes deficiency.

CENSUS OF DRAINAGE—UNITED STATES SUMMARY

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TABLE 36.—PRECIPITATION BY MONTHS FOR THE YEAR 1939, WITH DEPARTURES FROM NORMAL, FOR THE 38 DRAINAGE STATES—Continued

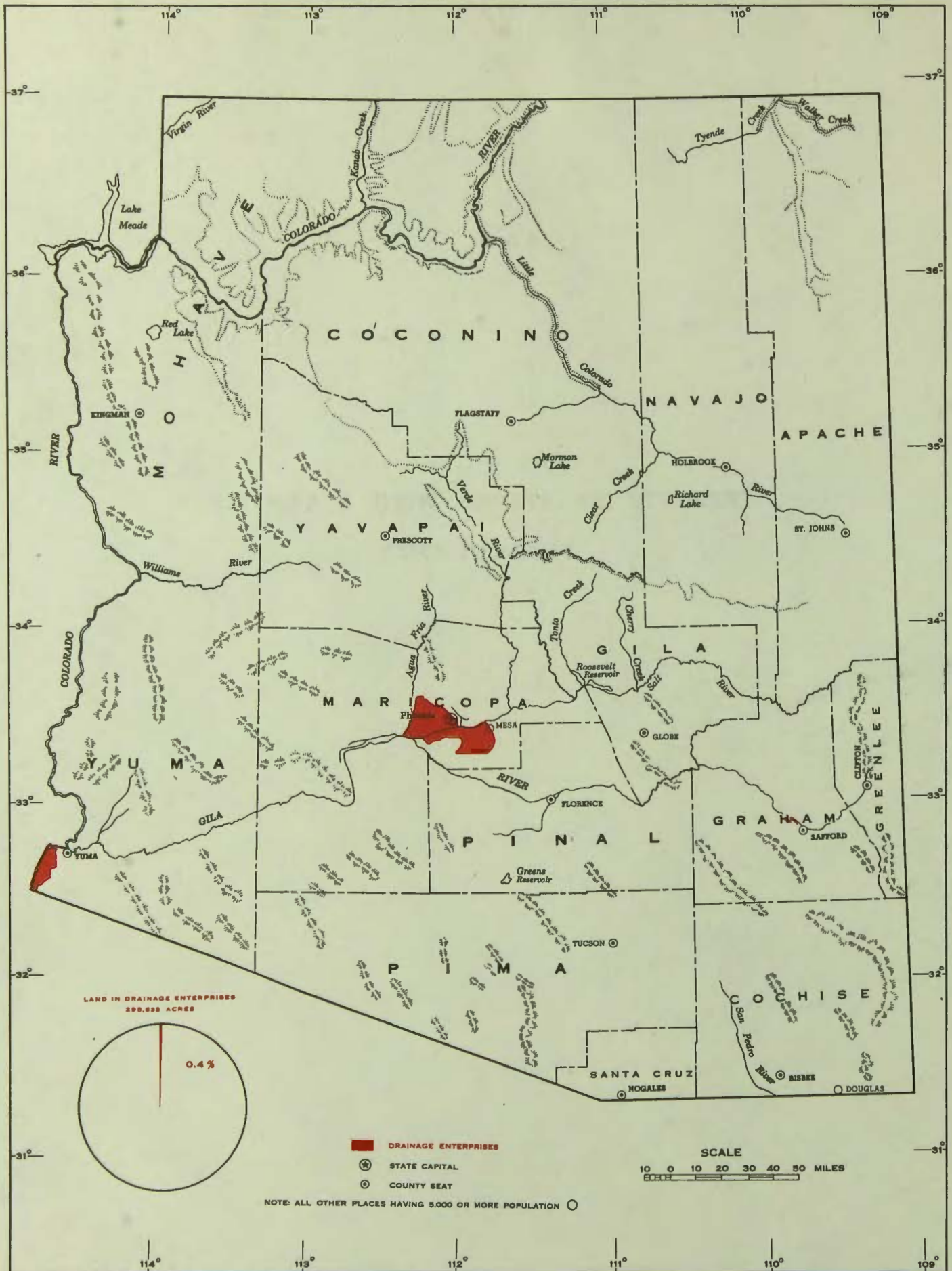
	STATE	JUNE		JULY		AUGUST ¹		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER	
		Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹	Precipitation	Departure ¹
		Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
1	Alabama.....	6.30	+2.10	4.82	-0.54	10.59	+6.06	3.92	+0.40	0.38	-2.64	0.65	-2.56	3.29	-2.12
2	Arizona.....	0.04	-0.32	1.16	-1.05	2.36	+0.02	3.79	+2.49	0.42	-0.41	1.19	+0.20	0.34	-0.88
3	Arkansas.....	4.50	+0.44	3.34	+0.45	2.53	-1.00	1.77	-1.57	1.71	-1.42	3.39	-0.35	2.46	-1.76
4	California.....	0.12	-0.21	0.08	+0.01	0.07	-0.03	1.70	+1.23	1.07	-0.16	0.43	-1.93	2.46	-1.23
5	Colorado.....	0.82	-0.58	0.90	-1.28	1.08	-0.86	1.10	-0.25	0.59	-0.56	0.26	-0.52	0.46	-0.44
6	Delaware.....	3.46	-0.34	2.22	-2.40	9.50	+4.72	1.97	+1.26	4.63	+1.56	1.36	-1.25	1.61	-1.97
7	Florida.....	9.13	+2.67	7.59	+0.62	10.78	+3.54	5.79	-1.10	2.99	-1.30	1.36	-0.88	2.16	-6.73
8	Georgia.....	4.66	+0.24	4.83	-0.92	7.09	+1.84	2.88	-0.78	0.33	-2.40	0.82	-1.79	3.28	-0.94
9	Idaho.....	1.29	-0.01	0.69	+0.01	0.16	-0.48	0.97	-0.06	1.40	-0.08	0.33	-1.70	2.41	+0.37
10	Illinois.....	5.13	+1.20	3.37	+0.09	4.78	+1.42	0.74	-2.97	2.16	-0.42	1.32	-1.26	1.12	-1.00
11	Indiana.....	6.12	+2.27	4.19	+0.82	2.65	-0.71	0.84	-2.52	2.73	-0.04	1.45	-1.58	1.30	-1.50
12	Iowa.....	5.32	+0.70	3.15	-0.51	4.72	+1.15	0.82	-2.99	1.48	-0.85	0.51	-1.09	0.62	-0.55
13	Kansas.....	4.59	+0.60	1.40	-1.76	3.50	+0.40	0.32	-2.45	0.60	-1.30	0.83	-0.44	0.81	-0.03
14	Kentucky.....	6.00	+1.84	4.83	+0.64	2.88	-0.82	1.26	-1.67	2.09	-0.61	1.16	-2.23	2.32	-1.54
15	Louisiana.....	4.42	-0.15	5.97	-0.17	4.86	-0.22	3.23	-0.62	2.15	-1.15	3.41	-0.41	4.15	-1.14
16	Maryland.....	5.19	+1.12	3.59	-0.57	4.20	-0.36	3.25	+0.09	4.83	+1.81	1.33	-1.11	2.00	-1.28
17	Michigan.....	4.92	+1.84	1.65	-1.27	4.48	+1.79	2.63	-0.68	2.57	-0.28	0.82	-1.69	1.45	-0.60
18	Minnesota.....	5.15	+1.12	2.37	-0.90	3.88	+0.69	1.42	-1.42	1.62	-0.22	0.06	-1.08	0.41	-0.36
19	Mississippi.....	6.78	+2.57	4.61	-0.41	2.83	-1.39	3.09	+0.05	1.17	-1.43	1.50	-2.08	4.08	-1.18
20	Missouri.....	5.64	+1.00	2.91	-0.76	4.80	+1.00	0.81	-3.23	1.89	-0.97	2.58	-0.09	1.45	-0.69
21	Montana.....	3.52	+1.05	0.68	-0.71	0.62	-0.46	0.94	-0.39	0.87	-0.20	0.23	-0.78	1.07	+0.10
22	Nebraska.....	3.84	+0.22	1.83	-1.31	2.04	-0.69	0.44	-1.60	0.68	-0.79	0.04	-0.71	0.70	+0.02
23	Nevada.....	0.19	-0.31	0.60	+0.21	0.34	-0.15	1.34	+0.92	1.08	+0.50	0.30	-0.33	0.42	-0.56
24	New Mexico.....	0.64	-0.62	2.45	-0.07	1.76	-0.66	1.83	+0.14	0.91	-0.22	0.62	-0.02	0.65	-0.03
25	North Carolina.....	4.38	-0.31	7.67	+1.76	6.98	+1.47	1.45	-2.53	2.19	-1.16	1.90	-0.75	2.52	-1.29
26	North Dakota.....	4.59	+1.18	1.81	-0.62	2.10	+0.10	0.68	-0.83	0.75	-0.26	0.03	-0.56	0.28	-0.21
27	Ohio.....	6.55	+2.70	4.15	+0.32	2.02	-1.37	2.08	-0.90	3.00	+0.46	0.97	-1.72	1.46	-1.27
28	Oklahoma.....	5.35	+1.51	1.65	-1.18	2.66	-0.24	0.33	-2.76	1.70	-1.21	1.45	-0.55	1.09	-0.54
29	Oregon.....	1.05	-1.02	0.49	-0.17	0.35	-0.06	0.65	-0.53	2.01	+0.11	0.52	-3.13	5.54	+1.71
30	South Carolina.....	4.08	-0.66	6.10	+0.26	7.37	+1.67	2.18	-1.96	0.81	-2.23	1.07	-1.25	2.75	-0.79
31	South Dakota.....	4.15	+0.77	1.85	-0.59	1.92	-0.18	1.02	-0.49	1.13	-0.03	0.01	-0.61	0.29	-0.25
32	Tennessee.....	5.99	+1.77	3.80	-0.68	3.21	-0.79	1.36	-1.67	1.25	-1.59	1.58	-1.96	3.28	-1.24
33	Texas.....	3.05	+0.09	2.60	-0.03	2.21	-0.10	1.12	-1.77	1.42	-1.34	2.01	-0.17	1.65	-0.63
34	Utah.....	0.65	+0.08	0.54	-0.38	0.66	-0.38	2.61	+1.58	1.25	+0.15	0.14	-0.79	0.40	-0.68
35	Virginia.....	4.49	+0.30	6.24	+1.65	5.53	+1.15	1.17	-1.94	3.17	+0.16	2.19	-0.23	1.91	-1.15
36	Washington.....	1.64	+0.01	0.84	+0.23	0.43	-0.40	0.84	-1.03	2.59	-0.48	2.60	-2.48	7.95	+2.35
37	Wisconsin.....	5.41	+1.37	2.06	-1.45	3.53	+0.27	2.64	-1.05	1.86	-0.59	0.36	-1.46	0.84	-0.46
38	Wyoming.....	1.70	+0.08	0.81	-0.53	0.78	-0.30	0.92	-0.21	0.80	-0.28	0.01	-0.69	0.41	-0.33

¹ A plus sign (+) denotes excess; a minus sign (-) denotes deficiency.

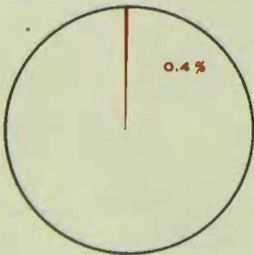
**REPORTS BY STATES WITH STATISTICS
FOR COUNTIES**

ARIZONA

Location of Land in Drainage Enterprises.



LAND IN DRAINAGE ENTERPRISES
299,899 ACRES



■ DRAINAGE ENTERPRISES

★ STATE CAPITAL

○ COUNTY SEAT

NOTE: ALL OTHER PLACES HAVING 5,000 OR MORE POPULATION ○

SCALE

10 0 10 20 30 40 50 MILES

CENSUS OF DRAINAGE—ARIZONA

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (—)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	72,681,200	72,838,400	72,838,400				
Land in drainage enterprises.....acres.....	298,633	318,931	39,640	-20,298	-6.4	279,291	704.6
Improved.....acres.....	295,976	309,112	36,880	-13,136	-4.2	272,232	738.2
Unimproved:							
Timber and cut-over.....acres.....		75		-75	-100.0	75	
Other.....acres.....	2,657	9,744	2,760	-7,087	-72.7	6,984	253.0
Drainage sufficient for normal crop.....acres.....	297,382	313,112	(1)	-15,730	-5.0		
Partly drained, for partial crop.....acres.....	951	1,694	(1)	-743	-43.9		
Unfit to raise any crop for lack of drainage.....acres.....	300	4,125	2 2,160	-3,825	-92.7	1,965	91.0
In occupied farms.....acres.....	295,276	304,802	(1)	-8,526	-2.8		
In planted crops.....acres.....	268,907	278,066	(1)	-9,159	-3.3		
Idle.....acres.....	23,247	39,219	(1)	-15,972	-40.7		
Available for settlement.....acres.....		1,519	(1)	-1,519	-100.0		
Open ditches, completed.....miles.....	100.8	349.4	32.6	-248.6	-71.2	316.8	971.8
Tile drains, completed.....miles.....	8.8	14.3	1.0	-5.5	-38.5	13.3	
Drainage pumping plants, capacity.....horsepower.....	2,025	10,789	175	-8,764	-81.2	10,614	(2)
gal. per min.....	71,000	458,750	33,660	-387,750	-84.5	425,090	(2)
Capital invested in enterprises.....dollars.....	1,119,242	1,875,100	414,425	-755,658	-40.3	1,460,675	352.5
Average per acre.....dollars.....	2.66	5.88	10.45	-3.22	-54.8	-4.57	-43.7

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

³Percent not shown when more than 1,000.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	
	Acres	Acres	Acres	Acres
All enterprises.....	300,907	318,931	39,640	298,633
500 to 999 acres.....		640	640	
1,000 to 1,999 acres.....	3,365	5,691		3,365
2,000 to 4,999 acres.....	2,274		9,000	2,274
5,000 to 9,999 acres.....			20,600	
10,000 to 19,999 acres.....			30,000	
20,000 to 49,999 acres.....	242,870	50,000		240,596
50,000 to 99,999 acres.....	52,378		242,000	52,378
100,000 to 199,999 acres.....				
200,000 to 499,999 acres.....				

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	298,633	100.0	1,119,242	100.0
Drainage districts.....	5,659	1.9	165,500	14.8
Irrigation enterprises:				
Federal.....	52,378	17.5	722,742	64.6
Other.....	240,596	80.6	231,000	20.6

CENSUS OF DRAINAGE—ARIZONA

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES												
	1940		1930		1920		1940		1930		1920								
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent							
All enterprises.....	298,633	100.0	318,931	100.0	39,640	100.0	1,119,242	100.0	1,875,100	100.0	414,425	100.0							
Gravity drainage only by—																			
Open ditches.....	2,274	0.8	23,483	7.3	} (2)	.....	95,500	8.5	145,500	7.8	} (2)	.....						
Tile drains.....			2,608	0.9						65,600			3.5						
Open ditches and tile drains..	3,385	1.1	640	0.2					70,000	6.3			7,000	0.3					
All drained by pumping by—																			
Open ditches.....	52,378	17.5	} 50,000	15.7	} (2)	}	722,742	64.6	} 620,000	33.1	} (2)	}							
Tile drains.....																			
Open ditches and tile drains..																			
Part only by pumping by—																			
Open ditches.....			} 242,000	75.9	} (2)	}			} 1,037,000	55.3	} (2)	}							
Tile drains.....																			
Open ditches and tile drains..	240,596	80.6													231,000	20.6			
Total area served by pumps.....	92,378	30.9	130,000	40.8	25,000	63.1													

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified. ² Break-down for type of drainage not available.

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises	CAPACITY			Land served
		Engine or motor		Pump	
		Number	Hp.	Percent		G.p.m.	Acres
All pumping enterprises.....					
1940..	2	2,025	100.0	71,000	92,378
1930..	2	10,789	100.0	458,750	130,000
1920..	1	175	100.0	33,660	25,000
Electric.....					
1940..	1	1,500	74.1	15,000	40,000
1930..	1	10,264	95.1	380,000	80,000
1920..					
Internal combustion.....					
1940..					
1930..					
1920..	1	175	100.0	33,660	25,000
Electric and internal combustion.....					
1940..	1	525	25.9	56,000	52,378
1930..	1	525	4.9	78,750	50,000
1920..					

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity	Land served
		Capacity			
		G.p.m.	Percent			Hp.	Acres
All pumping enterprises.....					
1940..	33	71,000	100.0	2,025	92,378
1930..	175	458,750	100.0	10,789	130,000
Screw.....					
1940..	3	78,750	17.2	525	50,000
1930..	3	56,000	78.9	525	52,378
Turbine.....					
1940..					
1930..					
1920..	30	15,000	21.1	1,500	40,000
Centrifugal, screw, and turbine.....					
1940..	172	380,000	82.8	10,264	80,000
1930..					

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	298,633	100.0	318,931	100.0	1,119,242	100.0	1,875,100	100.0	1,274	3,640
Enterprises in arrears—with some delinquent land.....	2,274	0.8	2,888	0.9	95,500	8.5	95,500	5.1	1,274	1,140
Enterprises not in arrears.....	296,359	99.2	316,048	99.1	1,023,742	91.5	1,779,600	94.9		2,500
With some delinquent land.....			20,600	6.5			50,000	2.7		2,500
With no delinquent land.....	296,359	99.2	295,448	92.6	1,023,742	91.5	1,729,600	92.2		

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

CENSUS OF DRAINAGE—ARIZONA

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STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	298,633	1,119,242	94,000	42,000	10,000	1,274	11,144
Enterprises in debt.....	5,659	165,500	94,000	42,000	10,000	1,274	11,144
In arrears, amount of arrearage stated.....	2,274	95,500	64,000	42,000	.....	1,274	8,194
Collecting drainage taxes in 1939.....	2,274	95,500	64,000	42,000	.....	1,274	8,194
Not in arrears.....	3,385	70,000	30,000	.....	10,000	.....	2,950
Collecting drainage taxes in 1939.....	3,385	70,000	30,000	.....	10,000	.....	2,950
Enterprises not in debt.....	292,974	953,742	.....	.....	.....	.....	.....
No collections reported.....	292,974	953,742	.....	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	298,633	100.0	1,119,242	100.0
Improvement of land already in farms.....	3,385	1.1	70,000	6.3
Reclamation of swamp land not previously in farms.....	2,274	0.8	95,500	8.5
Removal of alkali or seepage from irrigation.....	292,974	98.1	953,742	85.2

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	298,633	100.0	300,907	2,274	1,119,242	100.0
1900-1904.....	240,596	80.6	242,870	2,274	231,000	20.6
1910-1914.....	52,378	17.5	52,378	.....	722,742	64.6
1915-1919.....	1,800	0.6	1,800	.....	40,000	3.6
1920-1924.....	3,859	1.3	3,859	.....	125,500	11.2

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms	In planted crops	Idle	Land available for settlement			
	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	
All enterprises..	298,633	297,382	99.6	951	300	295,976	99.1	.....	2,657	296,276	99.2	268,907	23,247	.....
1900-1904.....	240,596	240,596	100.0	.....	.....	240,596	100.0	.....	.....	240,596	100.0	219,159	21,437	.....
1910-1914.....	52,378	52,378	100.0	.....	.....	50,021	95.5	.....	2,357	50,021	95.5	44,389	1,510	.....
1915-1919.....	1,600	1,500	83.3	.....	300	1,500	83.3	.....	300	1,800	100.0	1,500	300	.....
1920-1924.....	3,859	2,908	75.4	951	.....	3,859	100.0	.....	.....	3,859	100.0	3,859	.....	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

CENSUS OF DRAINAGE—ARIZONA

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	298,633	298,633	55,763	242,870	6,400	0.02	0.11
Gravity drainage only.....	5,659	5,659	3,385	2,274	400	0.07	0.12
Open ditches only.....	2,274	2,274	.....	2,274	.....	.....	.....
Open ditches and tile drains.....	1,800	1,800	1,800	.....	250	0.13	0.13
Open ditches, tile drains, and levees.....	1,585	1,585	1,585	.....	150	0.09	0.09
Pumping for all or part of drainage.....	292,974	292,974	52,378	240,596	6,000	0.02	0.11
All drainage by pumping.....	52,378	52,378	52,378	.....	6,000	0.11	0.11
Part pumping and part gravity.....	240,596	240,596	.....	240,596	.....	.....	.....

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	298,633	100.0	1,119,242	100.0
Method, by district forces.....	298,633	100.0	1,119,242	100.0
Whether systematic:				
Reporting "yes".....	296,359	99.2	1,023,742	91.5
Not reporting.....	2,274	0.8	95,500	8.5

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	298,633	52,378	17.5
Capital invested.....dollars..	1,119,242	722,742	64.6
Drainage works:			
Open ditches.....miles....	100.8	57.3	56.8
Tile drains.....miles....	8.8	.....	.....
Levees.....miles....	24.5	24.0	98.0

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	298,633	¹ 52,378	17.5
Capital invested.....dollars..	1,119,242	722,742	64.6
Drainage works:			
Open ditches.....miles....	100.8	57.3	56.8
Tile drains.....miles....	8.8	.....	.....
Levees.....miles....	24.5	24.0	98.0

¹ The land actually dependent upon outside agencies for protection is 50,000 acres, which is 95.5 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE—ARIZONA

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COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

	ITEM (See definitions in Introduction)	THE STATE	Graham ¹	Maricopa ¹	Yuma ¹
LAND AREA					
1	Approximate land area.....acres....1940..	72,691,200	2,950,400	5,907,840	6,390,400
2	Drainage enterprises.....number....1940..	25	2	2	1
3	Land in enterprises.....acres....1940..	298,633	3,385	242,870	52,378
4		1930..	3,448	265,483	50,000
5		1920..	640	9,000	30,000
6	Area of all enterprises, overlapping included.....acres....1940..	300,907	3,385	245,144	52,378
7	Amount of overlapping.....acres....1940..	2,274		2,274	
CONDITION AND USE OF LAND					
8	Land with drainage sufficient for normal crop.....acres....1940..	297,382	2,134	242,870	52,378
9		1930..	3,148	259,964	50,000
10	Increase or decrease (-), 1930-1940.....acres.....	-15,730	-1,014	-17,094	2,378
11	percent.....	-5.0	-32.2	-6.6	4.8
12	Land undrained, unfit for any crop.....acres....1940..	300	300		
13		1930..	4,125	4,000	
14	Increase or decrease (-), 1930-1940.....acres.....	-3,825	175	-4,000	
15	percent.....	-92.7	140.0	-100.0	
16	Land partly drained, for partial crop.....acres....1940..	951	951		
17		1930..	1,694	1,519	
18	Increase or decrease (-), 1930-1940.....acres.....	-743	776	-1,519	
19	percent.....	-43.9	443.4	-100.0	
20	Improved land.....acres....1940..	295,976	3,085	242,870	50,021
21		1930..	3,248	257,964	47,900
22		1920..	640	7,740	28,500
Unimproved land:					
23	Woodland and cut-over land.....acres....1940..				
24		1930..	75		
25		1920..			
26	Other unimproved land.....acres....1940..	2,657	300		2,357
27		1930..	125	7,519	2,100
28		1920..	2,760	(³)	(³)
29	Land in occupied farms.....acres....1940..	296,276	3,385	242,870	50,021
30		1930..	3,448	257,914	43,440
31	Increase or decrease (-), 1930-1940.....acres.....	-8,526	-63	-15,044	6,581
32	percent.....	-2.8	-1.8	-5.8	15.1
33	Land in planted crops.....acres....1940..	268,907	3,085	221,433	44,389
34		1930..	3,218	232,400	42,448
35	Increase or decrease (-), 1930-1940.....acres.....	-9,159	-133	-10,967	1,941
36	percent.....	-3.3	-4.1	-4.7	4.6
37	Land idle.....acres....1940..	23,247	300	21,437	1,510
38		1930..	200	32,519	6,500
39	Increase or decrease (-), 1930-1940.....acres.....	-15,972	100	-11,082	-4,990
40	percent.....	-40.7	50.0	-34.1	-76.8
41	Land available for settlement.....acres....1940..				
42		1930..	1,519	1,519	
43	Increase or decrease (-), 1930-1940.....acres.....	-1,519		-1,519	
44	percent.....	-100.0		-100.0	
LAND CLASSIFIED BY WORKS, 1940					
45	Land drained by open ditches only.....acres.....	2,274		2,274	
46	Length of these ditches.....miles.....	6.0		6.0	
47	Part protected by levees of an outside agency.....acres.....				
48	Land drained by open ditches and own levees.....acres.....				
49	Length of these ditches.....miles.....				
50	Length of these levees.....miles.....				
51	Part protected by levees of an outside agency.....acres.....				
52	Land drained by tile only.....acres.....				
53	Length of these tile.....miles.....				
54	Part protected by levees of an outside agency.....acres.....				
55	Land drained by tile and own levees.....acres.....				
56	Length of these tile.....miles.....				
57	Length of these levees.....miles.....				
58	Part protected by levees of an outside agency.....acres.....				
59	Land drained by open ditches and tile.....acres.....	1,800	1,800		
60	Length of these open ditches.....miles.....	1.5	1.5		
61	Length of these tile.....miles.....	0.5	0.5		
62	Part protected by levees of an outside agency.....acres.....				
63	Land drained by open ditches, tile, and levees.....acres.....	1,585	1,585		
64	Length of these open ditches.....miles.....	1.0	1.0		
65	Length of these tile.....miles.....	3.0	3.0		
66	Length of these levees.....miles.....	0.5	0.5		
67	Part protected by levees of an outside agency.....acres.....				
68	Land in enterprises operating pumping plants ⁴.....acres.....	292,974		240,596	52,378
69	Length of open ditches owned by these enterprises.....miles.....	92.3		35.0	57.3
70	Length of tile owned by these enterprises.....miles.....	5.3		5.3	
71	Length of levees owned by these enterprises.....miles.....	24.0			24.0
72	Part protected by levees of an outside agency.....acres.....	50,000			50,000

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²The only intercounty enterprise is located partly in Yuma County, Arizona, as shown, and partly in Imperial County, California.

³Not available.

⁴Amounts in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—ARIZONA

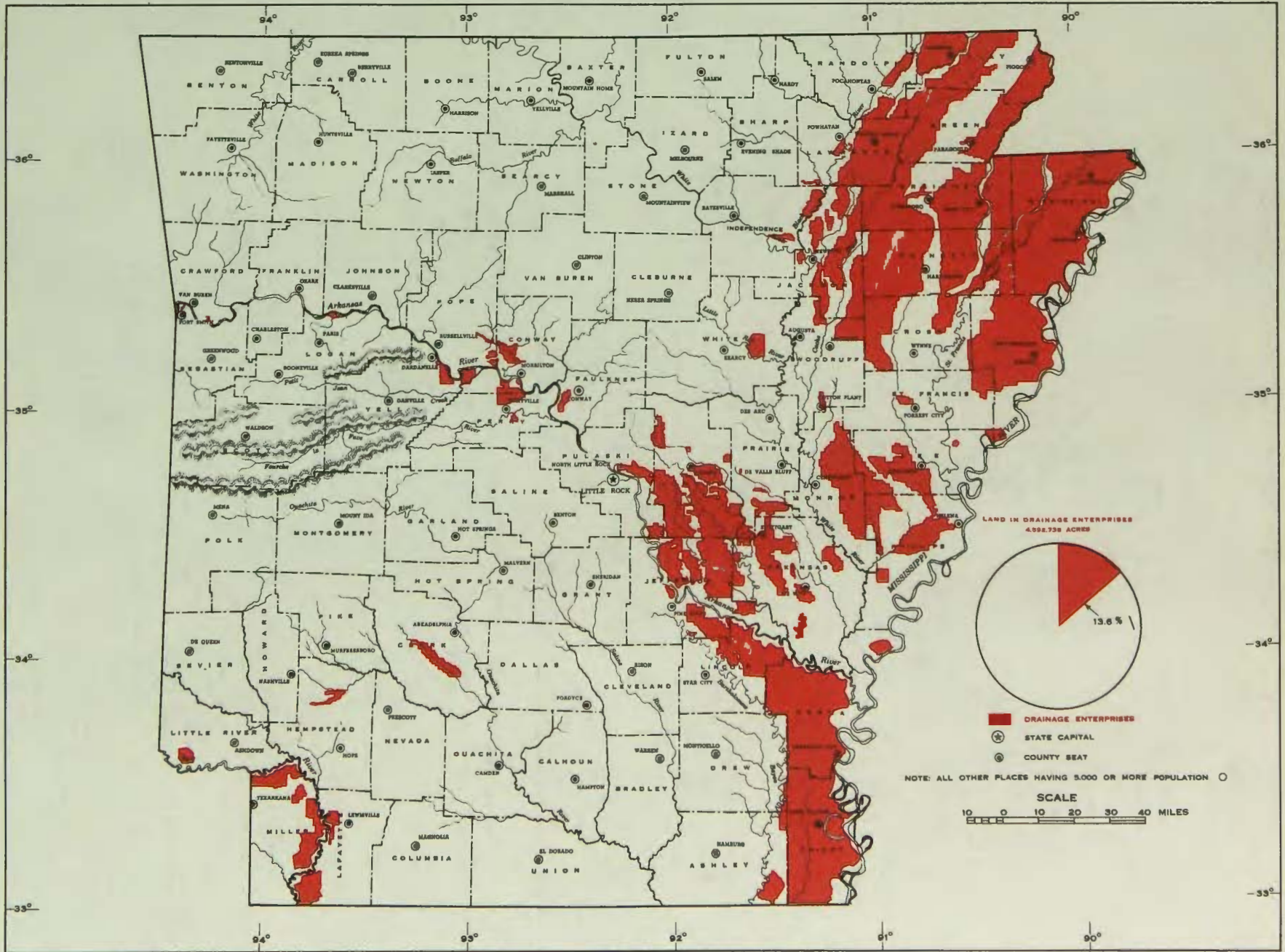
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)		THE STATE	Graham ¹	Maricopa ¹	Yuma ¹
DRAINAGE WORKS					
1	Drainage enterprises.....number.....1940..	25	2	2	1
2	Open ditches:				
3	Completed.....miles.....1940..	100.8	2.5	41.0	57.3
4	.....1930..	349.4	0.2	304.4	44.8
5	.....1920..	32.6	(³)	(³)	(³)
6	Additional length authorized.....miles.....1940..	5.0			5.0
7	Tile drains:				
8	Completed.....miles.....1940..	8.8	3.5	5.3	
9	.....1930..	14.3	9.0	5.3	
10	.....1920..	1.0	(³)	(³)	(³)
11	Additional length authorized.....miles.....1940..				
12	Levees and dikes:				
13	Completed.....miles.....1940..	24.5	0.5		24.0
14	.....1930..	2.5			2.5
15	.....1920..	26.0	(³)	(³)	(³)
16	Additional length authorized.....miles.....1940..				
17	Pumping plants:				
18	Engine capacity.....horsepower.....1940..	2,025		1,500	525
19	.....1930..	10,789		10,264	525
20	.....1920..	175	(³)	(³)	(³)
21	Pump capacity.....gal. per min.....1940..	71,000		15,000	56,000
22	.....1930..	458,750		380,000	78,750
23	.....1920..	33,660	(³)	(³)	(³)
24	Land served by pumps.....acres.....1940..	92,378		40,000	52,378
25	.....1930..	130,000		80,000	50,000
26	.....1920..	25,000	(³)	(³)	(³)
27	Wells pumped for drainage.....number.....1940..	30		30	
28	.....1930..	172		172	
CAPITAL INVESTED					
29	Capital invested to January 1.....dollars.....1940..	1,119,242	70,000	326,500	722,742
30	.....1930..	1,875,100	72,600	1,182,500	620,000
31	.....1920..	414,425	7,000	94,425	313,000
32	Estimated cost when completed.....dollars.....1940..	1,146,242	70,000	326,500	749,742
33	.....1930..	2,005,100	72,600	1,182,500	750,000
34	.....1920..	1,026,425	7,000	94,425	925,000
35	Average cost per acre when completed.....dollars.....1940..	3.84	25.00	1.94	14.31
36	.....1930..	6.29	21.06	4.45	15.00
37	.....1920..	25.89	10.94	10.49	30.83
38	Invested in and required for completion, 1940:				
39	Enterprises having open ditches only.....dollars.....	95,500		95,500	
40	Average amount per acre.....dollars.....	42.00		42.00	
41	Enterprises having open ditches and levees.....dollars.....				
42	Average amount per acre.....dollars.....				
43	Enterprises having tile only.....dollars.....				
44	Average amount per acre.....dollars.....				
45	Enterprises having tile and levees.....dollars.....	40,000	40,000		
46	Average amount per acre.....dollars.....	22.22	22.22		
47	Enterprises having ditches, tile, and levees.....dollars.....	30,000	30,000		
48	Average amount per acre.....dollars.....	18.93	18.93		
49	Enterprises operating pumping plants ⁴.....dollars.....	980,742		231,000	749,742
50	Average amount per acre.....dollars.....	3.35		0.96	14.31
MAINTENANCE AND OPERATION					
51	Cost of maintenance and operation in 1939:				
52	By enterprises operating pumping plants.....dollars.....	6,000			6,000
53	Enterprises reporting.....number.....	1			1
54	Land in these enterprises.....acres.....	52,378			52,378
55	Average cost per acre.....dollars.....	0.11			0.11
56	By enterprises not operating pumping plants.....dollars.....	400	400		
57	Enterprises reporting.....number.....	2	2		
58	Land in these enterprises.....acres.....	3,385	3,385		
59	Average cost per acre.....dollars.....	0.12	0.12		
60	Federal aid in maintenance:				
61	Enterprises reporting.....number.....				
62	Land in these enterprises.....acres.....				
FINANCIAL CONDITION					
63	Drainage taxes collected in 1939.....dollars.....	11,144	2,950	8,194	
64	Enterprises reporting.....number.....	3	2	1	
65	Land in these enterprises.....acres.....	5,659	3,385	2,274	
66	Average amount collected per acre.....dollars.....	1.97	0.87	3.60	
67	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	1,274		1,274	
68	Enterprises reporting.....number.....	1		1	
69	Land in these enterprises.....acres.....	2,274		2,274	
70	Portion delinquent in these enterprises.....percent.....	56.0		56.0	
71	Total indebtedness, Dec. 31, 1939.....dollars.....	94,000	30,000	64,000	
72	Enterprises reporting.....number.....	3	2	1	
73	Land in these enterprises.....acres.....	5,659	3,385	2,274	
74	Average indebtedness per acre.....dollars.....	16.61	8.86	28.14	
75	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	42,000		42,000	
76	Enterprises reporting.....number.....	1		1	
77	Land in these enterprises.....acres.....	2,274		2,274	
78	Average arrearage per acre.....dollars.....	18.47		18.47	
79	Reduction of debt by refinancing, prior to 1940.....dollars.....	10,000	10,000		
80	Enterprises reporting.....number.....	1	1		
81	Land in these enterprises.....acres.....	1,585	1,585		
82	Average reduction per acre.....dollars.....	6.31	6.31		

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²The only intercounty enterprise is located partly in Yuma County, Arizona, as shown, and partly in Imperial County, California.
³Not available.
⁴Amounts in lines 46 and 47 are not included in lines 34 to 45.

ARKANSAS

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — ARKANSAS

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	33,744,000	33,616,000	33,616,000				
Land in drainage enterprises.....acres.....	4,592,738	4,631,155	3,479,591	-38,417	-0.8	1,151,564	33.1
Improved.....acres.....	2,972,114	2,614,427	1,491,777	357,687	13.7	1,122,650	75.3
Unimproved:							
Timber and cut-over.....acres.....	1,514,179	1,752,958	1,923,382	-238,779	-13.6	-170,424	-8.9
Other.....acres.....	106,445	263,770	64,432	-157,325	-59.6	199,338	309.4
Drainage sufficient for normal crop.....acres.....	4,135,770	3,435,280	(1)	700,490	20.4		
Partly drained, for partial crop.....acres.....	83,756	609,211	(1)	-525,455	-86.2		
Unfit to raise any crop for lack of drainage.....acres.....	373,212	586,664	2 897,547	-213,452	-36.4	-310,883	-34.6
In occupied farms.....acres.....	3,100,342	2,940,035	(1)	160,307	5.4		
In planted crops.....acres.....	2,326,648	2,425,632	(1)	-98,984	-4.1		
Idle.....acres.....	1,593,470	2,035,463	(1)	-441,993	-21.7		
Available for settlement.....acres.....	683,535	1,210,414	(1)	-526,879	-43.5		
Open ditches, completed.....miles.....	6,030.3	4,974.3	3,154.1	1,056.0	21.2	1,820.2	57.7
Tile drains, completed.....miles.....	10.8	0.1	20.4	10.7	(4)		
Drainage pumping plants, capacity.....horsepower.....	350	515		-165	32.0		
.....gal. per min..	60,000	156,500		-96,500	-61.7		
Capital invested in enterprises.....dollars.....	39,450,754	37,532,575	14,147,174	1,918,179	5.1	23,385,401	165.3
Average per acre.....dollars.....	8.59	8.10	4.07	0.49	6.0	4.03	99.0

¹Not available. ²Reported as "Swampy, subject to overflow, seeped, or alkali." ³Incorrectly reported. ⁴Percent not shown when more than 1,000.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹				SIZE	AREA OF ENTERPRISES ¹			
	1940		1930			1920		Land in enterprises ² 1940	
	Acres	Acres	Acres	Acres		Acres	Acres		
All enterprises.....	5,633,299	5,764,808	3,842,812	4,592,738	5,000 to 9,999 acres.....	523,848	493,382	274,227	438,751
100 to 199 acres.....	289	110	.....	110	10,000 to 19,999 acres.....	975,512	2,414,091	1,473,391	797,345
200 to 499 acres.....	1,080	1,038	1,140	800	20,000 to 49,999 acres.....	1,445,448				1,282,466
500 to 999 acres.....	14,523	12,060	3,669	13,623	50,000 to 99,999 acres.....	1,087,472	1,228,710	1,162,120	809,451
1,000 to 1,999 acres.....	39,084	235,900	103,001	31,352	100,000 to 199,999 acres.....	1,060,426	1,379,517	825,264	781,840
2,000 to 4,999 acres.....	199,537				169,449	169,449			200,000 to 499,999 acres.....	286,080	267,552

¹The sum of the areas in the individual enterprises, without deduction for overlapping.
²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,592,738	100.0	39,450,754	100.0
Drainage districts.....	4,508,380	98.2	39,004,644	98.9
Commercial developments:				
Incorporated.....	15,000	0.3	84,592	0.2
Unincorporated.....				
Individually owned projects.....	69,358	1.5	361,518	0.9

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	4,592,738	100.0	4,631,155	100.0	3,479,591	100.0	39,450,754	100.0	37,532,575	100.0	14,147,174	100.0
Gravity drainage only by—												
Open ditches.....	4,535,561	98.8	4,447,004	96.0	3,438,635	98.9	38,646,554	98.0	33,678,075	89.7	13,853,174	98.0
Tile drains.....					3,100	0.1				41,000	0.3	
Open ditches and tile drains.....	9,480	0.2	8,890	0.2	37,856	1.1	252,200	0.6	26,500	0.1	253,000	1.8
All drained by pumping by—												
Open ditches.....												
Tile drains.....			3,261	0.1					135,000	0.4		
Open ditches and tile drains.....												
Part only by pumping by—												
Open ditches.....	47,697	1.0					552,000	1.4				
Tile drains.....			172,000	3.7					3,683,000	9.8		
Open ditches and tile drains.....												
Total area served by pumps.....	3,900	0.1	18,261	0.4								

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY			Land served	
		Engine or motor		Pump		
		Number	Hp.	Percent		G. p. m.
All pumping enterprises.....	1940..	2	350	100.0	60,000	Acres 3,900
	1930..	2	515	100.0	156,500	18,261
	1920..					
Electric.....	1940..	2	350	100.0	60,000	3,900
	1930..	1	450	87.4	150,000	15,000
	1920..					
Internal combustion.....	1940..					
	1930..	1	65	12.6	6,500	3,261
	1920..					

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity	Land served	
		Capacity				
		G. p. m.	Percent			
All pumping enterprises.....	1940..	5	60,000	100.0	Hp. 350	Acres 3,900
	1930..	5	156,500	100.0	515	18,261
Centrifugal.....	1940..	3	30,000	50.0	150	700
	1930..	3	150,000	95.8	450	15,000
Rotary.....	1940..					
	1930..	2	6,500	4.2	65	3,261
Screw.....	1940..	2	30,000	50.0	200	3,200
	1930..					

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	4,592,738	100.0	4,631,155	100.0	39,450,754	100.0	37,532,575	100.0	1,095,181	1,001,260
Enterprises in arrears.....	1,070,941	23.3	1,465,002	31.6	6,959,514	17.6	16,009,805	42.7	509,412	535,523
With some delinquent land.....	862,917	18.8	1,432,401	30.9	5,403,544	13.7	15,889,751	42.3	509,412	535,523
With no delinquent land.....	178,062	3.8	14,201	0.3	1,340,007	3.4	52,554	0.2		
With no report on delinquency.....	29,942	0.7	18,400	0.4	215,963	0.5	67,500	0.2		
Enterprises not in arrears.....	3,515,117	76.6	3,166,153	68.4	32,256,240	81.8	21,522,770	57.3	584,552	465,737
With some delinquent land.....	2,005,073	43.6	2,378,341	51.4	23,063,476	58.5	15,984,468	42.6	584,552	465,737
With no delinquent land.....	1,466,190	32.0	719,330	15.5	8,677,184	22.0	4,524,802	12.0		
With no report on delinquency.....	43,854	1.0	67,882	1.5	515,580	1.3	1,013,500	2.7		
Enterprises not reporting on arrearage.....	6,680	0.1			235,000	0.6			1,207	
With some delinquent land.....	6,680	0.1			235,000	0.6			1,207	
With no delinquent land.....										
With no report on delinquency.....										

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres-	Dollars
All enterprises.....	4,592,738	39,450,754	13,234,878	2,683,688	12,517,080	1,095,181	1,013,145
Enterprises in debt.....	3,366,869	32,776,297	13,234,878	2,683,688	12,495,830	1,087,525	990,276
In arrears, amount of arrearage stated.....	1,049,125	5,646,514	3,521,315	2,683,688	422,370	510,588	100,071
Collecting drainage taxes in 1939.....	742,293	4,286,118	2,149,711	1,465,635	74,398	417,273	100,071
No collections reported.....	303,832	2,360,396	1,371,504	1,218,063	347,972	93,315	
In arrears, amount not stated.....	21,815	201,000	158,000				
Collecting drainage taxes in 1939.....	21,816	201,000	158,000				
No collections reported.....							
Not in arrears.....	2,289,248	25,693,783	9,418,553		11,999,960	575,730	884,028
Collecting drainage taxes in 1939.....	2,101,542	24,446,083	9,044,813		11,741,960	558,471	884,028
No collections reported.....	187,706	1,247,700	373,750		258,000	17,259	
Not reporting as to arrears.....	6,680	235,000	127,000		73,500	1,207	5,177
Collecting drainage taxes in 1939.....	6,680	235,000	127,000		73,500	1,207	6,177
No collections reported.....							
Enterprises not in debt.....	1,187,311	6,457,957			21,250	7,296	24,713
Collecting drainage taxes in 1939.....	148,728	878,666			21,250	6,206	24,713
No collections reported.....	1,038,583	5,579,291				1,090	
Enterprises not reporting as to debt.....	38,558	216,500				360	1,156
Collecting drainage taxes in 1939.....	2,240	16,500				360	1,156
No collections reported.....	36,318	200,000					

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,592,738	100.0	39,450,754	100.0
Improvement of land already in farms.....	3,488,542	75.9	27,348,096	69.3
Reclamation of swamp land not previously in farms.....	889,062	19.4	10,337,397	26.2
Protection against overflow.....	215,134	4.7	1,765,261	4.5

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	4,592,738	100.0	5,633,299	1,040,561	39,450,754	100.0
1905-1909.....	327,626	7.1	631,675	304,049	1,931,517	4.9
1910-1914.....	1,448,702	31.5	1,947,420	498,718	9,628,776	24.4
1915-1919.....	1,550,777	33.8	1,683,629	133,052	17,540,829	44.5
1920-1924.....	812,312	17.7	893,122	80,810	6,895,939	17.5
1925-1929.....	344,024	7.5	367,956	23,932	2,858,515	7.2
1930-1934.....	85,531	1.9	85,531	.....	428,582	1.1
1935-1939.....	23,766	0.5	23,766	.....	168,596	0.4

¹Land included in more than 1 enterprise is tabulated only in the last organized.²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	4,592,738	90.0	83,756	373,212	2,972,114	64.7	1,514,179	106,445	3,100,342	67.5	2,326,648	1,593,470	683,535	
1905-1909.....	327,626	80.6	6,611	56,908	180,145	55.0	145,521	1,960	190,765	58.2	143,072	148,077	55,629	
1910-1914.....	1,448,702	91.9	11,491	106,276	991,916	68.5	445,962	10,824	1,062,163	73.3	771,783	461,809	189,536	
1915-1919.....	1,550,777	91.6	26,386	104,189	1,014,287	65.4	450,019	86,471	1,038,525	67.0	797,267	490,216	265,893	
1920-1924.....	812,312	84.4	28,703	98,307	433,036	53.3	378,331	945	435,752	53.6	335,093	390,875	134,514	
1925-1929.....	344,024	94.9	10,565	6,892	265,446	77.2	72,973	5,605	279,918	81.4	209,699	81,320	30,053	
1930-1934.....	85,531	100.0	.....	.....	73,444	85.9	12,087	.....	71,066	83.1	58,677	12,087	7,910
1935-1939.....	23,766	97.3	.....	540	13,840	58.2	9,286	640	22,153	93.2	11,057	9,086	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
		Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	4,592,738	4,592,738	1,927,500	2,665,238	590,232	0.13	0.31
Gravity drainage only.....	4,545,041	4,545,041	1,883,233	2,661,808	582,532	0.13	0.31
Open ditches only.....	3,758,444	3,758,444	1,279,789	2,478,655	165,642	0.04	0.13
Open ditches and levees.....	777,117	777,117	603,444	173,673	416,890	0.54	0.69
Open ditches and tile drains.....	9,480	9,480	.....	9,480	.....	.....	.....
Pumping for all or part of drainage.....	47,697	47,697	44,267	3,430	7,700	0.16	0.17
All drainage by pumping.....	47,697	47,697	44,267	3,430	7,700	0.16	0.17
Part pumping and part gravity.....	47,697	47,697	44,267	3,430	7,700	0.16	0.17

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,592,738	100.0	39,450,754	100.0
Method:				
By district forces.....	862,797	18.8	6,317,414	16.0
By contract.....	908,682	19.8	14,922,239	37.8
Work apportioned to landowners.....	40,080	0.9	261,950	0.7
"None," or not reporting.....	2,781,169	60.5	17,949,151	45.5
Whether systematic:				
Reporting "yes".....	1,913,395	41.7	22,457,973	56.9
Reporting "no".....	2,679,343	58.3	16,992,781	43.1
Not reporting.....

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STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	4,592,738	573,190	12.5
Capital invested.....dollars..	39,450,754	13,364,947	33.9
Drainage works:			
Open ditches.....miles....	6,030.3	1,492.9	24.8
Tile drains.....miles....	10.8	7.0	64.8
Levees.....miles....	332.4	180.0	54.2

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	<i>Acres</i> 1,060,710	<i>Dollars</i> 16,917,826	<i>Miles</i> 1,713.1	<i>Miles</i>	<i>Miles</i> 170.1
Work Projects Administration.....	546,786	3,750,682	536.6	.....	0.1
Corps of Engineers, U.S.A.....	14,358	199,800	14.0	.....	14.0
W.P.A. and Corps of Engineers.....	52,904	654,800	60.0	.....	.....
Other kind or combination.....	436,662	12,312,544	1,102.5	.....	156.0

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	4,592,738	1,207,000	45.1
Capital invested.....dollars..	39,450,754	19,114,539	48.4
Drainage works:			
Open ditches.....miles....	6,030.3	3,011.1	50.0
Tile drains.....miles....	10.8	7.0	64.8
Levees.....miles....	332.4	177.0	53.2

¹The land actually dependent upon outside agencies for protection is 2,058,246 acres, which is 99.4 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE — ARKANSAS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)		THE STATE	Arkansas	Chicot	Clark ¹	Clay	Conway	Craighead	Crawford ¹
LAND AREA									
1	Approximate land area.....acres...1940..	33,744,000	662,400	414,080	561,920	416,000	358,400	458,880	382,720
2	Drainage enterprises.....number...1940..	² 287	18	6	1	15	5	23	1
3	Land in enterprises.....acres...1940..	4,592,738	117,299	342,041	26,071	285,498	25,325	361,726	920
4	.....1930..	4,631,155	144,126	343,211	38,476	254,149	27,110	339,181	(³)
5	.....1920..	3,479,591	91,840	68,920	25,000	276,480	31,650	265,920	.....
6	Area of all enterprises, overlapping included.....acres...1940..	5,633,299	118,989	347,451	26,071	389,579	25,325	499,056	920
7	Amount of overlapping.....acres...1940..	1,040,561	1,890	5,410	.....	104,081	.....	137,330	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres...1940..	4,135,770	110,492	315,266	26,071	271,865	13,655	343,877	920
9	.....1930..	3,435,280	126,844	246,000	38,476	182,460	4,220	299,366	(³)
10	Increase or decrease (-), 1930-1940.....acres.....	700,490	-16,352	69,266	-12,405	89,405	9,435	44,511	.....
11	.....percent.....	20.4	-12.9	28.2	-32.2	49.0	23.6	14.9	.....
12	Land undrained, unfit for any crop.....acres...1940..	373,212	.....	26,775	.....	13,633	11,670	9,224	.....
13	.....1930..	586,664	5,400	55,521	.....	40,500	21,560	16,263	(³)
14	Increase or decrease (-), 1930-1940.....acres.....	-213,452	-5,400	-28,746	.....	-26,867	-9,890	-7,039	.....
15	.....percent.....	-36.4	-100.0	-51.8	.....	-66.3	-45.9	-43.3	.....
16	Land partly drained, for partial crop.....acres...1940..	83,756	6,807	.....	.....	.....	.....	8,625	.....
17	.....1930..	609,211	11,882	41,690	.....	31,189	1,330	23,552	(³)
18	Increase or decrease (-), 1930-1940.....acres.....	-525,455	-5,075	-41,690	.....	-31,189	-1,330	-14,927	.....
19	.....percent.....	-86.2	-42.7	-100.0	.....	-100.0	-100.0	-68.4	.....
20	Improved land.....acres...1940..	2,972,114	103,314	157,342	13,200	189,220	13,655	213,617	920
21	.....1930..	2,614,427	124,662	126,650	30,000	125,050	5,560	197,480	(³)
22	.....1920..	1,491,777	82,461	32,204	12,500	147,907	15,825	89,379	.....
Unimproved land:									
23	Woodland and cut-over land.....acres...1940..	1,514,179	13,727	146,192	6,436	94,266	11,670	146,817	.....
24	.....1930..	1,752,958	14,582	212,400	4,476	114,375	18,050	135,885	(³)
25	.....1920..	1,923,382	8,653	36,715	12,500	130,573	15,825	176,541	.....
26	Other unimproved land.....acres...1940..	106,445	258	38,507	6,435	2,012	.....	1,292	.....
27	.....1930..	263,770	4,882	4,161	.....	14,724	3,500	5,816	(³)
28	.....1920..	64,432	726	.....	.....	.....	.....	.....	.....
29	Land in occupied farms ⁴.....acres...1940..	3,100,342	115,568	157,342	13,200	199,000	13,655	216,597	920
30	.....1930..	2,940,035	125,926	129,325	38,476	229,425	4,560	268,584	(³)
31	Increase or decrease (-), 1930-1940.....acres.....	160,307	-10,358	28,017	-25,276	-30,425	9,095	-51,987	.....
32	.....percent.....	5.4	-8.2	21.7	-65.7	-13.3	199.4	-19.4	.....
33	Land in planted crops.....acres...1940..	2,326,648	102,703	95,000	13,200	100,000	13,655	153,000	920
34	.....1930..	2,425,632	90,730	126,380	30,000	109,800	3,550	180,277	(³)
35	Increase or decrease (-), 1930-1940.....acres.....	-98,984	11,973	-31,380	-16,800	-9,800	10,105	-27,277	.....
36	.....percent.....	-4.1	13.2	-24.8	-56.0	-8.9	284.6	-15.1	.....
37	Land idle.....acres...1940..	1,593,470	14,444	184,699	12,871	96,236	11,670	148,390	.....
38	.....1930..	2,035,463	44,612	215,650	8,000	121,015	23,550	141,031	(³)
39	Increase or decrease (-), 1930-1940.....acres.....	-441,993	-30,168	-30,951	4,871	-24,749	-11,880	7,359	.....
40	.....percent.....	-21.7	-67.6	-14.4	60.9	-20.4	-50.4	5.2	.....
41	Land available for settlement.....acres...1940..	683,535	.....	78,714	10,000	3,976	.....	103,065	.....
42	.....1930..	1,210,414	14,634	177,934	.....	15,000	1,000	58,750	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-526,879	-14,634	-99,220	10,000	-11,024	-1,000	44,315	.....
44	.....percent.....	-43.5	-100.0	-55.8	.....	-73.5	-100.0	75.4	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	3,758,444	117,299	342,041	26,071	251,747	25,325	347,501	920
46	Length of these ditches.....miles.....	4,687.8	150.2	198.7	32.0	365.3	22.5	455.2	2.2
47	Part protected by levees of an outside agency.....acres.....	1,625,024	.....	342,041	.....	53,758	723	26,781	920
48	Land drained by open ditches and own levees.....acres.....	777,117	.....	.....	.....	33,751	.....	7,545	.....
49	Length of these ditches.....miles.....	1,220.8	.....	.....	.....	35.0	.....	11.0	.....
50	Length of these levees.....miles.....	326.4	.....	.....	.....	41.0	.....	5.5	.....
51	Part protected by levees of an outside agency.....acres.....	386,155	.....	.....	.....	15,322	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	9,480	.....	.....	.....	.....	.....	6,680	.....
60	Length of these open ditches.....miles.....	27.2	.....	.....	.....	.....	.....	15.2	.....
61	Length of these tile.....miles.....	10.8	.....	.....	.....	.....	.....	3.8	.....
62	Part protected by levees of an outside agency.....acres.....	2,800	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	47,697	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	94.5	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	6.0	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	44,267	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 250.³ Included in "Other counties."⁴ For some counties the reported land in occupied farms evidently omits unimproved land used for farming purposes.⁵ Data in lines 68 to 72 are not included in lines 45 to 67.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Critten- den	Cross	Desha	Drew ¹	Greene	Hemp- stead ¹	Independ- ence	Jackson	Jefferson	
LAND AREA										
1	Approximate land area.....acres.....1940..	398,720	400,640	496,640	535,040	370,560	470,400	483,200	407,680	569,600
2	Drainage enterprises.....number.....1940..	10	5	5	1	18	2	3	16	18
3	Land in enterprises.....acres.....1940..	259,157	124,310	320,025	3,440	138,697	9,960	21,356	165,698	190,945
4	.....1930..	236,587	110,819	317,386	6,012	210,500	(²)	24,740	157,407	190,184
5	.....1920..	261,860	43,364	317,264	6,400	182,180	9,400	5,520	61,063	162,630
6	Area of all enterprises, overlapping included.....acres.....1940..	261,470	125,070	404,153	3,440	319,541	9,960	21,356	172,313	278,520
7	Amount of overlapping.....acres.....1940..	2,313	760	84,128	.....	120,644	.....	.....	6,615	87,575
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	259,157	91,903	279,654	2,716	144,262	9,960	20,116	149,536	190,945
9	.....1930..	170,000	60,900	103,700	6,012	163,731	(²)	8,800	120,596	156,984
10	Increase or decrease (-), 1930-1940.....acres.....	89,157	31,003	175,954	-3,296	-39,449	.....	11,316	28,940	33,961
11	.....percent.....	52.4	50.9	169.7	-54.8	-21.5	.....	128.6	24.0	21.6
12	Land undrained, unfit for any crop.....acres.....1940..	.....	32,318	40,371	724	25,519	.....	1,240	8,946	.....
13	.....1930..	10,037	11,228	94,346	.....	11,352	(²)	15,940	14,560	20,446
14	Increase or decrease (-), 1930-1940.....acres.....	-10,037	21,090	-53,975	724	14,167	.....	-14,700	-5,614	-20,446
15	.....percent.....	-100.0	187.8	-57.2	.....	124.8	.....	-92.2	-38.6	-100.0
16	Land partly drained, for partial crop.....acres.....1940..	.....	89	.....	.....	29,096	.....	.....	7,216	.....
17	.....1930..	56,550	38,691	119,340	.....	15,417	(²)	.....	22,251	12,754
18	Increase or decrease (-), 1930-1940.....acres.....	-56,550	-38,602	-119,340	.....	13,679	.....	.....	-15,035	-12,754
19	.....percent.....	-100.0	-99.8	-100.0	.....	88.7	.....	.....	-67.6	-100.0
20	Improved land.....acres.....1940..	259,157	38,492	187,572	2,716	118,911	8,738	8,360	93,768	117,684
21	.....1930..	170,300	72,400	108,562	1,503	114,226	(²)	8,800	95,157	138,334
22	.....1920..	132,692	11,807	59,453	3,200	73,300	8,652	3,368	25,097	94,352
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	.....	85,086	132,453	724	75,770	1,222	12,996	70,640	73,261
24	.....1930..	49,400	23,000	121,331	4,208	96,274	(²)	15,940	53,646	48,271
25	.....1920..	114,296	29,625	247,811	3,200	105,265	700	1,891	35,966	68,308
26	Other unimproved land.....acres.....1940..	.....	732	.....	.....	4,216	.....	.....	1,290	.....
27	.....1930..	16,887	15,419	87,493	301	.....	(²)	.....	8,404	3,579
28	.....1920..	14,672	1,932	.....	.....	3,615	48	261	.....	.....
29	Land in occupied farms ³.....acres.....1940..	220,000	35,036	202,517	2,716	131,078	8,738	8,360	112,005	127,294
30	.....1930..	172,300	72,400	108,562	1,503	204,280	(²)	8,800	93,157	138,514
31	Increase or decrease (-), 1930-1940.....acres.....	47,700	-37,364	93,955	1,213	-73,202	.....	-440	18,848	-11,220
32	.....percent.....	27.7	-51.6	86.5	80.7	-35.8	.....	-5.0	20.2	-8.1
33	Land in planted crops.....acres.....1940..	150,000	35,036	110,000	2,716	103,625	8,738	8,360	93,767	116,576
34	.....1930..	170,300	72,400	96,700	1,503	101,640	(²)	7,480	91,420	135,334
35	Increase or decrease (-), 1930-1940.....acres.....	-20,300	-37,364	13,300	1,213	1,985	.....	880	2,347	-18,758
36	.....percent.....	-11.9	-51.6	13.8	80.7	2.0	.....	11.8	2.6	-13.9
37	Land idle.....acres.....1940..	.....	89,274	132,453	724	93,542	1,222	12,996	66,647	74,069
38	.....1930..	59,287	29,315	220,686	4,208	97,688	(²)	16,900	61,328	52,035
39	Increase or decrease (-), 1930-1940.....acres.....	-59,287	59,959	-88,233	-3,484	-4,146	.....	-3,904	5,319	22,034
40	.....percent.....	-100.0	204.5	-40.0	-82.8	-4.2	.....	-23.1	8.7	42.3
41	Land available for settlement.....acres.....1940..	.....	36,396	69,600	.....	8,000	.....	10,000	48,949	41,796
42	.....1930..	47,700	28,500	175,090	4,208	1,000	(²)	.....	50,765	30,680
43	Increase or decrease (-), 1930-1940.....acres.....	-47,700	7,896	-105,490	-4,208	7,000	.....	10,000	-1,816	11,116
44	.....percent.....	-100.0	27.7	-60.2	-100.0	700.0	.....	.....	-3.6	36.2
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	259,157	124,310	307,825	3,440	140,193	9,960	21,356	104,405	186,495
46	Length of these ditches.....miles.....	439.4	116.0	155.7	3.0	181.0	16.0	13.9	143.8	343.0
47	Part protected by levees of an outside agency.....acres.....	259,157	36,144	307,825	3,440	44,072	.....	.....	3,911	55,265
48	Land drained by open ditches and own levees.....acres.....	.....	.....	12,200	.....	58,704	.....	.....	61,293	1,020
49	Length of these ditches.....miles.....	.....	.....	4.8	.....	87.0	.....	.....	89.2	1.0
50	Length of these levees.....miles.....	.....	.....	7.5	.....	39.0	.....	.....	6.1	0.2
51	Part protected by levees of an outside agency.....acres.....	.....	.....	12,200	.....	.....	.....	.....	1,000	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	3,430
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	8.5
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	6.0
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

² Included in "Other counties."

³ For some counties the reported land in occupied farms evidently omits unimproved land used for farming purposes.

⁴ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — ARKANSAS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Lafayette	Lawrence	Lee	Lincoln	Logan ¹	Lonoke	Miller	Missis- sippi	Monroe
LAND AREA										
1	Approximate land area.....acres.....1940..	343,680	378,880	396,800	361,600	465,280	512,000	401,280	588,160	394,880
2	Drainage enterprises.....number.....1940..	3	13	9	10	1	19	8	23	3
3	Land in enterprises.....acres.....1940..	42,074	176,764	105,665	100,669	1,301	222,201	87,349	491,772	137,680
4	.....1930..	41,000	200,324	108,094	100,229	(²)	219,215	88,800	504,420	200,000
5	.....1920..	.....	117,520	20,576	92,937	.....	172,007	27,640	478,687	33,136
6	Area of all enterprises, overlapping included.....acres.....1940..	42,074	244,808	106,345	121,769	1,301	232,852	87,989	830,975	152,500
7	Amount of overlapping.....acres.....1940..	.....	67,744	680	21,100	.....	10,651	640	339,203	14,820
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	36,074	172,638	95,400	89,691	1,301	191,315	74,537	480,822	129,710
9	.....1930..	28,500	138,242	69,400	75,064	(²)	193,950	82,300	327,720	195,000
10	Increase or decrease (-), 1930-1940.....acres.....	7,574	34,396	26,000	14,627	.....	-2,635	-7,763	153,102	-65,290
11	.....percent.....	26.6	24.9	37.5	19.5	.....	-1.4	-9.4	46.7	-33.5
12	Land undrained, unfit for any crop.....acres.....1940..	6,000	3,890	5,214	7,970	.....	25,690	12,612	9,125	7,970
13	.....1930..	8,500	32,610	7,739	23,039	(²)	24,765	2,000	75,000	5,000
14	Increase or decrease (-), 1930-1940.....acres.....	-2,500	-28,720	-2,525	-15,069	.....	925	10,812	-65,875	2,970
15	.....percent.....	-29.4	-88.1	-32.6	-65.4	.....	3.7	540.6	-87.8	59.4
16	Land partly drained, for partial crop.....acres.....1940..	.....	236	5,051	3,008	.....	5,196	.....	1,825	.....
17	.....1930..	4,000	29,472	30,855	2,126	.....	500	4,500	101,700	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-4,000	-29,236	-25,904	882	.....	4,696	-4,500	-99,875	.....
19	.....percent.....	-100.0	-99.2	-83.7	41.5	.....	939.2	-100.0	-98.2	.....
20	Improved land.....acres.....1940..	27,000	68,967	73,907	75,264	1,200	180,202	43,941	462,550	68,268
21	.....1930..	28,000	91,101	73,700	73,089	(²)	155,517	45,600	319,920	105,000
22	.....1920..	.....	37,190	12,466	47,807	.....	91,067	14,512	207,743	14,911
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	15,074	87,797	31,658	25,405	101	41,999	43,408	17,887	69,412
24	.....1930..	13,000	109,223	26,350	21,552	(²)	63,698	43,200	129,500	95,000
25	.....1920..	.....	75,430	8,110	42,930	.....	80,940	10,058	257,111	18,225
26	Other unimproved land.....acres.....1940..	.....	.....	100	.....	.....	.....	.....	11,335	.....
27	.....1930..	.....	.....	8,044	5,588	(²)	.....	.....	61,000	.....
28	.....1920..	.....	4,900	.....	2,200	.....	.....	3,070	13,833	.....
29	Land in occupied farms ³.....acres.....1940..	27,000	108,608	82,597	85,901	1,301	197,030	43,941	475,997	68,268
30	.....1930..	28,000	106,742	70,200	75,064	(²)	149,743	45,600	314,220	90,000
31	Increase or decrease (-), 1930-1940.....acres.....	-1,000	1,866	12,397	10,837	.....	47,287	-1,659	161,777	-21,732
32	.....percent.....	-3.6	1.7	17.6	14.4	.....	31.6	-3.6	51.5	-24.1
33	Land in planted crops.....acres.....1940..	27,000	82,124	73,907	74,008	1,200	125,100	36,100	386,000	52,028
34	.....1930..	26,000	89,581	70,100	73,089	(²)	132,133	45,100	313,920	80,000
35	Increase or decrease (-), 1930-1940.....acres.....	1,000	-7,457	3,807	919	.....	-7,033	-9,000	72,080	-27,972
36	.....percent.....	3.8	-8.3	5.4	1.2	.....	-5.3	-20.0	23.0	-35.0
37	Land idle.....acres.....1940..	13,074	71,321	31,658	26,357	101	51,739	43,408	32,066	69,432
38	.....1930..	15,000	105,312	33,139	25,077	(²)	66,095	43,700	185,300	95,000
39	Increase or decrease (-), 1930-1940.....acres.....	-1,926	-33,991	-1,481	1,280	.....	-14,356	-292	-153,234	-25,566
40	.....percent.....	-12.8	-32.3	-4.5	5.1	.....	-21.7	-0.7	-82.7	-26.9
41	Land available for settlement.....acres.....1940..	.....	2,196	28,201	7,486	.....	14,744	11,901	3,000	45,472
42	.....1930..	.....	56,292	28,710	1,438	.....	43,853	42,200	108,800	90,000
43	Increase or decrease (-), 1930-1940.....acres.....	-5,000	-54,096	-509	6,048	.....	-29,109	-30,299	-105,800	-44,528
44	.....percent.....	-100.0	-96.1	-1.8	420.6	.....	-66.4	-71.8	-97.2	-49.5
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	42,074	176,764	105,665	100,669	1,301	147,848	55,623	144,762	137,360
46	Length of these ditches.....miles.....	51.7	209.8	101.4	179.8	3.0	177.7	55.0	667.1	57.0
47	Part protected by levees of an outside agency.....acres.....	36,125	18,660	4,387	64,244	.....	22,360	50,323	144,762	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	74,353	31,726	299,943	320
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	57.4	35.0	600.5	0.1
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	2.1	17.0	108.0	0.5
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	31,726	299,943	320
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	2,800	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	12.0	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	7.0	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	2,800	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	.....	.....	.....	.....	.....	.....	44,267	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	86.0	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	44,267	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

² Included in "Other counties."

³ For some counties the reported land in occupied farms evidently omits unimproved land used for farming purposes.

⁴ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — ARKANSAS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Phillips	Poinsett	Fope	Prairie	Fulaski	Randolph	St. Francis	Woodruff	Other counties ¹	
LAND AREA										
1	Approximate land area.....acres....1940..	450,560	487,680	522,240	431,360	499,640	407,660	407,040	378,680	3,329,280
2	Drainage enterprises.....number...1940..	5	8	4	7	5	5	4	3	10
3	Land in enterprises.....acres....1940..	108,707	376,318	8,558	27,943	29,400	53,189	33,199	37,570	99,651
4	.....1930..	97,046	375,544	7,127	39,025	27,627	53,020	27,246	44,446	88,110
5	.....1920..	119,800	394,800	2,500	7,256	16,000	48,320	29,563	13,180	94,128
6	Area of all enterprises, overlapping included.....acres....1940..	109,507	407,498	9,845	28,823	29,460	53,379	34,039	37,570	99,651
7	Amount of overlapping.....acres....1940..	800	31,180	1,287	880	.....	190	840	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	95,470	278,330	8,350	26,903	27,012	49,302	26,199	36,110	86,191
9	.....1930..	64,000	300,804	5,330	30,711	26,627	49,020	18,535	41,946	80,042
10	Increase or decrease (-), 1930-1940.....acres.....	31,470	-22,474	3,020	-3,808	365	282	7,664	-5,836	6,149
11	.....percent.....	49.2	-7.5	56.7	-12.4	1.4	0.6	41.3	-13.9	7.7
12	Land undrained, unfit for any crop.....acres....1940..	10,237	85,116	208	1,040	1,848	3,752	7,000	1,460	13,460
13	.....1930..	12,100	61,500	1,070	600	300	.....	1,411	2,500	11,377
14	Increase or decrease (-), 1930-1940.....acres.....	-1,863	23,616	-862	440	1,548	3,752	5,589	-1,040	2,083
15	.....percent.....	-15.4	38.4	-80.6	73.3	516.0	.....	396.1	-41.6	18.3
16	Land partly drained, for partial crop.....acres....1940..	3,000	12,872	.....	.....	600	135	.....	.....	.....
17	.....1930..	20,940	13,340	727	7,714	700	4,000	7,300	.....	6,691
18	Increase or decrease (-), 1930-1940.....acres.....	-17,940	-366	-727	-7,714	-100	-3,865	-7,300	.....	-6,691
19	.....percent.....	-85.7	-2.8	-100.0	-100.0	-14.3	-96.6	-100.0	.....	-100.0
20	Improved land.....acres....1940..	59,610	180,842	7,894	17,730	20,209	34,358	25,782	16,542	61,182
21	.....1930..	60,500	151,979	6,007	29,411	25,265	36,318	18,350	26,000	55,986
22	.....1920..	59,110	71,510	1,250	6,168	16,000	31,860	13,653	10,544	53,389
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	48,522	163,329	668	6,178	9,251	18,461	7,021	20,243	36,509
24	.....1930..	27,000	217,425	1,120	9,214	1,432	16,302	7,460	18,446	40,998
25	.....1920..	60,690	315,725	1,250	.....	.....	16,460	5,188	2,636	40,739
26	Other unimproved land.....acres....1940..	575	32,147	.....	4,035	.....	370	396	785	1,960
27	.....1930..	9,540	6,140	.....	400	930	400	1,436	.....	1,126
28	.....1920..	.....	7,565	.....	1,088	.....	.....	10,522	.....	.....
29	Land in occupied farms ².....acres....1940..	75,535	184,860	7,894	19,313	20,209	34,358	25,780	16,542	61,182
30	.....1930..	59,500	184,083	6,107	31,311	24,827	45,020	22,350	26,000	55,456
31	Increase or decrease (-), 1930-1940.....acres.....	16,035	-9,223	1,787	-11,998	-4,618	-10,662	3,430	-9,458	5,726
32	.....percent.....	26.9	-4.8	29.3	-38.3	-18.6	-23.7	15.3	-36.4	10.3
33	Land in planted crops.....acres....1940..	57,468	129,000	7,894	17,730	19,959	33,082	23,100	14,900	58,752
34	.....1930..	59,500	143,759	6,007	21,630	23,105	31,118	18,350	21,000	53,696
35	Increase or decrease (-), 1930-1940.....acres.....	-2,032	-14,759	1,887	-3,900	-3,146	1,964	4,750	-6,100	5,056
36	.....percent.....	-3.4	-10.3	31.4	-18.1	-13.6	6.3	25.9	-29.0	9.4
37	Land idle.....acres....1940..	51,239	159,310	664	9,373	9,501	16,831	7,417	20,243	38,469
38	.....1930..	30,240	226,175	1,120	16,191	3,352	19,902	8,696	21,946	43,713
39	Increase or decrease (-), 1930-1940.....acres.....	20,999	-66,865	-456	-6,818	6,149	-1,071	-1,479	-1,703	-5,244
40	.....percent.....	69.4	-29.6	-40.7	-42.1	183.4	-5.4	-16.6	-7.8	-12.0
41	Land available for settlement.....acres....1940..	25,000	90,125	.....	5,685	4,900	10,900	.....	17,429	6,000
42	.....1930..	25,960	133,021	.....	7,000	2,200	8,000	3,400	15,946	33,333
43	Increase or decrease (-), 1930-1940.....acres.....	-960	-42,896	.....	-1,315	2,700	2,900	-3,400	1,483	-27,333
44	.....percent.....	-3.7	-32.2	.....	-18.8	122.7	36.2	-100.0	9.3	-82.0
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	100,632	223,618	6,000	27,943	29,460	53,189	33,199	37,570	66,722
46	Length of these ditches.....miles.....	91.0	176.8	14.5	34.6	30.5	76.0	51.5	32.0	40.5
47	Part protected by levees of an outside agency.....acres.....	69,865	.....	.....	.....	11,025	.....	27,396	8,320	33,520
48	Land drained by open ditches and own levees.....acres.....	8,075	152,700	2,558	.....	.....	.....	.....	.....	32,929
49	Length of these ditches.....miles.....	2.3	256.0	2.0	.....	.....	.....	.....	.....	39.5
50	Length of these levees.....miles.....	14.8	68.0	2.0	.....	.....	.....	.....	.....	15.0
51	Part protected by levees of an outside agency.....acres.....	8,075	.....	.....	.....	.....	.....	.....	.....	17,569
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Includes Ashley, Faulkner, Little River, Perry, Sebastian, White, and Yell Counties in 1940; Ashley, Crawford, Faulkner, Hempstead, Little River, Logan, Perry, Sebastian, and White Counties in 1930; and Ashley, Faulkner, Little River, Perry, Sebastian, and White Counties in 1920.
² For some counties the reported land in occupied farms evidently omits unimproved land used for farming purposes.

CENSUS OF DRAINAGE — ARKANSAS

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)		THE STATE	Arkansas	Chicot	Clark ¹	Clay	Conway	Craighead	Crawford ¹
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	² 287	18	6	1	15	5	23	1
Open ditches:									
2	Completed.....miles.....1940..	6,030.3	150.2	198.7	32.0	400.3	22.5	481.4	2.2
3	.....1930..	4,974.3	174.3	123.0	28.0	192.0	7.5	392.3	(³)
4	.....1920..	3,154.1	139.3	42.5	10.2	403.1	8.5	154.6	.....
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:									
6	Completed.....miles.....1940..	10.8	.....	.....	.....	.....	.....	3.8	.....
7	.....1930..	0.1	.....	.....	.....	0.1	.....	.....	.....
8	.....1920..	20.4	.....	.....	.....	0.2	.....	10.2	.....
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:									
10	Completed.....miles.....1940..	332.4	.....	.....	.....	41.0	.....	5.5	.....
11	.....1930..	201.9	.....	.....	28.0	42.1	0.1	39.0	.....
12	.....1920..	121.8	.....	.....	.....	60.7	.....	2.7	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:									
14	Engine capacity.....horsepower.....1940..	350	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	515	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	60,000	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	156,500	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	3,900	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	18,261	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
25	Capital invested to January 1.....dollars.....1940..	39,450,754	716,437	1,800,972	200,250	2,363,500	99,249	3,101,130	7,000
26	.....1930..	37,532,375	542,580	1,854,251	290,000	2,106,000	71,000	2,600,500	(³)
27	.....1920..	14,147,174	378,988	157,656	68,000	1,707,798	63,000	798,800	.....
28	Estimated cost when completed.....dollars.....1940..	39,585,754	716,437	1,800,972	200,250	2,363,500	99,249	3,101,130	7,000
29	.....1930..	37,828,775	542,580	1,854,251	290,000	2,106,000	76,000	2,600,500	(³)
30	.....1920..	25,888,589	378,988	168,182	210,000	1,772,998	65,000	1,335,000	.....
31	Average cost per acre when completed.....dollars.....1940..	8.62	6.11	5.26	7.68	8.28	3.92	8.57	7.61
32	.....1930..	8.17	3.76	5.40	7.54	8.29	2.80	7.67	(³)
33	.....1920..	7.44	4.13	2.44	8.40	6.37	2.05	5.02	.....
Invested in and required for completion, 1940:									
34	Enterprises having open ditches only.....dollars..	23,880,863	716,437	1,800,972	200,250	1,760,500	99,249	2,724,130	7,000
35	Average amount per acre.....dollars..	6.35	6.11	5.26	7.68	6.99	3.92	7.84	7.61
36	Enterprises having open ditches and levees.....dollars..	14,900,671	.....	.....	.....	603,000	.....	142,000	.....
37	Average amount per acre.....dollars..	19.17	.....	.....	.....	17.87	.....	18.82	.....
38	Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
39	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	252,200	.....	.....	.....	.....	.....	235,000	.....
43	Average amount per acre.....dollars..	26.60	.....	.....	.....	.....	.....	35.13	.....
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants ⁴.....dollars..	552,000	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	11.57	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
Cost of maintenance and operation in 1939:									
48	By enterprises operating pumping plants.....dollars..	7,700	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number..	1	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres..	44,267	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	0.17	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	582,532	.....	(⁵)	3,170	4,265	.....	9,663	.....
53	Enterprises reporting.....number..	66	.....	1	1	4	.....	12	.....
54	Land in these enterprises.....acres..	1,883,233	.....	(⁵)	26,071	46,883	.....	231,720	.....
55	Average cost per acre.....dollars..	0.31	.....	(⁵)	0.12	0.09	.....	0.24	.....
Federal aid in maintenance:									
56	Enterprises reporting.....number..	30	.....	1	.....	.....	.....	3	.....
57	Land in these enterprises.....acres..	1,050,710	.....	(⁵)	.....	.....	.....	63,304	.....
FINANCIAL CONDITION									
58	Drainage taxes collected in 1939.....dollars..	1,016,145	10,617	29,347	7,543	62,085	1,661	88,767	.....
59	Enterprises reporting.....number..	141	5	6	1	6	3	15	.....
60	Land in these enterprises.....acres..	3,001,483	30,633	342,041	26,071	80,634	9,501	216,525	.....
61	Average amount collected per acre.....dollars..	0.34	0.35	0.08	0.29	0.77	0.17	0.41	.....
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	1,095,181	(⁵)	157,382	1,186	(⁵)	(⁵)	110,889	.....
63	Enterprises reporting.....number..	125	1	5	1	2	1	15	.....
64	Land in these enterprises.....acres..	2,874,670	(⁵)	342,041	26,071	(⁵)	(⁵)	236,421	.....
65	Portion delinquent in these enterprises.....percent..	38.1	(⁵)	46.0	4.5	(⁵)	(⁵)	46.9	.....
66	Total indebtedness, Dec. 31, 1939.....dollars..	13,234,878	51,500	554,094	130,000	319,000	21,881	1,090,667	.....
67	Enterprises reporting.....number..	159	5	6	1	8	3	17	.....
68	Land in these enterprises.....acres..	3,366,869	31,914	342,041	26,071	123,300	9,501	289,325	.....
69	Average indebtedness per acre.....dollars..	3.93	1.61	1.62	4.99	2.59	2.30	3.77	.....
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	2,683,688	(⁵)	(⁵)	.....	(⁵)	(⁵)	(⁵)	.....
71	Enterprises reporting.....number..	59	1	2	.....	2	1	2	.....
72	Land in these enterprises.....acres..	1,070,941	(⁵)	(⁵)	.....	(⁵)	(⁵)	(⁵)	.....
73	Average arrearage per acre.....dollars..	2.47	(⁵)	(⁵)	.....	(⁵)	(⁵)	(⁵)	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	12,517,080	(⁵)	619,296	94,650	268,270	.....	1,087,304	.....
75	Enterprises reporting.....number..	68	1	3	1	5	.....	14	.....
76	Land in these enterprises.....acres..	1,964,400	(⁵)	155,474	26,071	62,205	.....	239,000	.....
77	Average reduction per acre.....dollars..	6.37	(⁵)	3.98	3.63	4.31	.....	4.55	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 250.³Included in "Other counties."⁴Data in lines 46 and 47 are not included in lines 34 to 45.⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE — ARKANSAS

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Crittenden	Cross	Desha	Drew ¹	Greene	Hempstead ¹	Independence	Jackson	Jefferson
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	10	5	5	1	18	2	3	16	18
2 Open ditches:									
3 Completed.....miles.....1940..	439.4	116.0	160.5	3.0	268.0	16.0	13.9	233.0	352.5
4 1930..	387.2	91.2	167.0	(²)	183.6	(³)	16.5	217.7	275.0
5 1920..	385.1	26.9	138.0	3.5	151.1	14.9	10.5	75.2	150.6
6 Additional length authorized.....miles.....1940..									
7 Tile drains:									
8 Completed.....miles.....1940..									
9 1930..									
10 1920..									
11 Additional length authorized.....miles.....1940..									
12 Levees and dikes:									
13 Completed.....miles.....1940..			7.5		39.0			6.1	6.2
14 1930..					16.0		4.5	4.5	4.2
15 1920..	0.8				4.4	5.0			
16 Additional length authorized.....miles.....1940..									
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..									200
19 1930..									65
20 1920..									
21 Pump capacity.....gal. per min. 1940..									30,000
22 1930..									6,500
23 1920..									
24 Land served by pumps.....acres.....1940..									3,200
25 1930..									3,261
26 1920..									
27 Wells pumped for drainage.....number.....1940..									
28 1930..									
CAPITAL INVESTED									
29 Capital invested to January 1.....dollars.....1940..	1,867,670	550,502	2,228,666	6,706	1,861,588	71,000	62,500	870,749	1,544,488
30 1930..	1,714,000	581,000	2,146,600	22,305	1,655,930	(³)	110,000	770,154	1,434,186
31 1920..	1,461,827	118,000	1,463,697	8,500	1,032,418	65,000	32,500	268,000	829,318
32 Estimated cost when completed.....dollars.....1940..	1,867,670	550,502	2,228,666	6,706	1,861,588	71,000	62,500	870,749	1,661,128
33 1930..	1,714,000	581,000	2,146,600	22,305	1,655,930	(³)	110,000	770,154	1,434,186
34 1920..	1,696,827	136,000	2,463,171	8,500	2,871,418	65,000	32,500	300,000	882,318
35 Average cost per acre when completed.....dollars.....1940..	7.21	4.43	6.96	1.95	9.36	7.13	2.93	5.26	8.70
36 1930..	7.24	5.24	6.76	3.71	7.87	(³)	4.45	4.89	7.54
37 1920..	6.48	3.14	7.76	1.33	15.76	6.91	5.89	4.91	5.42
38 Invested in and required for completion, 1940:									
39 Enterprises having open ditches only.....dollars..	1,867,670	550,502	2,093,666	6,706	994,588	71,000	62,500	657,249	1,522,128
40 Average amount per acre.....dollars..	7.21	4.43	6.80	1.95	7.09	7.13	2.93	6.30	8.16
41 Enterprises having open ditches and levees.....dollars..			135,000		867,000			213,500	4,000
42 Average amount per acre.....dollars..			11.06		14.77			3.48	3.92
43 Enterprises having tile only.....dollars..									
44 Average amount per acre.....dollars..									
45 Enterprises having tile and levees.....dollars..									
46 Average amount per acre.....dollars..									
47 Enterprises having open ditches and tile.....dollars..									
48 Average amount per acre.....dollars..									
49 Enterprises having ditches, tile, and levees.....dollars..									
50 Average amount per acre.....dollars..									
51 Enterprises operating pumping plants ⁴.....dollars..									135,000
52 Average amount per acre.....dollars..									39.36
MAINTENANCE AND OPERATION									
53 Cost of maintenance and operation in 1939:									
54 By enterprises operating pumping plants.....dollars..									
55 Enterprises reporting.....number.....									
56 Land in these enterprises.....acres.....									
57 Average cost per acre.....dollars.....									
58 By enterprises not operating pumping plants.....dollars..	4,522	747	(⁵)		9,438			5,896	(⁵)
59 Enterprises reporting.....number.....	3	3	1		5			4	1
60 Land in these enterprises.....acres.....	152,925	112,214	(⁵)		89,424			69,547	(⁵)
61 Average cost per acre.....dollars.....	0.03	0.01	(⁵)		0.10			0.08	(⁵)
62 Federal aid in maintenance:									
63 Enterprises reporting.....number.....			1		1	2		1	
64 Land in these enterprises.....acres.....			(⁵)		(⁵)	9,960		(⁵)	
FINANCIAL CONDITION									
65 Drainage taxes collected in 1939.....dollars..	49,757	20,158	34,680	463	23,027			21,347	15,358
66 Enterprises reporting.....number.....	6	5	4	1	7			10	9
67 Land in these enterprises.....acres.....	190,749	124,310	304,297	3,440	62,248			124,367	46,990
68 Average amount collected per acre.....dollars..	0.26	0.16	0.11	0.13	0.37			0.17	0.33
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	4,591	56,510	(⁵)	2,325	54,676			47,469	19,957
70 Enterprises reporting.....number.....	3	5	2	1	9			11	8
71 Land in these enterprises.....acres.....	123,653	124,310	(⁵)	3,440	110,179			134,098	78,550
72 Portion delinquent in these enterprises.....percent..	3.7	45.4	(⁵)	67.6	49.6			35.4	25.4
73 Total indebtedness, Dec. 31, 1939.....dollars..	259,613	169,034	381,092	1,376	898,890		(⁶)	219,189	383,006
74 Enterprises reporting.....number.....	3	5	4	1	11		1	11	11
75 Land in these enterprises.....acres.....	122,653	124,310	304,297	3,440	170,265		(⁶)	127,220	117,290
76 Average indebtedness per acre.....dollars..	2.12	1.36	1.25	0.40	5.28		(⁶)	1.72	3.26
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(⁵)	(⁵)	(⁵)	1,376	619,054			(⁵)	8,563
78 Enterprises reporting.....number.....	2	1	2	1	5			2	4
79 Land in these enterprises.....acres.....	(⁵)	(⁵)	(⁵)	3,440	121,921			(⁵)	22,260
80 Average arrearage per acre.....dollars..	(⁵)	(⁵)	(⁵)	0.40	5.08			(⁵)	0.38
81 Reduction of debt by refinancing, prior to 1940.....dollars..		214,465	(⁵)		62,200			240,077	241,000
82 Enterprises reporting.....number.....		3	2		5			6	3
83 Land in these enterprises.....acres.....		88,166	(⁵)		46,401			102,385	59,610
84 Average reduction per acre.....dollars..		2.43	(⁵)		1.34			2.34	4.04

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Ditches tabulated in Ashley and Chicot Counties.

³Included in "Other counties."

⁴Data in lines 46 and 47 are not included in lines 34 to 45.

⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE - ARKANSAS

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Lafayette	Lawrence	Lee	Lincoln	Logan ¹	Lonoke	Miller	Mississippi	Monroe
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	3	13	9	10	1	19	8	23	3
Open ditches:										
2	Completed.....miles.....1940..	51.7	209.8	101.4	179.8	3.0	235.1	90.0	1,365.6	57.1
3	.....1930..	49.0	284.3	107.5	136.5	(²)	260.8	126.0	862.6	32.0
4	.....1920..	127.1	15.5	88.0	.....	.....	93.8	35.9	575.4	20.0
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	7.0	.....
7	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	.....	.....	.....	.....	2.1	17.0	108.0	0.5
11	.....1930..	.....	.....	.....	.....	.....	0.3	17.0	.....	.....
12	.....1920..	.....	.....	.....	.....	.....	0.2	.....	48.0	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	150	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	450	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	30,000	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	150,000	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	700	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	15,000	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	293,786	840,783	495,500	670,683	3,300	1,283,647	820,700	8,432,823	167,245
26	.....1930..	235,000	785,500	476,500	685,200	(²)	1,245,260	800,000	8,280,650	130,000
27	.....1920..	.....	333,025	94,600	299,000	.....	405,634	116,000	2,090,636	16,900
28	Estimated cost when completed.....dollars.....1940..	293,786	840,783	495,500	689,043	3,300	1,283,647	820,700	8,432,823	167,245
29	.....1930..	235,000	785,500	476,500	685,200	(²)	1,245,260	812,000	8,555,650	130,000
30	.....1920..	.....	369,050	118,600	319,000	.....	730,034	116,000	4,940,636	16,900
31	Average cost per acre when completed.....dollars.....1940..	6.98	4.76	4.69	6.84	2.54	5.78	9.40	17.15	1.21
32	.....1930..	5.73	3.92	4.41	6.84	(²)	5.69	9.14	16.96	0.65
33	.....1920..	.....	3.14	5.76	3.43	.....	4.24	4.20	10.32	0.51
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	293,786	840,783	495,500	689,043	3,300	808,700	370,700	2,431,342	155,000
35	Average amount per acre.....dollars..	6.98	4.76	4.69	6.84	2.54	5.47	6.66	16.80	1.13
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	474,947	450,000	5,567,281	12,245
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	6.39	14.18	18.56	38.26
38	Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
39	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	.....	17,200	.....
43	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	6.14	.....
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants ³.....dollars..	.....	.....	.....	.....	.....	.....	.....	417,000	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	9.42	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	7,700	.....
49	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	41	.....
50	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	44,267	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	0.17	.....
52	By enterprises not operating pumping plants.....dollars..	(⁵)	982	.....	.....	.....	12,092	5,631	497,928	.....
53	Enterprises reporting.....number.....	1	3	.....	.....	.....	12	4	6	.....
54	Land in these enterprises.....acres.....	(⁵)	106,444	.....	.....	.....	197,494	43,763	355,275	.....
55	Average cost per acre.....dollars..	(⁵)	0.01	.....	.....	.....	0.06	0.13	1.40	.....
Federal aid in maintenance:										
56	Enterprises reporting.....number.....	.....	1	.....	.....	.....	7	.....	9	.....
57	Land in these enterprises.....acres.....	.....	(⁵)	.....	.....	.....	70,174	.....	353,509	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	(⁵)	(⁵)	16,568	25,526	.....	50,761	18,106	329,886	(⁵)
59	Enterprises reporting.....number.....	1	2	6	6	.....	12	7	6	1
60	Land in these enterprises.....acres.....	(⁵)	(⁵)	89,742	75,249	.....	211,734	85,349	384,542	(⁵)
61	Average amount collected per acre.....dollars..	(⁵)	(⁵)	0.18	0.34	.....	0.24	0.21	0.86	(⁵)
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	(⁵)	31,180	20,367	15,198	.....	32,671	45,589	12,122	(⁵)
63	Enterprises reporting.....number.....	1	3	5	7	.....	3	6	7	1
64	Land in these enterprises.....acres.....	(⁵)	75,790	72,884	84,829	.....	163,900	75,126	394,822	(⁵)
65	Portion delinquent in these enterprises.....percent..	(⁵)	41.1	27.9	17.9	.....	20.0	60.7	3.1	(⁵)
66	Total indebtedness, Dec. 31, 1939.....dollars..	(⁵)	220,488	213,147	167,841	.....	421,129	486,537	4,023,201	(⁵)
67	Enterprises reporting.....number.....	1	6	6	7	.....	11	6	7	2
68	Land in these enterprises.....acres.....	(⁵)	134,050	89,742	84,829	.....	169,891	75,126	394,822	(⁵)
69	Average indebtedness per acre.....dollars..	(⁵)	1.64	2.38	1.98	.....	2.48	6.48	10.19	(⁵)
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	86,258	119,072	85,684	.....	15,539	265,877	(⁵)	(⁵)
71	Enterprises reporting.....number.....	.....	3	5	4	.....	3	4	1	2
72	Land in these enterprises.....acres.....	.....	50,500	72,542	48,900	.....	21,946	55,666	(⁵)	(⁵)
73	Average arrearage per acre.....dollars..	.....	1.71	1.64	1.75	.....	0.73	4.78	(⁵)	(⁵)
74	Reduction of debt by refinancing, prior to 1940.....dollars..	(⁵)	244,838	.....	.....	.....	378,370	.....	3,379,975	.....
75	Enterprises reporting.....number.....	1	3	.....	.....	.....	6	.....	7	.....
76	Land in these enterprises.....acres.....	(⁵)	94,940	.....	.....	.....	141,560	.....	394,822	.....
77	Average reduction per acre.....dollars..	(⁵)	2.58	.....	.....	.....	2.67	.....	8.56	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²Included in "Other counties."
³Data in lines 46 and 47 are not included in lines 34 to 45.
⁴Data shown by written permission of enterprise affected.
⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnotes 1 and 4.

CENSUS OF DRAINAGE — ARKANSAS

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

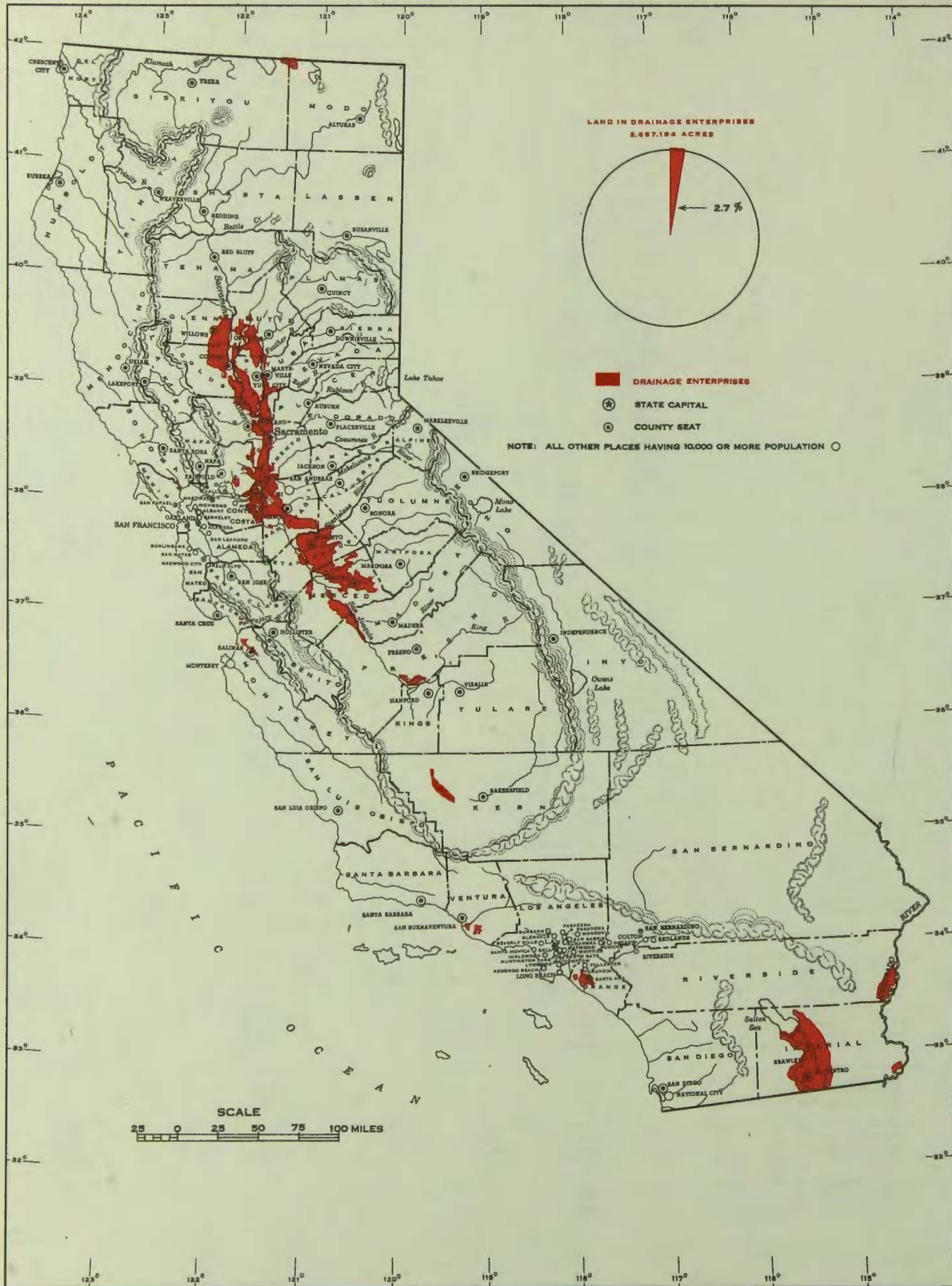
ITEM (See definitions in Introduction)	Phillips	Poinsett	Pope	Prairie	Pulaski	Randolph	St. Francis	Woodruff	Other counties ¹
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	5	8	4	7	5	5	4	3	10
2 Open ditches:									
3 Completed.....miles.....1940..	93.3	432.8	16.5	34.6	30.5	76.0	51.5	32.0	80.0
4	77.0	445.9	15.5	35.7	32.6	72.5	49.3	28.0	103.8
5	75.0	176.0	2.2	9.0	12.0	58.2	45.4	15.0	89.6
6 Tile drains:									
7 Completed.....miles.....1940..									
8									
9		10.0							
10 Additional length authorized.....miles.....1940..									
11 Levees and dikes:									
12 Completed.....miles.....1940..	14.5	66.0	2.0						15.0
13		38.0	4.0		2.0				2.2
14									
15 Additional length authorized.....miles.....1940..									
16 Pumping plants:									
17 Engine capacity.....horsepower.....1940..									
18									
19									
20 Pump capacity.....gal. per min. 1940..									
21									
22									
23 Land served by pumps.....acres.....1940..									
24									
25 Wells pumped for drainage.....number.....1940..									
26									
27									
CAPITAL INVESTED									
28 Capital invested to January 1.....dollars.....1940..	748,774	6,905,574	71,850	170,715	274,020	249,212	204,602	96,500	368,633
29	723,000	6,355,500	67,600	96,890	465,500	265,000	213,520	301,000	506,949
30	230,000	1,191,125	12,000	24,000	125,000	149,925	206,627	68,000	331,800
31 Estimated cost when completed.....dollars.....1940..	748,774	6,905,574	71,850	170,715	274,020	249,212	204,602	96,500	368,633
32	723,000	6,355,500	69,600	96,890	465,500	265,000	213,520	301,000	507,149
33	230,000	5,691,125	28,000	24,000	125,000	149,925	206,627	68,000	369,800
34 Average cost per acre when completed.....dollars.....1940..	6.89	18.35	8.40	6.11	9.30	4.68	6.16	2.57	3.70
35	7.45	16.92	9.76	2.48	16.85	5.00	7.94	6.77	5.17
36	1.92	14.42	11.20	3.31	7.81	3.10	6.99	5.16	3.93
37 Invested in and required for completion, 1940:									
38 Enterprises having open ditches only.....dollars.....	452,000	936,450	64,050	170,715	274,020	249,212	204,602	96,500	210,633
39 Average amount per acre.....dollars.....	4.49	4.19	10.68	6.11	9.30	4.68	6.16	2.57	3.16
40 Enterprises having open ditches and levees.....dollars.....	296,774	5,969,124	7,800						158,000
41 Average amount per acre.....dollars.....	36.75	39.09	3.05						4.80
42 Enterprises having tile only.....dollars.....									
43 Average amount per acre.....dollars.....									
44 Enterprises having tile and levees.....dollars.....									
45 Average amount per acre.....dollars.....									
46 Enterprises having open ditches and tile.....dollars.....									
47 Average amount per acre.....dollars.....									
48 Enterprises having ditches, tile, and levees.....dollars.....									
49 Average amount per acre.....dollars.....									
50 Enterprises operating pumping plants.....dollars.....									
51 Average amount per acre.....dollars.....									
MAINTENANCE AND OPERATION									
52 Cost of maintenance and operation in 1939:									
53 By enterprises operating pumping plants.....dollars.....									
54 Enterprises reporting.....number.....									
55 Land in these enterprises.....acres.....									
56 Average cost per acre.....dollars.....									
57 By enterprises not operating pumping plants.....dollars.....		16,294		(2)					
58 Enterprises reporting.....number.....		3		2					
59 Land in these enterprises.....acres.....		268,436		(2)					
60 Average cost per acre.....dollars.....		0.06		(2)					
61 Federal aid in maintenance:									
62 Enterprises reporting.....number.....		1	1		1	1			
63 Land in these enterprises.....acres.....		(2)	(2)		(2)	(2)			
FINANCIAL CONDITION									
64 Drainage taxes collected in 1939.....dollars.....	3,873	141,957	(2)	(2)	26,232	(2)	(2)	(2)	(2)
65 Enterprises reporting.....number.....	3	5	2	1	5	2	1	1	2
66 Land in these enterprises.....acres.....	44,407	299,738	(2)	(2)	29,460	(2)	(2)	(2)	(2)
67 Average amount collected per acre.....dollars.....	0.09	0.47	(2)	(2)	0.89	(2)	(2)	(2)	(2)
68 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	35,931	133,454	(2)	(2)	5,102	(2)	(2)	(2)	25,000
69 Enterprises reporting.....number.....	3	4	2	1	4	2	1	1	3
70 Land in these enterprises.....acres.....	44,407	293,516	(2)	(2)	13,848	(2)	(2)	(2)	36,701
71 Portion delinquent in these enterprises.....percent.....	80.9	45.5	(2)	(2)	36.8	(2)	(2)	(2)	68.1
72 Total indebtedness, Dec. 31, 1939.....dollars.....	357,582	2,137,141	(2)		200,710	56,596	(2)	(2)	244,919
73 Enterprises reporting.....number.....	4	6	2		5	3	1	1	4
74 Land in these enterprises.....acres.....	52,482	359,838	(2)		29,460	18,580	(2)	(2)	48,221
75 Average indebtedness per acre.....dollars.....	6.81	5.94	(2)		6.81	3.05	(2)	(2)	5.08
76 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	265,949	(2)	(2)			(2)	(2)		225,919
77 Enterprises reporting.....number.....	4	2	1			1	1		3
78 Land in these enterprises.....acres.....	52,482	(2)	(2)			(2)	(2)		37,329
79 Average arrearage per acre.....dollars.....	5.06	(2)	(2)			(2)	(2)		6.05
80 Reduction of debt by refinancing, prior to 1940.....dollars.....		(2)		(2)	(2)	(2)		(2)	(2)
81 Enterprises reporting.....number.....		2		1	2	1		1	1
82 Land in these enterprises.....acres.....		(2)		(2)	(2)	(2)		(2)	(2)
83 Average reduction per acre.....dollars.....		(2)		(2)	(2)	(2)		(2)	(2)

¹Includes Ashley, Faulkner, Little River, Perry, Sebastian, White, and Yell Counties in 1940; Ashley, Crawford, Faulkner, Hempstead, Little River, Logan, Perry, Sebastian, and White Counties in 1930; and Ashley, Faulkner, Little River, Perry, Sebastian, and White Counties in 1920.

²Where there are less than 3 enterprises reporting, data are included only in State totals.

CALIFORNIA

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE - CALIFORNIA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	100,353,920	99,617,280	99,617,280				
Land in drainage enterprises.....acres.....	2,667,194	2,233,714	1,103,319	433,480	19.4	1,125,395	101.5
Improved.....acres.....	2,400,998	2,007,987	1,038,935	393,011	19.6	969,152	93.3
Unimproved:							
Timber and cut-over.....acres.....	74,433	3,500	12,263	65,933	775.7	-3,763	-30.7
Other.....acres.....	191,763	217,227	57,221	-25,464	-11.7	160,006	279.6
Drainage sufficient for normal crop.....acres.....	2,270,049	2,011,189	(1)	258,860	12.9		
Partly drained, for partial crop.....acres.....	261,793	209,906	(1)	51,877	24.7		
Unfit to raise any crop for lack of drainage.....acres.....	135,362	12,619	2 45,163	122,743	972.7	-32,544	-72.1
In occupied farms.....acres.....	2,551,030	2,024,446	(1)	526,590	26.0		
In planted crops.....acres.....	1,905,709	1,794,313	(1)	170,395	9.5		
Idle.....acres.....	337,793	360,292	(1)	-22,499	-6.2		
Available for settlement.....acres.....	151,003	52,706	(1)	98,302	186.5		
Open ditches, completed.....miles.....	6,091.1	4,605.9	3,009.8	1,485.2	32.2	1,590.1	53.0
Tile drains, completed.....miles.....	326.2	486.2	85.6	-160.0	-32.9	400.6	403.0
Drainage pumping plants, capacity.....horsepower.....	42,959	41,748	28,526	1,211	2.9	13,222	10.4
.....gal. per min.....	5,727,737	5,548,600	4,699,042	179,187	3.2	849,558	13.1
Capital invested in enterprises.....dollars.....	70,144,044	66,451,698	47,687,153	3,692,346	5.6	18,764,545	39.3
Average per acre.....dollars.....	26.30	29.75	43.03	-3.45	-11.6	-13.28	-30.9

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
	Acres	Acres	Acres	Acres		Acres	Acres	Acres	Acres
All enterprises.....	2,755,757	2,294,068	1,108,319	2,667,194	5,000 to 9,999 acres.....	232,307	220,410	303,655	230,703
Less than 100 acres.....	2			2	10,000 to 19,999 acres.....	353,399			338,999
100 to 199 acres.....	350			341	20,000 to 49,999 acres.....	571,228	707,309	672,131	503,626
200 to 499 acres.....	2,257	1,816	1,336	2,257	50,000 to 99,999 acres.....	401,973	285,542	65,000	401,973
500 to 999 acres.....	9,928	10,359	10,059	8,233	100,000 to 199,999 acres.....	458,682			458,682
1,000 to 1,999 acres.....	40,137			40,137	200,000 to 499,999 acres.....		889,956		
2,000 to 4,999 acres.....	159,994	178,776	155,747	157,327	500,000 acres and over.....	525,000			525,000

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	2,667,194	100.0	70,144,044	100.0
Drainage districts.....	1,166,321	43.7	58,498,733	83.4
County drains.....	2,380	0.1	75,971	0.1
Irrigation enterprises:				
Federal.....	46,811	1.8	580,672	0.8
Other.....	1,361,697	51.0	6,911,557	9.9
Individually owned projects.....	89,985	3.4	4,077,111	5.8

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES									
	1940		1930		1920		1940		1930		1920					
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent				
All enterprises.....	2,667,194	100.0	2,233,714	100.0	1,108,319	100.0	70,144,044	100.0	66,451,698	100.0	47,687,153	100.0				
Gravity drainage only by—																
Open ditches.....	465,305	17.4	384,333	17.2	400,989	36.2	5,977,138	8.5	8,255,950	12.4	5,060,751	10.6				
Tile drains.....	9,604	0.4	4,295	0.2			274,961	0.4	222,362	0.3						
Open ditches and tile drains...	56,571	2.1	594,247	24.8			1,264,338	1.8	3,758,747	5.7						
All drained by pumping by—																
Open ditches.....	518,145	19.4	844,175	37.8	300,422	27.1	34,149,516	48.7	49,071,843	73.9	20,303,606	42.6				
Tile drains.....	1,604	0.1					27,897	(2)					176,279	0.3	5,142,796	7.7
Open ditches and tile drains...	153,375	5.8					4,772,170	6.3					4,734,015	6.7		
Part only by pumping by—																
Open ditches.....	723,832	27.1	446,664	20.0	406,908	36.7	18,767,830	26.8	5,142,796	7.7	22,322,796	46.8				
Tile drains.....	10,348	0.4					176,279	0.3					4,734,015	6.7		
Open ditches and tile drains...	728,410	27.3														
Total area served by pumps.....	1,220,062	45.7	1,022,062	45.8	604,446	54.5										

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

²Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE — CALIFORNIA

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY				Land served	KIND OF POWER	Enter-prises	CAPACITY				Land served
		Engine or motor		Pump	G. p. m.				Engine or motor		Pump	G. p. m.	
	Number	Hp.	Percent			Acres		Number	Hp.	Percent			Acres
All pumping enterprises....	1940.. 135	42,959	100.0	5,727,787	1,220,062	Steam and electric.....	1940.. ..	.....	.....	.....	.....
	1930.. 105	41,748	100.0	5,548,600	1,022,062		1930.. 5	1,700	4.1	159,600	17,506		
	1920.. 94	28,526	100.0	4,699,042	604,446		1920.. 9	3,135	11.0	564,000	45,200		
Steam.....	1940.. ..	.....	.....	.....	.....	Electric and internal	1940.. 4	1,190	2.8	219,500	30,281
	1930.. ..	.....	.....	.....	.....	combustion.....	1930.. 5	830	2.0	116,000	9,809
	1920.. 3	161	0.6	33,000	7,840		1920.. 5	890	3.1	189,500	14,723		
Electric.....	1940.. 127	41,414	96.4	5,454,387	1,181,330	Other.....	1940.. ..	.....	.....	.....	.....
	1930.. 90	38,970	93.3	5,235,100	977,458		1930.. ..	.....	.....	.....	.....
	1920.. 62	23,547	82.5	3,790,090	490,152		1920.. 1	.....	.....	.....	594
Internal combustion.....	1940.. 4	355	0.8	53,900	8,451								
	1930.. 5	248	0.6	37,900	17,289								
	1920.. 14	793	2.8	121,852	45,937								

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	PUMPS			Engine or motor capacity	Land served	KIND OF PUMP	PUMPS			Engine or motor capacity	Land served
	Number	Capacity					Number	Capacity			
		G. p. m.	Percent		Acres		G. p. m.	Percent	Hp.	Acres	
All pumping enterprises....	1940.. 763	5,727,787	100.0	42,959	1,220,062	Turbine.....	1940.. 334	428,605	7.5	6,177	372,760
	1930.. 426	5,548,600	100.0	41,748	1,022,062		1930.. 156	164,000	2.9	3,095	89,500
Centrifugal.....	1940.. 168	3,035,560	53.0	23,448	456,688	Centrifugal and—					
	1930.. 201	5,184,750	93.4	37,138	868,000	Rotary.....	1940.. ..	.....	.....	.....	.....
Rotary.....	1940.. 1	6,000	0.1	15	468		1930.. 3	20,000	0.4	115	500
	1930.. ..	.....	.....	.....	.....	Screw.....	1940.. 113	1,488,785	26.0	8,410	176,470
Screw.....	1940.. 68	671,000	11.7	3,607	122,947		1930.. ..	.....	.....	.....	.....
	1930.. 10	119,850	2.2	550	35,350	Turbine.....	1940.. 79	97,837	1.7	1,302	85,729
							1930.. 56	60,000	1.1	850	28,112

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	2,667,194	100.0	2,233,714	100.0	70,144,044	100.0	66,451,698	100.0	190,964	191,997
Enterprises in arrears.....	1,143,855	42.9	248,222	11.1	28,702,170	40.9	11,260,400	16.9	178,118	120,012
With some delinquent land.....	485,705	18.2	217,076	9.7	22,530,675	32.1	9,321,000	14.0	178,118	120,012
With no delinquent land.....	35,771	1.4	13,096	0.6	1,970,124	2.8	1,289,400	1.9	.....	.....
With no report on delinquency.....	622,379	23.3	18,050	0.8	4,201,371	6.0	650,000	1.0	.....	.....
Enterprises not in arrears.....	1,517,092	56.9	1,985,492	88.9	41,003,182	58.5	55,191,298	83.1	12,846	71,985
With some delinquent land.....	281,586	10.6	433,220	19.4	10,314,146	14.7	17,386,405	26.2	12,846	71,985
With no delinquent land.....	1,213,438	45.5	1,407,416	63.0	28,176,211	41.6	36,751,064	55.3	.....	.....
With no report on delinquency.....	22,098	0.8	144,856	6.5	1,512,825	2.2	1,059,829	1.6	.....	.....
Enterprises not reporting on arrearage.....	6,247	0.2	.....	.....	438,692	0.6	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no report on delinquency.....	6,247	0.2	.....	.....	438,692	0.6	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	2,667,194	70,144,044	17,123,185	2,968,596	2,358,476	190,964	1,625,692
Enterprises in debt.....	² 1,879,201	52,567,955	17,123,185	2,968,596	2,358,476	186,393	1,639,196
In arrears, amount of arrearage stated.....	² 1,126,855	26,940,170	12,004,498	2,968,596	1,729,248	177,698	614,053
Collecting drainage taxes in 1939.....	748,819	19,714,156	9,581,316	2,035,737	1,114,248	106,282	614,053
No collections reported.....	378,036	7,226,014	2,423,182	932,859	615,000	71,406	.....
In arrears, amount not stated.....	17,000	1,762,000	46,033	.....	.....	420	39,000
Collecting drainage taxes in 1939.....	17,000	1,762,000	46,033	.....	.....	420	39,000
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Not in arrears.....	735,346	23,865,785	5,072,654	.....	629,228	8,275	986,143
Collecting drainage taxes in 1939.....	512,077	18,254,177	3,818,808	.....	511,394	8,275	986,143
No collections reported.....	223,269	5,611,608	1,253,846	.....	117,834	.....	.....
Enterprises not in debt.....	770,363	16,484,697	.....	.....	.....	4,571	186,496
Collecting drainage taxes in 1939.....	157,277	6,211,307	.....	.....	.....	3,134	186,496
No collections reported.....	613,086	10,273,390	.....	.....	.....	1,437	.....
Enterprises not reporting as to debt.....	17,630	1,091,392	.....	.....	.....	.....	.....
No collections reported.....	17,630	1,091,392	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Includes 2,579 acres for which amount of indebtedness was not reported.

CENSUS OF DRAINAGE - CALIFORNIA

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	2,667,194	100.0	70,144,044	100.0
Improvement of land already in farms.....	698,443	26.2	16,190,963	23.1
Reclamation of swamp land not previously in farms.....	395,133	14.8	22,399,771	31.9
Protection against overflow.....	320,821	12.0	19,907,642	28.4
Removal of alkali or seepage from irrigation.....	1,252,797	47.0	11,645,668	16.6

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	2,667,194	100.0	2,755,757	88,563	70,144,044	100.0
Before 1870.....	17,000	0.6	32,000	15,000	2,762,000	3.9
1870-1879.....	27,795	1.0	82,472	54,677	7,465,493	10.6
1880-1889.....	40,919	1.5	42,523	1,604	2,652,890	3.8
1890-1899.....	73,687	2.8	73,687	.....	5,865,450	8.4
1900-1904.....	26,991	1.0	26,991	.....	997,685	1.4
1905-1909.....	351,527	13.2	352,227	700	5,084,862	7.3
1910-1914.....	878,674	33.0	888,339	9,665	22,749,469	32.4
1915-1919.....	557,340	20.9	557,340	.....	11,954,895	17.0
1920-1924.....	503,693	18.9	506,360	2,667	8,744,923	12.5
1925-1929.....	146,845	5.5	151,095	4,250	1,089,368	1.6
1930-1934.....	9,622	0.4	9,622	.....	123,734	0.2
1935-1939.....	33,101	1.2	33,101	.....	653,275	0.9

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms	In planted crops	Idle	Land available for settlement			
All enterprises..	2,667,194	2,270,049	85.1	261,783	135,362	2,400,998	90.0	74,433	191,763	2,551,036	95.6	1,965,708	337,793	151,008
Before 1870.....	17,000	17,000	100.0	.....	.....	17,000	100.0	.....	.....	15,916	93.6	14,445	720	.....
1870-1879.....	27,795	27,795	99.6	100	.....	27,290	98.2	53	452	27,217	97.9	25,355	.....	1,486
1880-1889.....	40,919	40,468	98.9	201	250	40,428	98.8	40	451	35,431	86.6	28,284	1,573	6,108
1890-1899.....	73,687	73,687	100.0	.....	.....	73,687	100.0	.....	.....	72,625	98.6	67,755	434	.....
1900-1904.....	26,991	26,569	98.4	27	395	26,569	98.4	.....	422	26,451	98.0	24,038	622	.....
1905-1909.....	351,527	348,187	99.0	1,450	1,890	325,054	92.5	7,774	18,699	333,591	94.9	257,253	16,978	24,474
1910-1914.....	878,674	547,139	62.3	220,095	111,440	765,305	87.1	1,514	111,855	853,366	97.1	672,386	82,973	38,173
1915-1919.....	557,340	539,002	96.7	12,215	6,123	518,671	93.1	236	38,433	511,829	91.8	426,266	77,813	42,888
1920-1924.....	503,693	467,335	92.8	25,058	11,300	425,522	84.5	64,626	13,545	489,569	97.2	284,282	150,662	36,194
1925-1929.....	146,845	146,550	99.8	.....	295	143,555	97.8	190	3,100	145,965	99.4	133,726	2,510	1,689
1930-1934.....	9,622	8,620	89.6	1,002	.....	8,620	89.6	.....	1,002	9,563	99.4	8,155	.....	.....
1935-1939.....	33,101	27,797	84.0	1,635	3,669	29,297	88.5	.....	3,804	29,513	89.2	23,763	3,508	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 2,667,194	Acres 2,631,767	Acres 2,429,659	Acres 202,106	Dollars 1,111,939	Dollars 0.42	Dollars 0.46
Gravity drainage only.....	531,480	531,480	504,359	27,121	144,941	0.27	0.29
Open ditches only.....	206,202	206,202	205,569	633	72,152	0.35	0.35
Open ditches and levees.....	259,103	259,103	234,304	24,799	52,386	0.20	0.22
Tile drains only.....	7,377	7,377	7,375	2	2,705	0.37	0.37
Tile drains and levees.....	2,227	2,227	.....	.....	317	0.14	0.14
Open ditches and tile drains.....	32,526	32,526	32,526	.....	12,241	0.38	0.38
Open ditches, tile drains, and levees.....	24,045	24,045	22,358	1,687	5,140	0.21	0.23
Pumping for all or part of drainage.....	2,135,714	2,100,287	1,925,300	174,987	966,998	0.46	0.50
All drainage by pumping.....	673,124	656,963	543,869	113,094	577,478	0.88	1.06
Part pumping and part gravity.....	1,462,590	1,443,324	1,381,431	61,893	389,520	0.27	0.28

CENSUS OF DRAINAGE—CALIFORNIA

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	2,667,194	100.0	70,144,044	100.0
Method:				
By district forces.....	1,898,442	71.2	40,210,224	57.3
By contract.....	447,249	16.7	20,111,591	28.7
Work apportioned to landowners.....	292,683	11.0	8,681,349	12.4
"None," or not reporting.....	28,810	1.1	1,140,880	1.6
Whether systematic:				
Reporting "yes".....	2,411,101	90.4	57,297,960	81.9
Reporting "no".....	256,093	9.6	2,846,084	4.1

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	2,667,194	1,635,812	61.3
Capital invested.....dollars..	70,144,044	37,269,717	53.1
Drainage works:			
Open ditches.....miles....	6,091.1	3,762.2	61.8
Tile drains.....miles....	326.2	178.9	54.8
Levees.....miles....	1,537.6	567.5	36.9

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	236,666	13,426,797	702.7	79.1	199.2
Work Projects Administration.....	150,801	10,264,847	618.9	77.9	163.7
Corps of Engineers, U.S.A.....	77,865	1,659,700	53.5	.....	18.5
Other kind or combination.....	8,000	1,502,250	30.3	1.2	17.0

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	2,667,194	¹ 502,039	18.8
Capital invested.....dollars..	70,144,044	18,673,359	26.6
Drainage works:			
Open ditches.....miles....	6,091.1	1,114.7	18.3
Tile drains.....miles....	326.2	86.3	26.4
Levees.....miles....	1,537.6	210.9	13.7

¹The land actually dependent upon outside agencies for protection is 291,441 acres, which is 58.0 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE - CALIFORNIA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Butte	Colusa	Contra Costa	Fresno	Glenn	Imperial	Kern ¹	Kings	
LAND AREA										
1	Approximate land area.....acres....1940..	100,353,920	1,065,000	737,920	468,760	3,830,400	842,880	2,741,760	5,228,800	892,800
2	Drainage enterprises.....number...1940..	² 184	⁹	⁶	¹⁵	⁷	³	³	¹	³
3	Land in enterprises.....acres....1940..	2,667,194	105,880	193,715	72,549	67,343	110,120	543,800	46,016	5,237
4	.....1930..	2,233,714	94,250	190,630	40,545	36,822	124,880	530,000	43,000	(³)
5	.....1920..	1,108,319	29,175	60,200	40,236	16,979	.....	8,000	(³)	(³)
6	Area of all enterprises, overlapping included.....acres....1940..	2,755,757	106,580	225,634	72,549	67,343	110,120	543,800	46,016	5,237
7	Amount of overlapping.....acres....1940..	88,563	700	31,919	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	2,270,049	104,853	185,715	68,355	67,234	107,837	217,850	46,016	5,235
9	.....1930..	2,011,189	93,250	170,630	39,675	35,988	104,880	415,000	43,000	(³)
10	Increase or decrease (-), 1930-1940.....acres.....	258,860	11,603	15,085	28,679	31,246	2,957	-197,150	3,016	5,235
11	.....percent.....	12.9	12.4	8.8	72.3	86.8	2.8	-47.5	7.0	.....
12	Land undrained, unfit for any crop.....acres....1940..	135,362	1,027	8,000	4,020	59	2,283	105,000	.....	(³) 2
13	.....1930..	12,619	1,000	.....	569	.....	.....	.....	.....	(³)
14	Increase or decrease (-), 1930-1940.....acres.....	122,743	27	8,000	3,451	59	2,283	105,000	.....	2
15	.....percent.....	972.7	2.7	.....	606.5	.....	.....	.....	.....	.....
16	Land partly drained, for partial crop.....acres....1940..	261,783	.....	.....	174	50	.....	220,950	.....	.....
17	.....1930..	209,906	.....	20,000	300	834	20,000	115,000	.....	(³)
18	Increase or decrease (-), 1930-1940.....acres.....	51,877	.....	-20,000	-126	-784	-20,000	105,950	.....	.....
19	.....percent.....	24.7	.....	-100.0	-42.0	-94.0	-100.0	92.1	.....	.....
20	Improved land.....acres....1940..	2,400,998	102,490	185,030	67,299	63,518	107,837	429,956	46,016	4,227
21	.....1930..	2,007,987	91,250	190,480	38,920	36,322	124,880	414,200	17,000	(³)
22	.....1920..	1,038,835	29,175	60,200	40,036	15,994	.....	8,000	(³)	(³)
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	74,433	42	333	96	.....	.....	2,560	.....	.....
24	.....1930..	8,500	.....	150	350	500	.....	.....	.....	(³)
25	.....1920..	12,263	.....	.....	.....	.....	.....	.....	.....	(³)
26	Other unimproved land.....acres....1940..	191,763	3,348	8,352	5,154	3,825	2,283	111,284	.....	1,010
27	.....1930..	217,227	3,000	.....	1,275	.....	.....	115,800	26,000	(³)
28	.....1920..	57,221	.....	.....	200	985	.....	(³)	(³)	(³)
29	Land in occupied farms.....acres....1940..	2,551,036	105,300	185,299	67,557	67,063	107,837	527,516	46,016	5,235
30	.....1930..	2,024,446	91,250	185,630	38,976	36,822	119,880	431,096	17,000	(³)
31	Increase or decrease (-), 1930-1940.....acres.....	526,590	14,050	-331	28,581	30,241	-12,043	96,420	29,016	5,235
32	.....percent.....	26.0	15.4	-0.2	73.3	82.1	-10.0	22.4	170.7	.....
33	Land in planted crops.....acres....1940..	1,965,708	83,890	101,449	62,658	63,203	71,636	428,029	32,925	3,927
34	.....1930..	1,794,813	63,620	135,096	35,286	34,796	77,784	410,900	17,000	(³)
35	Increase or decrease (-), 1930-1940.....acres.....	170,895	17,270	-33,647	27,372	28,407	-6,146	17,129	15,925	3,927
36	.....percent.....	9.5	25.9	-24.9	77.6	81.6	-7.9	4.2	93.7	.....
37	Land idle.....acres....1940..	337,793	19,990	82,150	6,251	2,640	36,175	55,426	12,741	810
38	.....1930..	360,292	21,530	50,384	3,200	.....	42,096	119,100	26,000	(³)
39	Increase or decrease (-), 1930-1940.....acres.....	-22,499	-1,540	31,766	3,051	2,640	-5,921	-63,674	-13,259	810
40	.....percent.....	-6.2	-7.2	63.0	95.3	.....	-14.1	-53.5	-51.0	.....
41	Land available for settlement.....acres....1940..	151,008	.....	26,246	13,357	1,450	422	1,280	.....	.....
42	.....1930..	52,706	.....	2,000	550	.....	.....	.....	26,000	(³)
43	Increase or decrease (-), 1930-1940.....acres.....	98,302	.....	24,246	12,807	1,450	422	1,280	-26,000	.....
44	.....percent.....	186.5	.....	(⁴)	(⁴)	.....	.....	.....	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	206,202	90,880	.....	.....	37,265	.....	.....	46,016	.....
46	Length of these ditches.....miles.....	324.1	309.5	.....	.....	50.3	.....	.....	115.0	.....
47	Part protected by levees of an outside agency.....acres.....	46,016	.....	.....	.....	.....	.....	.....	46,016	.....
48	Land drained by open ditches and own levees.....acres.....	259,103	5,500	49,815	3,979	1,100	13,935	3,800	.....	.....
49	Length of these ditches.....miles.....	332.2	35.0	38.1	28.0	9.5	4.8	3.0	.....	.....
50	Length of these levees.....miles.....	152.9	1.0	10.1	18.0	19.0	17.0	9.5	.....	.....
51	Part protected by levees of an outside agency.....acres.....	65,989	.....	29,751	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	7,377	.....	.....	.....	175	.....	.....	.....	2
53	Length of these tile.....miles.....	34.6	.....	.....	.....	1.0	.....	.....	.....	0.1
54	Part protected by levees of an outside agency.....acres.....	7,200	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	2,227	.....	.....	.....	.....	.....	.....	.....	2,227
56	Length of these tile.....miles.....	3.0	.....	.....	.....	.....	.....	.....	.....	3.0
57	Length of these levees.....miles.....	5.0	.....	.....	.....	.....	.....	.....	.....	5.0
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	32,526	9,500	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	100.6	48.3	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	65.9	1.2	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	1,500	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	24,045	.....	.....	.....	17,350	.....	.....	.....	3,008
64	Length of these open ditches.....miles.....	67.2	.....	.....	.....	37.9	.....	.....	.....	19.0
65	Length of these tile.....miles.....	10.7	.....	.....	.....	3.2	.....	.....	.....	0.3
66	Length of these levees.....miles.....	34.8	.....	.....	.....	13.8	.....	.....	.....	7.0
67	Part protected by levees of an outside agency.....acres.....	2,000	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	2,135,714	.....	143,900	68,570	11,453	96,185	540,000	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	4,967.0	.....	219.0	288.5	0.2	58.0	1,213.5	.....	.....
70	Length of tile owned by these enterprises.....miles.....	212.0	.....	5.0	.....	10.0	.....	9.0	.....	.....
71	Length of levees owned by these enterprises.....miles.....	1,344.9	.....	34.0	117.1	13.0	20.0	44.0	.....	.....
72	Part protected by levees of an outside agency.....acres.....	168,736	.....	5,204	6,700	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 159.
³ Included in "Other counties."
⁴ Percent not shown when more than 1,000.
⁵ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — CALIFORNIA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)	Merced	Modoc	Monterey ¹	Napa ¹	Orange	Placer ¹	River- side ¹	Sacra- mento	San Joaquin	
LAND AREA										
1	Approximate land area.....acres.....1940..	1,269,120	2,620,160	2,127,360	505,600	500,480	915,840	4,594,560	630,400	902,400
2	Drainage enterprises.....number.....1940..	6	3	2	1	7	1	1	22	33
3	Land in enterprises.....acres.....1940..	310,172	19,244	7,115	1,250	39,265	1,624	91,200	120,377	222,727
4	.....1930..	44,700	18,792	4,700	(³)	41,950	(³)	80,132	125,187	202,144
5	.....1920..	24,247	(³)	4,700	(³)	35,600	(³)	50,600	104,779	164,410
6	Area of all enterprises, overlapping included.....acres.....1940..	314,422	19,244	7,115	1,250	39,265	1,624	91,200	120,377	238,717
7	Amount of overlapping.....acres.....1940..	4,250	.....	.....	.....	.....	.....	.....	.....	15,990
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	296,792	18,641	6,850	1,250	38,870	1,624	68,400	120,350	217,811
9	.....1930..	40,134	1,810	4,000	(³)	41,450	(³)	77,196	120,632	198,193
10	Increase or decrease (-), 1930-1940.....acres.....	256,658	16,831	2,850	1,250	-2,580	1,624	-8,796	-262	19,618
11	.....percent.....	639.5	929.9	71.2	.....	-6.2	.....	-11.4	-0.2	9.9
12	Land undrained, unfit for any crop.....acres.....1940..	1,171	468	.....	(³)	395	.....	.....	.....	2,809
13	.....1930..	100	100	200	(³)	.....	(³)	2,936	285	1,700
14	Increase or decrease (-), 1930-1940.....acres.....	1,071	368	-200	.....	395	.....	-2,936	-265	1,109
15	.....percent.....	(⁴)	368.0	-100.0	.....	.....	.....	-100.0	-100.0	65.2
16	Land partly drained, for partial crop.....acres.....1940..	12,209	135	265	(³)	.....	.....	22,800	27	2,107
17	.....1930..	4,466	16,882	500	(³)	500	(³)	.....	4,290	2,251
18	Increase or decrease (-), 1930-1940.....acres.....	7,743	-16,747	-235	.....	-500	.....	22,800	-4,263	-144
19	.....percent.....	173.4	-99.2	-47.0	.....	-100.0	.....	.....	-99.4	-5.4
20	Improved land.....acres.....1940..	302,672	11,603	6,850	1,250	37,802	1,624	29,760	120,350	212,773
21	.....1930..	44,600	2,110	4,500	(³)	39,850	(³)	77,196	120,562	196,443
22	.....1920..	24,207	(³)	4,700	(³)	35,000	(³)	42,000	104,591	164,350
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	.....	.....	.....	.....	288	.....	61,440	.....	3,888
24	.....1930..	.....	.....	.....	(³)	(³)	.....	100	.....	50
25	.....1920..	.....	(³)	.....	(³)	(³)	.....	80	.....	.....
26	Other unimproved land.....acres.....1940..	7,500	7,641	265	.....	1,175	.....	27	.....	6,066
27	.....1930..	100	16,682	200	(³)	2,000	(³)	2,936	4,525	5,651
28	.....1920..	40	(³)	.....	(³)	600	(³)	8,600	108	60
29	Land in occupied farms.....acres.....1940..	296,766	11,938	7,115	1,250	37,832	1,624	89,400	118,480	215,543
30	.....1930..	44,700	1,934	4,500	(³)	39,850	(³)	77,196	121,362	196,993
31	Increase or decrease (-), 1930-1940.....acres.....	252,066	10,004	2,615	1,250	-2,018	1,624	12,204	-2,882	18,550
32	.....percent.....	563.9	517.3	58.1	.....	-5.1	.....	15.8	-2.4	9.4
33	Land in planted crops.....acres.....1940..	168,500	10,586	6,850	1,250	35,921	1,594	29,760	104,609	202,723
34	.....1930..	37,500	1,734	4,000	(³)	38,000	(³)	68,877	119,732	184,642
35	Increase or decrease (-), 1930-1940.....acres.....	131,000	8,852	2,850	1,250	-2,079	1,594	-39,117	-15,123	18,081
36	.....percent.....	349.3	510.5	71.2	.....	-5.5	.....	-56.8	-12.6	9.8
37	Land idle.....acres.....1940..	36,575	.....	.....	(³)	1,930	30	30,720	1,631	1,607
38	.....1930..	4,700	16,781	500	(³)	2,300	(³)	11,255	865	9,207
39	Increase or decrease (-), 1930-1940.....acres.....	31,875	-16,781	-500	.....	-370	30	19,465	766	-7,600
40	.....percent.....	678.2	-100.0	-100.0	.....	-16.1	.....	172.9	88.6	-82.5
41	Land available for settlement.....acres.....1940..	3,000	7,306	.....	(³)	.....	(³)	30,720	.....	7,489
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	3,000	7,306	.....	.....	.....	.....	30,720	.....	7,489
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	.....	938	2,415	.....	.....	.....	.....	.....	.....
46	Length of these ditches.....miles.....	.....	5.3	10.0	.....	.....	.....	.....	.....	.....
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	43,035	.....	.....	1,250	.....	.....	91,200	4,000	.....
49	Length of these ditches.....miles.....	91.6	.....	.....	15.0	.....	.....	72.0	6.5	.....
50	Length of these levees.....miles.....	7.8	.....	.....	3.5	.....	.....	25.0	5.0	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	7,200	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	33.5	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	7,200	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	15,970	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	38.2	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	43.3	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	1,500	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	535	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	3.0	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	3.0	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	3.0	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	267,137	17,771	4,700	.....	16,095	1,624	.....	116,377	222,727
69	Length of open ditches owned by these enterprises.....miles.....	128.1	111.0	35.5	.....	2.3	2.7	.....	251.6	1,041.1
70	Length of tile owned by these enterprises.....miles.....	9.2	.....	0.5	.....	58.5	.....	.....	.....	0.5
71	Length of levees owned by these enterprises.....miles.....	0.9	5.0	.....	.....	.....	2.7	.....	223.4	363.0
72	Part protected by levees of an outside agency.....acres.....	640	17,771	.....	.....	10,095	.....	.....	12,861	8,334

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Includes Humboldt, Lake, Los Angeles, Marin, Santa Cruz, and Tulare Counties in 1940; Humboldt, Kings, Lake, Los Angeles, Marin, Napa, Placer, San Bernardino, Santa Barbara, Santa Clara, Shasta, Sonoma, and Tulare Counties in 1930; and Humboldt, Kern, Kings, Lake, Los Angeles, Marin, Modoc, Napa, Placer, San Bernardino, Santa Barbara, Santa Clara, Shasta, and Sierra Counties in 1920.

CENSUS OF DRAINAGE—CALIFORNIA

AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

Santa Barbara ¹	Santa Clara ¹	Siskiyou ¹	Solano	Sonoma ¹	Stanislaus	Sutter	Ventura	Yolo	Yuba	Other counties ²	
1,756,800	835,200	4,040,320	529,280	1,010,560	963,840	388,480	1,188,480	661,760	408,320	9,411,200	1
1	1	1	8	1	4	11	3	18	3	10	2
2,000	1,126	13,102	55,081	3,462	259,134	177,672	19,763	135,116	32,898	10,206	3
(3)	(3)	13,000	42,895	(3)	219,856	161,954	11,800	126,213	38,338	41,926	4
(3)	(3)	.....	43,745	4,000	65,000	180,283	.....	153,755	32,750	89,860	5
2,000	1,126	13,102	57,748	3,462	259,134	177,672	19,763	168,153	32,898	10,206	6
.....	.....	.....	2,667	.....	.....	.....	.....	33,037	.....	.....	7
2,000	1,126	13,102	54,856	2,562	259,034	168,203	19,505	133,796	32,898	9,284	8
(3)	(3)	10,703	42,775	(3)	218,256	152,071	11,800	120,276	36,338	31,131	9
2,000	1,126	2,399	12,081	2,562	40,773	16,132	7,705	13,520	-5,440	-21,847	10
.....	.....	22.4	.....	.....	15.7	10.6	65.3	11.2	-14.2	-70.2	11
(3)	(3)	.....	125	.....	100	9,469	258	11	.....	165	12
.....	.....	.....	125	(3)	400	353	.....	61	.....	4,935	13
.....	.....	.....	.....	.....	-300	9,116	-258	-50	.....	-4,770	14
.....	.....	.....	.....	.....	-75.0	(4)	-100.0	-62.0	.....	-96.6	15
(3)	(3)	.....	100	900	.....	.....	.....	1,309	.....	757	16
.....	.....	.....	120	(3)	1,200	9,530	.....	5,876	.....	5,860	17
.....	.....	.....	-20	900	-1,200	-9,530	.....	-4,567	.....	-5,103	18
.....	.....	.....	-100.0	.....	-100.0	-100.0	.....	-77.7	.....	-87.1	19
2,000	1,126	12,997	55,081	3,462	229,939	174,205	19,505	133,360	28,982	9,284	20
(3)	(3)	10,703	42,075	(3)	203,000	152,525	11,800	122,402	33,338	33,731	21
(3)	(3)	.....	43,490	4,000	64,000	173,561	.....	136,630	25,375	63,526	22
.....	.....	.....	.....	.....	.....	758	.....	1,112	3,916	.....	23
(3)	(3)	.....	.....	(3)	.....	1,550	.....	800	5,000	.....	24
(3)	(3)	.....	.....	.....	.....	3,999	.....	1,000	7,000	184	25
(3)	(3)	105	.....	.....	29,195	2,709	258	644	.....	922	26
(3)	(3)	2,297	820	(3)	16,856	7,879	.....	3,011	.....	8,195	27
.....	.....	.....	255	.....	1,000	2,723	.....	16,125	375	26,150	28
2,000	1,126	12,997	50,801	3,462	235,634	163,900	19,525	130,632	28,982	10,206	29
(3)	(3)	9,100	42,075	(3)	203,000	153,275	11,800	122,818	33,338	41,851	30
2,000	1,126	3,897	8,726	3,462	32,634	10,625	7,725	7,814	-4,356	-31,645	31
.....	.....	42.8	20.7	.....	16.1	6.9	65.5	6.4	-13.1	-75.6	32
2,000	1,126	11,821	40,747	3,462	188,608	138,800	19,485	114,519	27,415	8,215	33
(3)	(3)	8,621	33,455	(3)	203,000	149,415	10,700	104,328	31,338	21,989	34
2,000	1,126	3,200	7,292	3,462	-14,392	-10,615	8,785	10,191	-3,923	-13,774	35
.....	.....	37.1	21.8	.....	-7.1	-7.1	82.1	9.8	-12.5	-62.6	36
(3)	(3)	.....	240	(3)	29,495	14,782	120	510	3,916	54	37
.....	.....	.....	16,856	.....	7,709	7,079	.....	16,794	5,000	3,715	38
.....	.....	.....	240	.....	12,639	7,073	120	-16,284	-1,084	-3,661	39
.....	.....	.....	.....	.....	75.0	91.7	.....	-97.0	-21.7	-98.5	40
(3)	(3)	.....	.....	(3)	11,000	18,133	.....	30,500	.....	.....	41
.....	.....	.....	.....	.....	16,856	18,133	.....	30,500	5,000	.....	42
.....	.....	.....	.....	.....	-5,856	.....	.....	.....	-5,000	.....	43
.....	.....	.....	.....	.....	-34.7	.....	.....	.....	-100.0	.....	44
.....	.....	.....	.....	.....	3,462	25,226	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	40.0	94.0	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	1,126	.....	.....	.....	.....	577	.....	36,388	2,318	1,080	48
.....	4.0	.....	.....	.....	.....	4.5	.....	14.2	3.0	3.0	49
.....	6.3	.....	.....	.....	.....	2.5	.....	20.9	4.3	3.0	50
.....	.....	.....	.....	.....	.....	.....	.....	36,238	.....	.....	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
.....	.....	.....	.....	.....	.....	.....	6,553	.....	.....	503	59
.....	.....	.....	.....	.....	.....	.....	11.0	.....	.....	3.1	60
.....	.....	.....	.....	.....	.....	.....	20.0	.....	.....	1.4	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
2,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,152	63
4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.3	64
4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.2	65
4.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.0	66
2,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	.....	13,102	55,081	.....	259,134	151,869	13,210	98,728	30,580	7,471	68
.....	.....	72.0	234.2	.....	58.2	633.2	35.0	458.7	63.0	61.2	69
.....	.....	.....	.....	.....	28.0	.....	82.0	3.5	.....	5.8	70
.....	.....	12.8	101.0	.....	.....	166.1	.....	172.9	57.0	22.0	71
.....	.....	13,102	.....	.....	640	79,146	.....	14,243	.....	.....	72

³ Included in "Other counties."

⁴ Percent not shown when more than 1,000.

⁵ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — CALIFORNIA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930,

ITEM (See definitions in Introduction)	THE STATE	Butte	Colusa	Contra Costa	Fresno	Glenn	Imperial	Kern ¹
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	2 184	9	6	15	7	3	3	1
2 Open ditches:								
3 Completed.....miles.....1940..	6,091.1	392.8	257.1	316.5	97.9	62.8	1,216.5	115.0
4 1930..	4,605.9	308.8	208.4	352.0	32.7	55.5	248.3	50.0
5 1920..	3,009.8	115.0	27.8	253.9	33.0	.....	11.7	(³)
6 Additional length authorized.....miles.....1940..	20.8	.....	.....	.....	.....	.....	20.0	.....
7 Tile drains:								
8 Completed.....miles.....1940..	325.2	1.2	5.0	.....	14.2	.....	9.0	.....
9 1930..	486.2	1.0	.....	.....	1.5	.....	6.5	.....
10 1920..	85.6	0.4	.....	.....	3.7	.....	4.0	(³)
11 Additional length authorized.....miles.....1940..	55.3	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:								
13 Completed.....miles.....1940..	1,537.6	1.0	44.1	135.1	45.8	37.0	53.5	.....
14 1930..	1,389.5	9.5	38.5	123.1	37.0	17.5	28.5	26.0
15 1920..	1,131.1	2.5	22.3	125.0	12.0	.....	17.0	(³)
16 Additional length authorized.....miles.....1940..	0.1	.....	.....	0.1	.....	.....	.....	.....
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	42,959	.....	125	1,789	50	(⁴)	197	.....
19 1930..	41,748	.....	2,000	1,735	25	(⁵)	130	.....
20 1920..	28,526	.....	60	1,800	(⁶)	.....	120	(³)
21 Pump capacity.....gal. per min.....1940..	5,727,787	.....	11,500	297,180	4,800	(⁴)	31,380	.....
22 1930..	5,548,600	.....	360,000	330,500	3,700	(⁵)	25,200	.....
23 1920..	4,699,042	.....	10,000	391,000	(⁶)	.....	17,952	(³)
24 Land served by pumps.....acres.....1940..	1,220,082	.....	59,900	45,121	2,280	5,000	4,500	.....
25 1930..	1,022,062	.....	152,710	39,576	1,700	110,000	15,000	.....
26 1920..	604,446	.....	23,000	39,286	594	.....	8,000	(³)
27 Wells pumped for drainage.....number.....1940..	373	.....	.....	26	4	.....	.....	.....
28 1930..	218	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	70,144,044	2,254,225	6,161,608	3,376,681	339,202	1,324,908	3,257,658	264,405
30 1930..	66,451,698	1,950,000	5,779,788	3,529,883	325,710	1,326,700	2,687,500	745,000
31 1920..	47,687,153	355,000	1,927,000	3,486,272	254,000	.....	146,000	(³)
32 Estimated cost when completed.....dollars.....1940..	70,780,023	2,254,225	6,161,608	3,365,681	339,202	1,324,908	3,357,658	264,405
33 1930..	67,251,098	1,950,000	5,790,288	3,529,883	330,397	1,326,700	2,687,500	745,000
34 1920..	54,021,627	355,000	2,077,000	3,528,272	254,000	.....	146,000	(³)
35 Average cost per acre when completed.....dollars.....1940..	26.54	21.29	31.81	46.67	5.04	12.03	6.17	5.74
36 1930..	30.11	20.69	30.37	87.06	8.97	10.62	5.07	17.33
37 1920..	48.74	12.17	34.50	87.69	14.96	.....	18.25	(³)
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	2,859,729	1,939,975	.....	.....	60,933	.....	.....	264,405
40 Average amount per acre.....dollars..	13.87	21.35	.....	.....	1.64	.....	.....	5.74
41 Enterprises having open ditches and levees.....dollars..	3,511,518	137,000	926,400	206,300	50,000	28,000	26,527	.....
42 Average amount per acre.....dollars..	13.55	24.91	18.60	52.35	45.45	2.01	6.98	.....
43 Enterprises having tile only.....dollars..	240,140	.....	.....	.....	890	.....	.....	.....
44 Average amount per acre.....dollars..	32.55	.....	.....	.....	5.08	.....	.....	.....
45 Enterprises having tile and levees.....dollars..	37,721	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars..	16.94	.....	.....	.....	.....	.....	.....	.....
47 Enterprises having open ditches and tile.....dollars..	597,876	177,250	.....	.....	.....	.....	.....	.....
48 Average amount per acre.....dollars..	18.38	18.66	.....	.....	.....	.....	.....	.....
49 Enterprises having ditches, tile, and levees.....dollars..	276,353	.....	.....	.....	46,000	.....	.....	.....
50 Average amount per acre.....dollars..	11.49	.....	.....	.....	2.65	.....	.....	.....
51 Enterprises operating pumping plants ⁹.....dollars..	63,256,686	.....	5,235,208	3,177,381	181,379	1,296,908	3,331,131	.....
52 Average amount per acre.....dollars..	29.62	.....	36.38	46.34	15.84	13.48	6.17	.....
MAINTENANCE AND OPERATION								
53 Cost of maintenance and operation in 1939:								
54 By enterprises operating pumping plants.....dollars..	966,998	.....	(¹⁰)	83,336	(⁸)	(¹⁰)	(¹⁰)	.....
55 Enterprises reporting.....number..	111	.....	(¹⁰) 2	13	(⁸) 2	(¹⁰) 1	(¹⁰) 2	.....
56 Land in these enterprises.....acres..	1,925,300	.....	(¹⁰)	68,570	(⁸)	(¹⁰)	(¹⁰)	.....
57 Average cost per acre.....dollars..	0.50	.....	(¹⁰)	1.22	(⁸)	(¹⁰)	(¹⁰)	.....
58 By enterprises not operating pumping plants.....dollars..	144,941	39,362	(¹⁰)	(¹⁰)	13,974	(¹⁰)	(¹⁰)	18,700
59 Enterprises reporting.....number..	45	9	(¹⁰) 1	1	5	(¹⁰) 1	(¹⁰) 1	1
60 Land in these enterprises.....acres..	504,359	105,890	(¹⁰)	(¹⁰)	55,890	(¹⁰)	(¹⁰)	46,016
61 Average cost per acre.....dollars..	0.29	0.37	(¹⁰)	(¹⁰)	0.25	(¹⁰)	(¹⁰)	0.41
62 Federal aid in maintenance:								
63 Enterprises reporting.....number..	21	1	(¹⁰) 1	.....	4	.....	.....	.....
64 Land in these enterprises.....acres..	236,666	.....	(¹⁰)	(¹⁰)	.....	28,623	.....	.....
FINANCIAL CONDITION								
65 Drainage taxes collected in 1939.....dollars..	1,825,692	104,257	(¹⁰)	76,208	33,107	.....	(¹⁰)	37,159
66 Enterprises reporting.....number..	91	4	(¹⁰) 1	7	5	.....	(¹⁰) 1	1
67 Land in these enterprises.....acres..	1,435,173	69,880	(¹⁰)	46,629	56,995	.....	(¹⁰)	46,016
68 Average amount collected per acre.....dollars..	1.27	1.49	(¹⁰)	1.63	0.58	.....	(¹⁰)	0.81
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	190,964	(¹⁰)	(¹⁰)	772	(¹⁰)	(¹⁰)	.....	.....
70 Enterprises reporting.....number..	41	1	(¹⁰) 2	3	2	(¹⁰) 1	.....	.....
71 Land in these enterprises.....acres..	767,301	(¹⁰)	(¹⁰)	25,495	(¹⁰)	(¹⁰)	.....	.....
72 Portion delinquent in these enterprises.....percent..	24.9	(¹⁰)	(¹⁰)	3.0	(¹⁰)	(¹⁰)	.....	.....
73 Total indebtedness, Dec. 31, 1939.....dollars..	17,123,185	552,338	2,349,388	107,817	(¹⁰)	(¹⁰)	(¹⁰)	240,000
74 Enterprises reporting.....number..	90	6	3	6	2	(¹⁰) 1	(¹⁰) 2	1
75 Land in these enterprises.....acres..	1,876,622	75,390	167,351	16,493	(¹⁰)	(¹⁰)	(¹⁰)	46,016
76 Average indebtedness per acre.....dollars..	9.12	7.33	14.04	6.54	(¹⁰)	(¹⁰)	(¹⁰)	5.22
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	2,968,596	.....	(¹⁰)	(¹⁰)	.....	(¹⁰)	(¹⁰)	.....
78 Enterprises reporting.....number..	23	.....	(¹⁰) 2	1	.....	(¹⁰) 1	(¹⁰) 2	.....
79 Land in these enterprises.....acres..	1,143,855	.....	(¹⁰)	(¹⁰)	.....	(¹⁰)	(¹⁰)	.....
80 Average arrearage per acre.....dollars..	2.60	.....	(¹⁰)	(¹⁰)	.....	(¹⁰)	(¹⁰)	.....
81 Reduction of debt by refinancing, prior to 1940.....dollars..	2,358,476	.....	.....	.....	.....	.....	(¹⁰)	.....
82 Enterprises reporting.....number..	11	.....	.....	.....	.....	.....	(¹⁰) 2	.....
83 Land in these enterprises.....acres..	768,532	.....	.....	.....	.....	.....	(¹⁰)	.....
84 Average reduction per acre.....dollars..	3.07	.....	.....	.....	.....	.....	(¹⁰)	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 159.

³Included in "Other counties."

⁴Pumps located in Yolo County.

⁵Pumps located in Sutter County.

CENSUS OF DRAINAGE — CALIFORNIA

AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

Kings	Merced	Modoc	Monterey ¹	Napa ¹	Orange	Placer ¹	Riverside ¹	Sacramento	San Joaquin	Santa Barbara ¹	Santa Clara ¹	Siskiyou ¹	
3	6	3	2	1	7	1	1	22	33	1	1	1	1
19.0	219.7	119.3	45.5	15.0	40.5	2.7	72.0	258.1	1,041.1	4.0	4.0	72.0	2
(3)	12.6	22.0	35.5	(3)	104.1	(3)	82.0	239.1	1,202.5	(3)	(3)	50.0	3
(3)	47.8	(3)	29.4	(3)	95.8	(3)	26.1	250.0	905.1	(3)	(3)	.....	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	.....	.....	.....	5
3.4	9.2	3.0	0.5	.....	135.3	.....	.....	.....	0.5	4.0	.....	.....	6
(3)	2.0	.....	0.5	(3)	308.6	(3)	3.1	.....	2.0	(3)	(3)	.....	7
(3)	.....	(3)	.....	(3)	10.3	(3)	1.5	1.6	.....	(3)	(3)	.....	8
.....	.....	.....	.....	.....	1.5	.....	.....	.....	52.0	.....	.....	.....	9
12.0	8.7	8.0	.....	3.5	.....	2.7	25.0	228.4	353.0	4.0	6.3	12.8	10
(3)	.....	(3)	.....	(3)	2.0	(3)	29.0	239.5	308.5	(3)	(3)	12.0	11
(3)	.....	(3)	.....	(3)	2.0	(3)	20.0	168.1	306.4	(3)	(3)	.....	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	3,669	280	120	.....	52	(3)	.....	7,070	6,427	.....	.....	355	14
(3)	895	(7)	30	(3)	45	(3)	.....	7,363	6,290	(3)	(3)	265	15
(3)	21	(3)	.....	(3)	.....	(3)	.....	5,740	4,930	(3)	(3)	.....	16
.....	229,025	63,450	30,000	.....	5,700	(3)	.....	883,785	1,147,850	.....	.....	61,650	17
(3)	46,000	(7)	6,000	(3)	3,000	(3)	.....	810,600	1,112,500	(3)	(3)	59,400	18
(3)	1,750	(3)	.....	(3)	.....	(3)	.....	857,600	1,013,600	(3)	(3)	.....	19
.....	157,320	17,771	1,500	.....	16,095	1,364	.....	115,227	232,691	.....	.....	13,102	20
(3)	28,000	2,110	600	(3)	9,500	(3)	.....	121,887	143,394	(3)	(3)	10,600	21
(3)	700	(3)	.....	(3)	.....	(3)	.....	96,346	126,281	(3)	(3)	.....	22
.....	191	.....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	23
(3)	46	.....	.....	(3)	.....	(3)	.....	.....	48	(3)	(3)	.....	24
40,971	1,149,855	262,504	265,000	15,000	836,432	105,000	636,644	9,490,609	10,958,761	200,000	33,208	176,737	25
(3)	367,354	38,061	190,000	(3)	1,225,968	(3)	865,473	10,427,171	9,335,091	(3)	(3)	317,000	26
(3)	389,091	.....	140,000	(3)	295,000	(3)	149,384	8,402,309	7,659,563	(3)	(3)	.....	27
40,971	1,149,855	404,639	265,000	15,000	839,432	105,000	636,644	9,490,609	11,215,313	200,000	33,208	281,529	28
(3)	387,667	514,721	190,000	(3)	1,225,968	(3)	835,473	10,577,171	9,335,091	(3)	(3)	371,900	29
(3)	652,548	(3)	190,000	(3)	295,000	(3)	1,149,384	8,452,309	8,161,563	(3)	(3)	.....	30
7.82	3.71	21.03	37.24	12.00	21.38	64.66	6.98	78.84	50.35	100.00	29.49	21.49	31
(3)	8.67	27.39	40.43	(3)	29.22	(3)	11.67	84.49	46.18	(3)	(3)	28.61	32
(3)	26.91	(3)	40.43	(3)	8.29	(3)	22.72	80.67	49.64	(3)	(3)	.....	33
.....	.....	16,784	40,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	34
.....	.....	17.89	16.56	.....	.....	.....	.....	.....	.....	.....	.....	.....	35
.....	101,507	.....	.....	15,000	.....	.....	636,644	500,000	.....	.....	33,208	.....	36
.....	2.36	.....	.....	12.00	.....	.....	6.98	125.00	.....	.....	29.49	.....	37
250	.....	.....	.....	.....	239,000	.....	.....	.....	.....	.....	.....	.....	38
125.00	.....	.....	.....	.....	33.19	.....	.....	.....	.....	.....	.....	.....	39
37,721	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
16.94	.....	.....	.....	.....	251,600	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	15.75	.....	.....	.....	.....	.....	.....	.....	42
3,000	.....	6,000	.....	.....	.....	.....	.....	.....	.....	200,000	.....	.....	43
1.00	.....	11.21	.....	.....	.....	.....	.....	.....	.....	100.00	.....	.....	44
.....	1,048,348	381,855	225,000	.....	348,832	105,000	.....	8,990,609	11,215,313	.....	.....	281,529	45
.....	3.92	21.49	47.87	.....	21.67	64.66	.....	77.25	50.35	.....	.....	21.49	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	121.261	(10)	1,000	.....	(10)	2,530	.....	116,259	208,885	.....	.....	8,481	48
.....	5	(10)	1	.....	.....	1	.....	17	29	.....	.....	.....	49
.....	267,137	(10)	4,700	.....	(10)	1,624	.....	112,207	203,081	.....	.....	13,102	50
.....	0.45	(10)	0.21	.....	(10)	1.56	.....	1.04	1.03	.....	.....	0.65	51
(10)	(10)	(10)	1,500	.....	8,312	.....	6,795	(10)	.....	2,000	326	.....	52
2	1	(10)	1	.....	5	.....	1	.....	.....	.....	.....	.....	53
(10)	(10)	(10)	2,415	.....	1,250	.....	91,200	(10)	.....	2,000	1,126	.....	54
(10)	(10)	(10)	0.62	.....	0.24	.....	0.36	(10)	.....	1.00	0.29	.....	55
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
5,237	.....	.....	.....	.....	20,545	.....	.....	.....	(10)	1	.....	.....	57
(10)	69,202	(10)	.....	.....	40,596	5,825	.....	295,202	96,726	.....	1,689	.....	58
1	4	(10)	.....	.....	6	1	.....	14	9	.....	1	.....	59
(10)	78,490	(10)	.....	.....	36,145	1,624	.....	108,245	119,391	.....	1,126	.....	60
(10)	0.88	(10)	.....	.....	1.12	3.59	.....	2.73	0.81	.....	1.50	.....	61
(10)	(10)	(10)	.....	.....	1,677	.....	.....	2,209	71,218	.....	.....	.....	62
2	1	(10)	.....	.....	4	.....	.....	5	3	.....	.....	.....	63
(10)	(10)	(10)	.....	.....	26,545	.....	.....	68,627	91,238	.....	.....	.....	64
(10)	(10)	(10)	.....	.....	6.3	.....	.....	3.2	78.0	.....	.....	.....	65
.....	127,007	(10)	107,000	.....	(10)	23,415	195,840	313,989	552,085	.....	2,793	159,672	66
.....	4	(10)	1	.....	.....	1	.....	10	10	.....	1	.....	67
.....	78,490	(10)	4,700	.....	(10)	1,624	91,200	96,735	106,722	.....	1,126	13,102	68
.....	1.62	(10)	22.76	.....	(10)	14.42	.....	2.15	19.78	.....	2.48	12.19	69
.....	.....	(10)	.....	.....	.....	.....	.....	18,278	30,982	71,356	.....	.....	70
.....	.....	(10)	.....	.....	.....	.....	.....	1	3	.....	.....	.....	71
.....	.....	(10)	.....	.....	.....	.....	.....	91,200	64,419	82,974	.....	.....	72
.....	.....	(10)	.....	.....	.....	.....	.....	0.20	0.48	0.86	.....	.....	73
.....	.....	.....	.....	.....	(10)	.....	590,400	(10)	(10)	.....	.....	.....	74
.....	.....	.....	.....	.....	(10)	1	.....	1	1	.....	.....	.....	75
.....	.....	.....	.....	.....	(10)	.....	91,200	(10)	(10)	.....	.....	.....	76
.....	.....	.....	.....	.....	(10)	.....	6.47	(10)	(10)	.....	.....	.....	77

⁶ Pumps located in Colusa County.

⁷ Pumps located in Siskiyou County.

⁸ Drainage by water wheel.

⁹ Data in lines 46 and 47 are not included in lines 34 to 45.

¹⁰ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE - CALIFORNIA

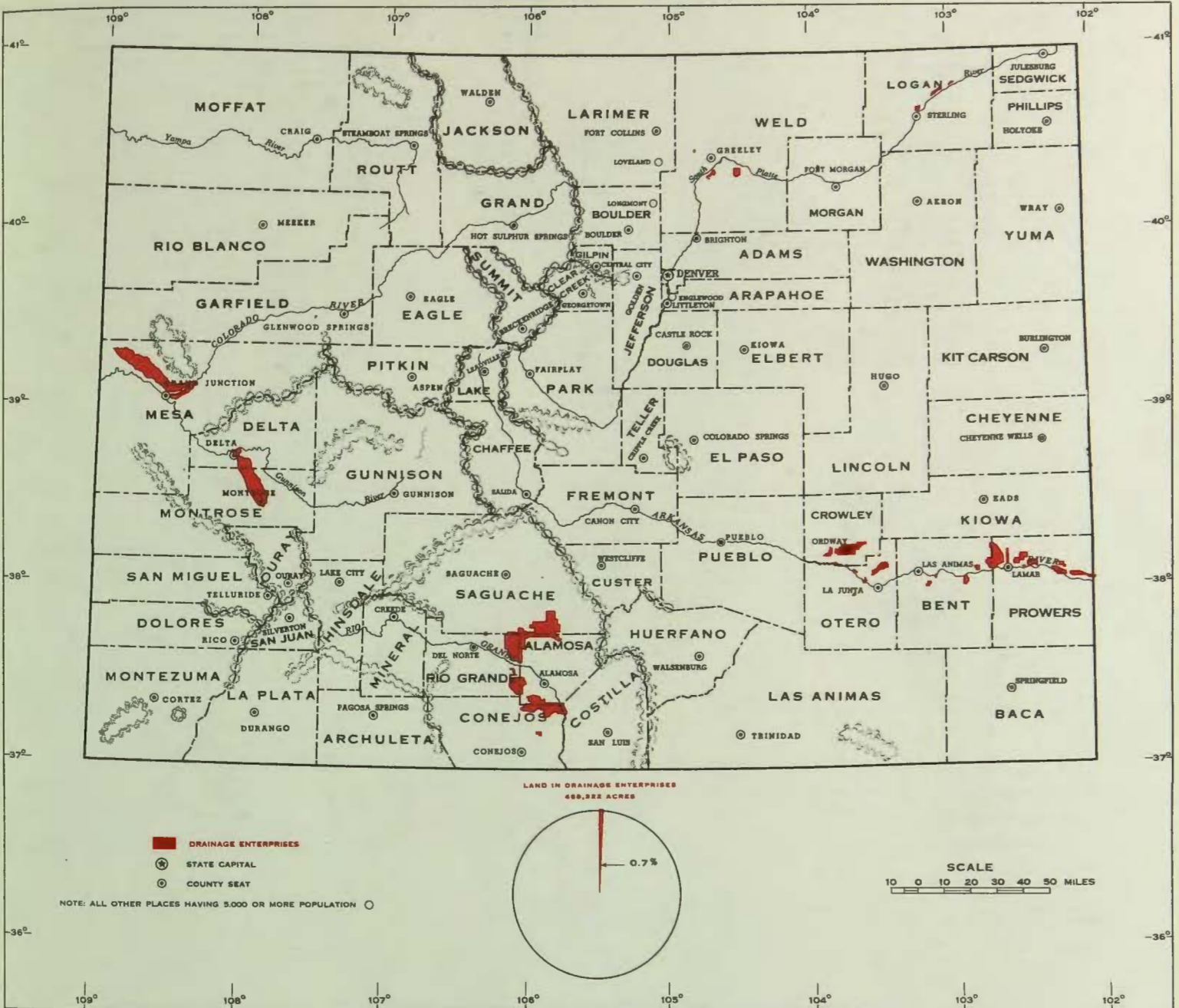
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Solano	Sonoma ¹	Stanislaus	Sutter	Ventura	Yolo	Yuba	Other counties ²
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	8	1	4	11	3	18	3	10
2	Open ditches:								
3	Completed.....miles.....1940..	234.2	40.0	58.2	731.7	46.0	472.9	66.0	70.6
4	1930..	224.0	(³)	95.0	631.5	41.0	420.0	23.0	108.7
5	1920..	183.8	6.6	38.1	521.1	.....	275.5	36.5	152.6
6	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
7	Tile drains:								
8	Completed.....miles.....1940..	.....	.....	28.0	.....	102.0	3.5	.....	7.4
9	1930..	47.0	(³)	16.8	.....	85.0	1.0	.....	11.2
10	1920..	47.1	.....	.....	1.5	.....	0.4	.....	15.1
11	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	1.8	.....	.....	.....
12	Levees and dikes:								
13	Completed.....miles.....1940..	101.0	.....	.....	168.6	.....	193.8	61.3	32.0
14	1930..	67.1	(³)	.....	166.8	.....	190.2	39.8	54.5
15	1920..	72.5	.....	.....	152.7	.....	101.5	43.9	85.2
16	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
17	Pumping plants:								
18	Engine capacity.....horsepower....1940..	2,355	.....	2,756	8,210	60	8,591	90	763
19	1930..	1,120	(³)	2,350	9,400	10	9,395	.....	695
20	1920..	2,025	.....	17	7,708	.....	5,175	450	480
21	Pump capacity.....gal. per min.....1940..	476,750	.....	187,687	1,013,280	11,080	1,179,820	15,650	77,200
22	1930..	205,950	(³)	128,000	1,027,000	500	1,294,500	.....	136,000
23	1920..	311,100	.....	3,000	1,003,540	.....	886,250	60,000	143,000
24	Land served by pumps.....acres.....1940..	55,016	.....	212,734	141,520	7,067	122,907	1,650	7,297
25	1930..	40,704	(³)	68,112	148,087	6,000	116,793	.....	7,289
26	1920..	39,906	.....	600	136,085	.....	108,948	15,000	9,700
27	Wells pumped for drainage.....number.....1940..	.....	.....	142	.....	.....	.....	.....	1
28	1930..	.....	(³)	124	.....	.....	.....	.....	.....
CAPITAL INVESTED									
29	Capital invested to January 1.....dollars.....1940..	3,059,386	26,500	1,225,626	11,193,480	653,036	11,301,599	1,229,000	306,009
30	1930..	2,836,859	(³)	1,331,259	8,563,563	345,000	11,508,782	1,562,789	1,192,747
31	1920..	1,339,492	20,000	433,457	10,974,400	.....	8,988,969	1,037,500	1,689,716
32	Estimated cost when completed.....dollars.....1940..	3,059,386	26,500	1,225,626	11,201,480	665,536	11,301,599	1,229,000	306,009
33	1930..	2,836,859	(³)	1,331,259	8,569,563	345,600	11,514,522	1,562,789	1,192,747
34	1920..	1,421,992	30,000	1,413,829	13,331,045	.....	9,526,469	1,037,500	1,999,716
35	Average cost per acre when completed.....dollars.....1940..	55.54	7.65	4.73	63.04	33.68	83.64	37.36	29.98
36	1930..	66.13	(³)	6.06	52.91	29.29	91.23	40.76	28.45
37	1920..	32.51	7.50	21.75	73.95	.....	61.96	31.68	22.25
38	Invested in and required for completion, 1940:								
39	Enterprises having open ditches only.....dollars..	.....	26,500	.....	511,132	.....	.....	.....	.....
40	Average amount per acre.....dollars.....	.....	7.65	.....	20.26	.....	.....	.....	.....
41	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	19,000	.....	759,932	55,000	15,000
42	Average amount per acre.....dollars.....	.....	.....	.....	32.93	.....	20.88	23.73	13.89
43	Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
44	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
45	Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
46	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	130,555	.....	.....	38,471
48	Average amount per acre.....dollars.....	.....	.....	.....	.....	19.92	.....	.....	76.48
49	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	21,353
50	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	18.54
51	Enterprises operating pumping plants ⁴.....dollars..	3,059,386	.....	1,225,626	10,671,348	534,981	10,541,667	1,174,000	231,185
52	Average amount per acre.....dollars.....	55.54	.....	4.73	70.27	40.50	106.77	38.39	30.94
MAINTENANCE AND OPERATION									
53	Cost of maintenance and operation in 1939:								
54	By enterprises operating pumping plants.....dollars..	35,487	.....	(⁵)	135,434	(⁵)	109,798	(⁵)	11,481
55	Enterprises reporting.....number.....	5	.....	2	5	2	12	1	7
56	Land in these enterprises.....acres.....	37,537	.....	(⁵)	132,603	(⁵)	85,454	(⁵)	7,471
57	Average cost per acre.....dollars.....	0.94	.....	(⁵)	1.02	(⁵)	1.28	(⁵)	1.54
58	By enterprises not operating pumping plants.....dollars..	.....	800	.....	5,410	(⁵)	(⁵)	(⁵)	(⁵)
59	Enterprises reporting.....number.....	.....	1	.....	4	1	2	1	2
60	Land in these enterprises.....acres.....	.....	3,462	.....	25,170	(⁵)	(⁵)	(⁵)	(⁵)
61	Average cost per acre.....dollars.....	.....	0.23	.....	0.21	(⁵)	(⁵)	(⁵)	(⁵)
62	Federal aid in maintenance:								
63	Enterprises reporting.....number.....	1	.....	.....	2	.....	5	.....	.....
64	Land in these enterprises.....acres.....	(⁵)	.....	.....	(⁵)	.....	52,464	.....	.....
FINANCIAL CONDITION									
65	Drainage taxes collected in 1939.....dollars..	81,504	786	(⁵)	500,157	64,297	254,665	(⁵)	14,044
66	Enterprises reporting.....number.....	4	1	2	9	3	10	1	6
67	Land in these enterprises.....acres.....	35,071	3,462	(⁵)	164,239	19,763	59,442	(⁵)	5,291
68	Average amount collected per acre.....dollars.....	2.32	0.23	(⁵)	3.04	3.25	4.28	(⁵)	2.65
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	.....	.....	(⁵)	8,312	(⁵)	13,320	(⁵)	.....
70	Enterprises reporting.....number.....	.....	.....	1	6	2	5	2	.....
71	Land in these enterprises.....acres.....	.....	.....	(⁵)	150,046	(⁵)	32,314	(⁵)	.....
72	Portion delinquent in these enterprises.....percent.....	.....	.....	(⁵)	5.5	(⁵)	41.2	(⁵)	.....
73	Total indebtedness, Dec. 31, 1939.....dollars..	204,931	.....	180,256	3,798,253	328,700	2,415,021	(⁵)	72,594
74	Enterprises reporting.....number.....	5	.....	3	9	3	12	2	3
75	Land in these enterprises.....acres.....	30,925	.....	124,134	176,462	19,763	115,546	(⁵)	3,116
76	Average indebtedness per acre.....dollars.....	6.63	.....	1.45	21.52	16.63	20.90	(⁵)	23.30
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..	(⁵)	.....	.....	(⁵)	.....	644,535	(⁵)	.....
78	Enterprises reporting.....number.....	2	.....	.....	2	.....	3	2	.....
79	Land in these enterprises.....acres.....	(⁵)	.....	.....	(⁵)	.....	26,700	(⁵)	.....
80	Average arrearage per acre.....dollars.....	(⁵)	.....	.....	(⁵)	.....	24.14	(⁵)	.....
81	Reduction of debt by refinancing, prior to 1940.....dollars..	(⁵)	.....	.....	371,673	.....	(⁵)	.....	.....
82	Enterprises reporting.....number.....	1	.....	.....	3	.....	1	.....	.....
83	Land in these enterprises.....acres.....	(⁵)	.....	.....	87,332	.....	(⁵)	.....	.....
84	Average reduction per acre.....dollars.....	(⁵)	.....	.....	4.26	.....	(⁵)	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ²Includes Humboldt, Lake, Los Angeles, Marin, Santa Cruz, and Tulare Counties in 1940; Humboldt, Kings, Lake, Los Angeles, Marin, Napa, Placer, San Bernardino, Santa Barbara, Santa Clara, Shasta, Sonoma, and Tulare Counties in 1930; and Humboldt, Kern, Kings, Lake, Los Angeles, Marin, Modoc, Napa, Placer, San Bernardino, Santa Barbara, Santa Clara, Shasta, and Sierra Counties in 1920. ³Included in "Other counties." ⁴Data in lines 46 and 47 are not included in lines 34 to 45. ⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

COLORADO

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE — COLORADO

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (—)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	66,538,880	66,341,120	66,341,120				
Land in drainage enterprises.....acres.....	468,322	366,719	171,656	101,603	27.7	195,063	113.6
Improved.....acres.....	411,635	302,023	123,031	109,612	36.3	178,992	145.5
Unimproved:							
Timber and cut-over.....acres.....	5,780			5,780			
Other.....acres.....	50,907	64,696	48,625	-13,789	-21.3	16,071	38.1
Drainage sufficient for normal crop.....acres.....	443,514	313,039	(1)	130,475	41.7		
Partly drained, for partial crop.....acres.....	14,880	48,176	(1)	-33,296	-69.1		
Unfit to raise any crop for lack of drainage.....acres.....	9,928	5,504	26,446	4,424	80.4	-20,942	-78.2
In occupied farms.....acres.....	392,132	305,966	(1)	86,166	28.2		
In planted crops.....acres.....	344,702	274,922	(1)	69,780	25.4		
Idle.....acres.....	82,996	69,780	(1)	13,216	18.9		
Available for settlement.....acres.....	13,073	53,513	(1)	-40,440	-75.6		
Open ditches, completed.....miles.....	972.9	814.9	132.5	158.0	19.4	682.4	515.0
Tile drains, completed.....miles.....	365.3	369.5	195.2	-4.2	-1.1	174.3	89.3
Drainage pumping plants, capacity.....horsepower.....	6			6			
gal. per min.....	900			900			
Capital invested in enterprises.....dollars.....	4,890,317	4,358,866	1,081,875	531,451	12.2	3,276,991	302.9
Average per acre.....dollars.....	10.44	11.89	6.30	-1.45	-12.2	5.59	88.7

¹ Not available.

² Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
All enterprises.....	Acres 468,294	Acres 367,359	Acres 171,656	Acres 468,322	5,000 to 9,999 acres.....	Acres 75,300	Acres 73,941	Acres 26,000	Acres 75,300
200 to 499 acres.....	812	902	.....	812	10,000 to 19,999 acres.....	115,483	226,746	71,000	115,483
500 to 999 acres.....	9,154	5,986	3,396	9,154	20,000 to 49,999 acres.....	90,486	.....	.....	90,486
1,000 to 1,999 acres.....	12,415	59,784	21,260	12,415	50,000 to 99,999 acres.....	109,244	.....	50,000	109,244
2,000 to 4,999 acres.....	56,400	.....	.....	55,428					

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	468,322	100.0	4,890,317	100.0
Drainage districts.....	255,709	54.6	3,189,708	65.2
Irrigation enterprises:				
Federal.....	122,760	26.2	1,140,366	23.3
Other.....	64,562	13.8	135,910	2.8
Commercial developments—incorporated.....	950	0.2	18,633	0.4
Individually owned projects.....	24,341	5.2	405,700	8.3

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	468,322	100.0	366,719	100.0	171,656	100.0	4,890,317	100.0	4,358,866	100.0	1,081,875	100.0
Gravity drainage only by—												
Open ditches.....	171,156	36.5	112,143	30.6	41,100	23.9	1,745,400	35.7	1,354,000	31.1	119,000	11.0
Tile drains.....	9,845	2.1	12,518	3.4	10,776	6.3	230,912	4.7	292,700	6.7	183,663	17.0
Open ditches and tile drains...	277,294	59.2	242,058	66.0	119,790	69.8	2,853,284	58.4	2,712,166	62.2	779,212	72.0
Part only by pumping by—												
Open ditches and tile drains...	10,027	2.2					60,721	1.2				
Total area served by pumps.....	80	(1)										

¹ Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE — COLORADO

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises ¹		CAPACITY			Land served
			Engine or motor		Pump	
	Number	Hp.	Percent	G. p. m.	Acres	
All pumping enterprises ².....1940..	1	6	100.0	900	80	
Electric and water.....1940..	1	6	100.0	900	80	

¹ Where there are less than 3 enterprises reporting, data are shown only by written permission of each enterprise affected.
² No enterprises operating pumping plants reported prior to 1940.

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	PUMPS				Land served
	Number	Capacity		Engine or motor capacity	
		G. p. m.	Percent		Hp.	Acres
All pumping enterprises ¹.....1940..	4	900	100.0	6	80
Centrifugal and plunger.....1940..	4	900	100.0	6	80

¹ No enterprises operating pumping plants reported prior to 1940.

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	468,322	100.0	366,719	100.0	4,890,317	100.0	4,358,666	100.0	30,083	24,164
Enterprises in arrears.....	67,040	14.3	53,195	14.5	985,782	20.2	731,938	16.8	24,233	18,411
With some delinquent land.....	52,278	11.1	46,695	12.7	743,782	15.2	717,238	16.5	24,233	18,411
With no delinquent land.....	5,462	1.2	6,500	1.8	102,000	2.1	14,700	0.3	.....	.....
With no report on delinquency.....	9,300	2.0	.....	.....	140,000	2.9	.....	.....	.....	.....
Enterprises not in arrears.....	400,478	85.5	313,524	85.5	3,882,535	79.4	3,626,928	83.2	5,046	5,753
With some delinquent land.....	55,442	11.8	70,026	19.1	688,712	14.1	1,329,850	30.5	5,046	5,753
With no delinquent land.....	345,036	73.7	243,498	66.4	3,193,823	65.3	2,297,078	52.7	.....	.....
Enterprises not reporting on arrearage—with some delinquent land.....	804	0.2	.....	.....	22,000	0.4	.....	.....	804	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	468,322	4,890,317	1,853,395	466,521	349,695	30,083	102,433
Enterprises in debt.....	252,641	3,105,192	1,853,395	466,521	349,695	29,603	79,091
In arrears, amount of arrearage stated.....	67,040	985,782	625,701	466,521	6,900	24,233	26,647
Collecting drainage taxes in 1939.....	23,432	404,400	308,001	194,821	.....	10,039	26,647
No collections reported.....	43,608	581,382	317,700	271,700	6,900	14,194	.....
Not in arrears.....	184,797	2,097,410	1,216,194	.....	342,795	4,566	52,444
Collecting drainage taxes in 1939.....	162,377	1,684,610	1,058,194	.....	168,295	4,566	52,444
No collections reported.....	22,420	412,800	158,000	.....	174,500	.....	.....
Not reporting as to arrears.....	804	22,000	11,500	.....	.....	804	.....
No collections reported.....	804	22,000	11,500	.....	.....	804	.....
Enterprises not in debt.....	215,681	1,785,125	.....	.....	.....	480	23,342
Collecting drainage taxes in 1939.....	61,303	550,791	.....	.....	.....	.....	23,342
No collections reported.....	154,378	1,234,334	.....	.....	.....	480	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	468,322	100.0	4,890,317	100.0
Improvement of land already in farms.....	151,202	32.3	1,056,165	21.6
Reclamation of swamp land not previously in farms.....	7,715	1.6	172,000	3.5
Removal of alkali or seepage from irrigation.....	309,405	66.1	3,662,152	74.9

CENSUS OF DRAINAGE — COLORADO

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	468,322	100.0	469,294	972	4,890,317	100.0
1900-1904.....	6,320	1.4	6,720	400	45,500	0.9
1905-1909.....	63,833	13.6	63,833	.....	239,910	4.9
1910-1914.....	20,820	4.4	20,820	.....	190,000	3.9
1915-1919.....	122,309	26.1	122,309	.....	1,630,769	33.4
1920-1924.....	164,614	35.2	165,186	572	2,152,471	44.0
1925-1929.....	15,467	3.3	15,467	.....	169,046	3.4
1930-1934.....	2,852	0.6	2,852	.....	33,700	0.7
1935-1939.....	72,107	15.4	72,107	.....	428,921	8.8

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement		
	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	
All enterprises..	468,322	443,514	94.7	14,880	9,928	411,635	87.9	5,780	50,907	392,132	83.7	344,702	82,996	13,073
1900-1904.....	6,320	6,320	100.0	.....	.....	2,380	37.6	3,940	.....	4,180	66.1	2,180	.....	.....
1905-1909.....	63,833	63,673	99.7	.....	160	63,673	99.7	.....	160	63,833	100.0	57,700	2,042	.....
1910-1914.....	20,820	17,720	85.1	3,100	.....	10,370	49.8	.....	10,450	14,750	70.8	10,000	6,160	6,000
1915-1919.....	122,309	121,509	99.3	400	400	101,507	83.0	.....	20,802	102,507	83.8	96,866	1,955	.....
1920-1924.....	164,614	156,284	94.9	4,062	4,268	152,460	92.6	1,840	10,314	117,149	71.2	97,243	63,661	6,473
1925-1929.....	15,467	14,654	94.7	713	100	14,664	94.8	.....	803	14,754	95.4	14,364	800	600
1930-1934.....	2,852	2,247	78.8	605	.....	2,852	100.0	.....	.....	2,852	100.0	2,620	.....	.....
1935-1939.....	72,107	61,107	84.7	6,000	5,000	63,729	88.4	.....	8,378	72,107	100.0	63,729	8,378	.....

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	468,322	468,322	430,212	38,110	127,688	0.27	0.30
Gravity drainage only.....	458,295	458,295	420,185	38,110	126,166	0.28	0.30
Open ditches only.....	171,156	171,156	142,588	28,568	84,055	0.49	0.59
Tile drains only.....	9,845	9,845	9,285	560	2,423	0.25	0.26
Open ditches and tile drains.....	277,294	277,294	268,312	8,982	39,687	0.14	0.15
Pumping for all or part of drainage:							
Part pumping and part gravity.....	10,027	10,027	10,027	.....	1,523	0.15	0.15

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	468,322	100.0	4,890,317	100.0
Method:				
By district forces.....	290,270	62.0	2,796,122	57.2
By contract.....	29,167	6.2	424,200	8.7
Work apportioned to landowners.....	32,905	7.0	462,450	9.4
"None," or not reporting.....	115,980	24.8	1,207,545	24.7
Whether systematic:				
Reporting "yes".....	306,469	65.5	3,132,763	64.1
Reporting "no".....	161,281	34.4	1,746,654	35.7
Not reporting.....	572	0.1	10,900	0.2

CENSUS OF DRAINAGE — COLORADO

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STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT		ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent			Amount	Percent
Land in enterprises.....acres....	468,322	42,176	9.0	Drainage works:			
Capital invested.....dollars..	4,890,317	702,724	14.4	Open ditches.....miles..	972.9	149.5	15.4
				Tile drains.....miles..	365.3	8.9	2.4

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	33,442	615,000	90.8	17.5	.....
Work Projects Administration.....	33,442	615,000	90.8	17.5	.....

CENSUS OF DRAINAGE—COLORADO

COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)		THE STATE	Alamosa	Bent	Conejos	Crowley	Delta ¹	Logan
LAND AREA								
1	Approximate land area.....acres.....1940..	66,538,680	460,800	981,120	813,440	513,920	740,480	1,169,280
2	Drainage enterprises.....number.....1940..	267	5	7	6	7	1	3
3	Land in enterprises.....acres.....1940..	468,322	33,235	21,063	39,571	26,542	15,863	5,633
4	.....1930..	366,719	33,845	23,112	36,871	28,867	.....	2,213
5	.....1920..	171,656	(²)	11,550	17,100	(²)	.....	.....
6	Area of all enterprises, overlapping included.....acres.....1940..	469,294	33,235	21,635	39,571	26,542	15,863	5,633
7	Amount of overlapping.....acres.....1940..	972	.....	572	.....	.....	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	443,514	33,235	20,642	35,511	26,167	13,663	4,920
9	.....1930..	313,039	18,723	22,712	34,040	24,489	.....	1,500
10	Increase or decrease (-), 1930-1940.....acres.....	130,475	14,512	-2,070	1,471	1,678	13,663	3,420
11	.....percent.....	41.7	77.5	-9.1	4.3	6.8	.....	228.0
12	Land undrained, unfit for any crop.....acres.....1940..	9,928	.....	321	960	225	1,000	.....
13	.....1930..	5,504	128	380	.....	1,000	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	4,424	-128	-59	960	-775	1,000	.....
15	.....percent.....	80.4	-100.0	-15.5	.....	-77.5	.....	.....
16	Land partly drained, for partial crop.....acres.....1940..	14,880	.....	100	3,100	150	1,200	713
17	.....1930..	48,176	14,994	20	2,831	3,378	.....	713
18	Increase or decrease (-), 1930-1940.....acres.....	-33,296	-14,994	80	269	-3,228	1,200	.....
19	.....percent.....	-69.1	-100.0	400.0	9.5	-85.6	.....	.....
20	Improved land.....acres.....1940..	411,635	31,095	20,624	25,901	26,077	14,020	4,520
21	.....1930..	302,023	19,443	22,772	21,540	28,282	.....	1,600
22	.....1920..	123,031	(³)	6,736	9,163	(³)	.....	.....
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	5,780	2,140	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....
25	.....1920..	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres.....1940..	50,907	.....	439	12,670	466	1,843	1,113
27	.....1930..	64,686	14,402	340	15,331	588	.....	713
28	.....1920..	48,625	(³)	2,814	7,937	(³)	.....	.....
29	Land in occupied farms.....acres.....1940..	392,132	31,095	20,584	27,321	26,542	15,863	4,920
30	.....1930..	305,966	19,443	22,692	21,040	27,960	.....	1,500
31	Increase or decrease (-), 1930-1940.....acres.....	86,166	11,652	-2,108	6,281	-1,418	15,863	3,420
32	.....percent.....	28.2	60.0	-9.3	29.8	-5.1	.....	228.0
33	Land in planted crops.....acres.....1940..	344,702	29,070	19,255	20,580	23,259	14,020	4,520
34	.....1930..	274,922	18,443	21,002	20,040	25,919	.....	1,500
35	Increase or decrease (-), 1930-1940.....acres.....	69,780	10,627	-1,747	540	-2,660	14,020	3,020
36	.....percent.....	25.4	57.6	-8.3	2.7	-10.3	.....	201.3
37	Land idle.....acres.....1940..	82,966	985	900	13,214	3,283	1,843	600
38	.....1930..	69,780	14,402	1,530	15,481	2,843	.....	600
39	Increase or decrease (-), 1930-1940.....acres.....	13,216	-13,417	-630	-2,267	440	1,843	.....
40	.....percent.....	18.9	-93.2	-41.2	-14.6	15.5	.....	.....
41	Land available for settlement.....acres.....1940..	13,073	.....	439	12,034	.....	.....	600
42	.....1930..	53,513	13,122	80	15,131	.....	.....	600
43	Increase or decrease (-), 1930-1940.....acres.....	-40,440	-13,122	359	-3,097	.....	.....	.....
44	.....percent.....	-75.6	-100.0	448.8	-20.5	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	171,156	710	5,417	.....	22,318	15,863	3,420
46	Length of these ditches.....miles.....	423.8	2.3	13.0	.....	70.8	34.4	14.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	9,845	.....	3,338	1,640	2,024	.....	.....
53	Length of these tile.....miles.....	71.7	.....	12.5	4.0	11.5	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	277,294	32,525	12,308	37,931	2,200	.....	2,213
60	Length of these open ditches.....miles.....	529.1	40.1	6.0	56.0	1.0	.....	7.5
61	Length of these tile.....miles.....	288.6	36.5	20.0	91.0	20.0	.....	0.5
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	10,027	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	20.0	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	5.0	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 56.
³ Data are not available for the county, but are included in State totals.
⁴ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — COLORADO

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COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Mesa	Montrose ¹	Morgan ¹	Otero	Prowers	Rio Grande	Saguache	Weld	
LAND AREA									
1	Approximate land area.....acres.....1940..	2,120,320	1,432,960	820,480	810,880	1,040,640	586,240	2,012,160	2,562,560
2	Drainage enterprises.....number.....1940..	4	1	1	8	11	7	4	4
3	Land in enterprises.....acres.....1940..	104,247	56,244	780	13,713	44,371	64,491	33,755	8,814
4	.....1930..	73,831	.....	750	14,445	47,593	65,010	33,220	6,962
5	.....1920..	50,640	.....	(²)	4,539	38,040	(²)	.....	.....
6	Area of all enterprises, overlapping included.....acres.....1940..	104,247	56,244	780	13,713	44,371	64,491	33,755	8,814
7	Amount of overlapping.....acres.....1940..	.....	.....	.....	.....	400	.....	.....	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	102,020	47,444	780	10,718	42,371	64,491	33,755	7,797
9	.....1930..	59,293	.....	750	13,646	47,034	62,790	21,120	6,942
10	Increase or decrease (-), 1930-1940.....acres.....	42,727	47,444	30	-2,928	-4,663	1,701	12,635	855
11	.....percent.....	72.1	.....	4.0	-21.4	-9.9	2.7	59.8	12.3
12	Land undrained, unfit for any crop.....acres.....1940..	1,027	4,000	.....	795	1,400	.....	.....	200
13	.....1930..	1,250	.....	.....	370	56	2,220	80	20
14	Increase or decrease (-), 1930-1940.....acres.....	-223	4,000	.....	425	1,344	-2,220	-80	180
15	.....percent.....	-17.8	.....	.....	114.9	(³)	-100.0	-100.0	900.0
16	Land partly drained, for partial crop.....acres.....1940..	1,200	4,800	.....	2,200	600	.....	.....	817
17	.....1930..	13,288	.....	.....	429	503	12,020	.....	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-12,088	4,800	.....	1,771	97	-12,020	817	.....
19	.....percent.....	-91.0	.....	.....	412.8	19.3	-100.0	.....	.....
20	Improved land.....acres.....1940..	83,418	49,709	780	11,510	44,181	60,851	29,235	8,714
21	.....1930..	64,763	.....	750	11,868	47,593	57,330	19,240	6,942
22	.....1920..	30,640	.....	(²)	4,196	30,359	23,650	(²)	.....
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	.....	.....	.....	.....	.....	3,640	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
25	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres.....1940..	20,829	6,535	.....	2,203	190	.....	4,520	100
27	.....1930..	9,068	.....	.....	2,577	.....	7,690	13,980	20
28	.....1920..	20,000	.....	(²)	343	7,681	3,250	(²)	.....
29	Land in occupied farms.....acres.....1940..	44,418	56,244	780	12,934	44,371	64,491	33,755	8,814
30	.....1930..	66,101	.....	750	14,275	47,593	58,330	19,320	6,962
31	Increase or decrease (-), 1930-1940.....acres.....	-21,683	56,244	30	-1,341	-3,222	6,161	14,435	1,852
32	.....percent.....	-32.8	.....	4.0	-9.4	-6.8	10.6	74.7	26.6
33	Land in planted crops.....acres.....1940..	42,039	49,709	780	8,225	36,976	59,134	28,815	8,320
34	.....1930..	52,624	.....	750	11,818	46,824	51,580	17,480	6,942
35	Increase or decrease (-), 1930-1940.....acres.....	-10,585	49,709	30	-3,593	-9,948	7,354	11,335	1,376
36	.....percent.....	-20.1	.....	4.0	-30.4	-21.0	14.6	64.8	19.8
37	Land idle.....acres.....1940..	40,566	6,535	.....	5,288	5,905	3,357	420	100
38	.....1930..	6,338	.....	.....	2,627	769	15,740	20	.....
39	Increase or decrease (-), 1930-1940.....acres.....	34,228	6,535	.....	2,661	5,136	-6,073	-15,320	80
40	.....percent.....	540.0	.....	.....	101.3	667.9	-64.4	-97.3	400.0
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	6,500	.....	.....	.....	.....	6,080	12,000	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-6,500	.....	.....	.....	.....	-6,080	-12,000	.....
44	.....percent.....	-100.0	.....	.....	.....	.....	-100.0	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	.....	56,244	.....	11,604	34,171	2,614	12,775	6,020
46	Length of these ditches.....miles.....	.....	126.4	.....	46.3	72.7	8.6	23.3	12.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	594	.....	780	909	.....	.....	560	.....
53	Length of these tiles.....miles.....	5.0	.....	15.0	22.0	.....	.....	1.7	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	93,626	.....	.....	1,200	10,200	61,877	20,420	2,794
60	Length of these open ditches.....miles.....	341.0	.....	.....	6.5	10.0	44.4	8.4	8.2
61	Length of these tile.....miles.....	3.4	.....	.....	6.0	22.0	73.8	0.9	8.5
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	10,027	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	20.0	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	5.0	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Data are not available for the county, but are included in State totals.

³Percent not shown when more than 1,000.

⁴Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — COLORADO

COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Alamosa	Bent	Conejos	Crowley	Delta ¹	Logan
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	67	5	7	6	7	1	3
2 Open ditches:							
3 Completed.....miles.....1940..	972.9	42.4	19.0	56.0	71.8	34.4	21.5
4 1930..	814.9	41.5	18.5	36.0	73.2		9.0
5 1920..	132.5	(³)	5.2	21.0	(³)		
6 Additional length authorized.....miles.....1940..	27.0					5.0	
7 Tile drains:							
8 Completed.....miles.....1940..	365.3	36.5	32.5	95.0	31.5		0.5
9 1930..	369.5	37.8	28.4	103.1	23.2		
10 1920..	195.2	(³)	18.3	74.6	(³)		
11 Additional length authorized.....miles.....1940..							
12 Levees and dikes:							
13 Completed.....miles.....1940..							
14 1930..							
15 1920..							
16 Additional length authorized.....miles.....1940..							
17 Pumping plants:							
18 Engine capacity.....horsepower.....1940..	6						
19 1930..							
20 1920..							
21 Pump capacity.....gal. per min.....1940..	900						
22 1930..							
23 1920..							
24 Land served by pumps.....acres.....1940..	80						
25 1930..							
26 1920..							
27 Wells pumped for drainage.....number.....1940..	4						
28 1930..							
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	4,890,317	271,490	276,300	559,800	570,000	91,790	121,855
26 1930..	4,358,866	308,494	259,150	581,400	519,000		65,000
27 1920..	1,081,875	(³)	99,500	253,907	(³)		
28 Estimated cost when completed.....dollars.....1940..	4,972,696	271,490	276,800	564,800	570,800	107,000	121,855
29 1930..	4,395,866	308,494	259,150	581,400	519,000		65,000
30 1920..	1,285,070	(³)	110,500	343,907	(³)		
31 Average cost per acre when completed.....dollars.....1940..	10.62	8.17	13.14	14.27	21.50	6.74	21.63
32 1930..	11.99	9.11	11.21	15.77	17.98		29.37
33 1920..	7.49	(³)	9.57	20.11	(³)		
34 Invested in and required for completion, 1940:							
35 Enterprises having open ditches only.....dollars..	1,817,279	2,632	72,000		430,800	107,000	56,855
36 Average amount per acre.....dollars.....	10.62	3.71	13.29		19.30	6.74	16.62
37 Enterprises having open ditches and levees.....dollars..							
38 Average amount per acre.....dollars.....							
39 Enterprises having tile only.....dollars.....	231,412		71,400	28,000	50,000		
40 Average amount per acre.....dollars.....	23.50		21.39	17.07	24.70		
41 Enterprises having tile and levees.....dollars.....							
42 Average amount per acre.....dollars.....							
43 Enterprises having open ditches and tile.....dollars..	2,663,294	268,858	133,400	536,800	90,000		65,000
44 Average amount per acre.....dollars.....	9.96	8.27	10.84	14.15	40.91		29.37
45 Enterprises having ditches, tile, and levees.....dollars..							
46 Average amount per acre.....dollars.....							
47 Enterprises operating pumping plants ⁴.....dollars..	60,721						
Average amount per acre.....dollars.....	6.06						
MAINTENANCE AND OPERATION							
48 Cost of maintenance and operation in 1939:							
49 By enterprises operating pumping plants.....dollars..	1,523						
50 Enterprises reporting.....number.....	1						
51 Land in these enterprises.....acres.....	10,027						
52 Average cost per acre.....dollars.....	0.15						
53 By enterprises not operating pumping plants.....dollars..	126,165	800	2,499	2,700	6,851	15,600	(⁵)
54 Enterprises reporting.....number.....	50	3	7	6	6	1	2
55 Land in these enterprises.....acres.....	420,185	30,285	21,063	39,571	24,342	15,863	(⁵)
56 Average cost per acre.....dollars.....	0.30	0.03	0.12	0.07	0.28	0.98	(⁵)
57 Federal aid in maintenance:							
Enterprises reporting.....number.....	8		1		6		
Land in these enterprises.....acres.....	33,442		(⁵)		24,342		
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars.....	102,433	(⁵)	8,509	(⁵)	12,300		(⁵)
59 Enterprises reporting.....number.....	31	1	4	1	5		2
60 Land in these enterprises.....acres.....	247,112	(⁵)	11,911	(⁵)	22,117		(⁵)
61 Average amount collected per acre.....dollars.....	0.41	(⁵)	0.71	(⁵)	0.56		(⁵)
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	30,083	(⁵)	2,244	(⁵)	4,566		(⁵)
63 Enterprises reporting.....number.....	25	1	5	2	6		1
64 Land in these enterprises.....acres.....	108,524	(⁵)	11,397	(⁵)	24,342		(⁵)
65 Portion delinquent in these enterprises.....percent.....	27.7	(⁵)	19.7	(⁵)	18.8		(⁵)
66 Total indebtedness, Dec. 31, 1939.....dollars.....	1,853,395	75,795	81,601	297,000	160,000		(⁵)
67 Enterprises reporting.....number.....	38	3	6	4	5		2
68 Land in these enterprises.....acres.....	252,641	29,735	19,397	25,000	22,117		(⁵)
69 Average indebtedness per acre.....dollars.....	7.34	2.55	4.21	11.88	7.23		(⁵)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	466,521	(⁵)	19,801	257,000			(⁵)
71 Enterprises reporting.....number.....	18	1	4	3			1
72 Land in these enterprises.....acres.....	67,040	(⁵)	10,297	22,120			(⁵)
73 Average arrearage per acre.....dollars.....	6.96	(⁵)	1.92	11.62			(⁵)
74 Reduction of debt by refinancing, prior to 1940.....dollars..	349,695	(⁵)	(⁵)	(⁵)	111,100		
75 Enterprises reporting.....number.....	15	2	2	2	5		
76 Land in these enterprises.....acres.....	124,979	(⁵)	(⁵)	(⁵)	22,117		
77 Average reduction per acre.....dollars.....	2.80	(⁵)	(⁵)	(⁵)	5.02		

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 56.

³ Data are not available for the county, but are included in State totals.

⁴ Data in lines 46 and 47 are not included in lines 34 to 45.

⁵ Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE—COLORADO

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Mesa	Montrose ¹	Morgan ¹	Otero	Prowers	Rio Grande	Saguache	Weld
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	4	1	1	6	11	7	4	4
2 Open ditches:								
3 Completed.....miles.....1940..	361.0	126.4	.....	52.8	82.7	53.0	31.7	20.2
4	1930..	452.4	.....	44.7	65.5	40.0	25.9	8.2
5	1920..	26.5	(2)	8.3	22.0	20.9	(2)	.....
6 Additional length authorized.....miles.....1940..	2.0	20.0	.....	.....	.....	.....	.....	.....
7 Tile drains:								
8 Completed.....miles.....1940..	13.4	.....	15.0	28.0	22.0	79.8	2.6	8.5
9	1930..	5.7	5.0	39.0	22.6	92.7	4.5	7.5
10	1920..	6.6	(2)	26.7	12.6	23.5	(2)	.....
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:								
13 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
14	1930..	.....	.....	.....	.....	.....	.....	.....
15	1920..	.....	.....	.....	.....	.....	.....	.....
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	6	.....	.....	.....	.....	.....	.....	.....
19	1930..	.....	.....	.....	.....	.....	.....	.....
20	1920..	.....	.....	.....	.....	.....	.....	.....
21 Pump capacity.....gal. per min.....1940..	900	.....	.....	.....	.....	.....	.....	.....
22	1930..	.....	.....	.....	.....	.....	.....	.....
23	1920..	.....	.....	.....	.....	.....	.....	.....
24 Land served by pumps.....acres.....1940..	80	.....	.....	.....	.....	.....	.....	.....
25	1930..	.....	.....	.....	.....	.....	.....	.....
26	1920..	.....	.....	.....	.....	.....	.....	.....
27 Wells pumped for drainage.....number.....1940..	4	.....	.....	.....	.....	.....	.....	.....
28	1930..	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	1,173,445	337,131	21,000	319,933	537,100	429,251	75,731	106,491
30	1930..	1,164,568	10,000	352,000	539,050	410,724	82,060	67,400
31	1920..	224,806	(2)	141,000	126,000	108,200	(2)	.....
32 Estimated cost when completed.....dollars.....1940..	1,178,445	393,000	21,000	319,933	537,100	429,251	75,731	106,491
33	1930..	1,201,568	10,000	352,000	539,050	410,724	82,060	67,400
34	1920..	312,000	(2)	156,000	126,000	108,200	(2)	.....
35 Average cost per acre when completed.....dollars.....1940..	11.30	6.99	26.92	23.33	12.10	6.66	2.24	11.97
36	1930..	16.27	13.33	24.37	11.33	6.32	2.47	.....
37	1920..	6.16	(2)	34.37	3.31	4.01	(2)	.....
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	.....	393,000	.....	234,633	428,500	14,720	54,648	22,491
40 Average amount per acre.....dollars..	.....	6.99	.....	20.22	12.54	5.63	4.28	3.74
41 Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
42 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
43 Enterprises having tile only.....dollars..	12,000	.....	21,000	45,300	.....	.....	3,712	.....
44 Average amount per acre.....dollars..	20.20	.....	26.92	49.83	.....	.....	6.63	.....
45 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises having open ditches and tile.....dollars..	1,106,724	.....	.....	40,000	108,600	414,531	17,371	83,000
48 Average amount per acre.....dollars..	10.67	.....	.....	33.33	10.65	6.70	0.85	29.71
49 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
50 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
51 Enterprises operating pumping plants ³.....dollars..	160,721	.....	.....	.....	.....	.....	.....	.....
52 Average amount per acre.....dollars..	16.06	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION								
53 Cost of maintenance and operation in 1939:								
54 By enterprises operating pumping plants.....dollars..	1,523	.....	.....	.....	.....	.....	.....	.....
55 Enterprises reporting.....number.....	1	.....	.....	.....	.....	.....	.....	.....
56 Land in these enterprises.....acres.....	10,027	.....	.....	.....	.....	.....	.....	.....
57 Average cost per acre.....dollars..	0.15	.....	.....	.....	.....	.....	.....	.....
58 By enterprises not operating pumping plants.....dollars..	23,346	57,300	250	1,396	4,482	9,178	(4)	630
59 Enterprises reporting.....number.....	3	1	1	5	8	4	1	3
60 Land in these enterprises.....acres.....	94,220	56,244	780	12,909	33,506	57,797	(4)	8,352
61 Average cost per acre.....dollars..	0.25	1.02	0.32	0.11	0.13	0.16	(4)	0.06
62 Federal aid in maintenance:								
63 Enterprises reporting.....number.....	.....	.....	.....	.....	1	.....	.....	.....
64 Land in these enterprises.....acres.....	.....	.....	.....	.....	(4)	.....	.....	.....
FINANCIAL CONDITION								
65 Drainage taxes collected in 1939.....dollars..	34,640	.....	250	(4)	20,573	(4)	(4)	1,208
66 Enterprises reporting.....number.....	4	.....	1	1	6	2	1	3
67 Land in these enterprises.....acres.....	104,247	.....	780	(4)	27,711	(4)	(4)	6,482
68 Average amount collected per acre.....dollars..	0.33	.....	0.32	(4)	0.74	(4)	(4)	0.19
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	.....	.....	.....	(4)	9,655	(4)	(4)	(4)
70 Enterprises reporting.....number.....	.....	.....	.....	1	6	1	1	1
71 Land in these enterprises.....acres.....	.....	.....	.....	(4)	23,906	(4)	(4)	(4)
72 Portion delinquent in these enterprises.....percent..	.....	.....	.....	(4)	4.04	(4)	(4)	(4)
73 Total indebtedness, Dec. 31, 1939.....dollars..	(4)	.....	.....	(4)	270,400	(4)	(4)	(4)
74 Enterprises reporting.....number.....	2	.....	.....	2	9	2	1	2
75 Land in these enterprises.....acres.....	(4)	.....	.....	(4)	40,311	(4)	(4)	(4)
76 Average indebtedness per acre.....dollars..	(4)	.....	.....	(4)	6.70	(4)	(4)	(4)
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	186,765	.....	.....	(4)
78 Enterprises reporting.....number.....	.....	.....	.....	.....	7	.....	.....	2
79 Land in these enterprises.....acres.....	.....	.....	.....	.....	28,905	.....	.....	(4)
80 Average arrearage per acre.....dollars..	.....	.....	.....	.....	6.46	.....	.....	(4)
81 Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	(4)	(4)	(4)	(4)	.....
82 Enterprises reporting.....number.....	.....	.....	.....	1	1	1	1	.....
83 Land in these enterprises.....acres.....	.....	.....	.....	(4)	(4)	(4)	(4)	.....
84 Average reduction per acre.....dollars..	.....	.....	.....	(4)	(4)	(4)	(4)	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

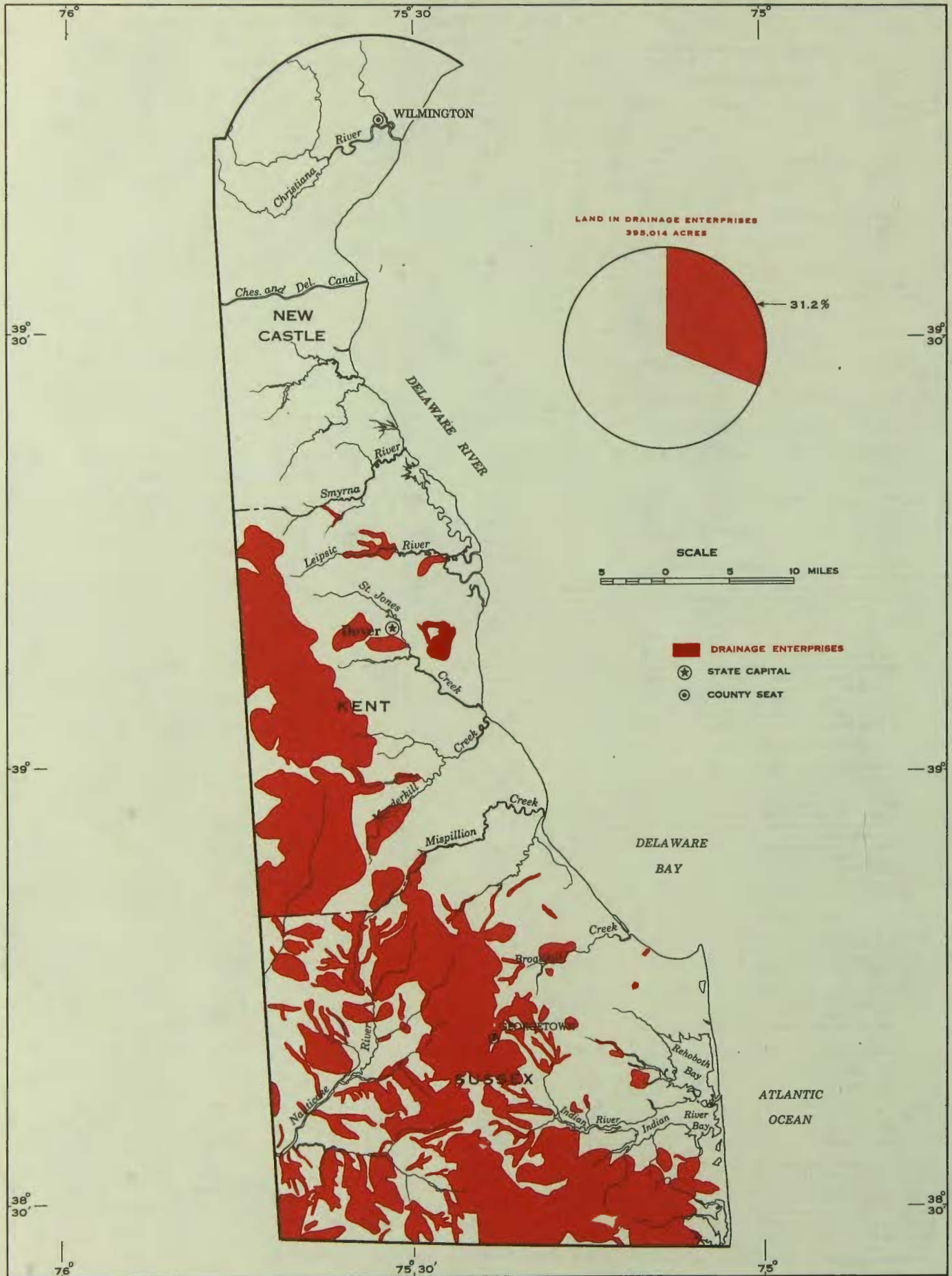
² Data are not available for the county, but are included in State totals.

³ Data in lines 46 and 47 are not included in lines 34 to 45.

⁴ Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1.

DELAWARE

Location of Land in Drainage Enterprises.



CENSUS OF DRAINAGE—DELAWARE

101

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940¹

ITEM (See definitions in Introduction)	Amount	Percent of land in enterprises	ITEM (See definitions in Introduction)	Amount	Percent of land in enterprises
Approximate land area of State.....acres..	1,265,920		Land in drainage enterprises—Continued		
Land in drainage enterprises.....acres..	395,014	100.0	In occupied farms.....acres....	394,164	99.8
Improved.....acres.....	264,465	67.0	In planted crops.....acres....	224,551	56.8
Unimproved:			Idle.....acres.....	170,080	43.0
Timber and cut-over.....acres..	129,654	32.8	Available for settlement.....acres..		
Other.....acres.....	895	0.2	Open ditches, completed.....miles...	1,482.3	
Drainage sufficient for normal crop.....acres..	295,400	74.8	Tile drains, completed.....miles...		
Partly drained, for partial crop.....acres..	65,706	16.6	Capital invested in enterprises.....dollars..	454,883	
Unfit to raise any crop for lack of drainage..acres..	33,908	8.6	Average per acre.....dollars..	1.15	

¹Delaware was not included in prior censuses of drainage enterprises.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940

SIZE	AREA OF ENTERPRISES ¹		Land in enterprises ²	SIZE	AREA OF ENTERPRISES ¹		Land in enterprises ²
	Amount	Percent of total			Amount	Percent of total	
	Acres	Percent			Acres	Percent	
All enterprises.....	853,562	100.0	395,014	1,000 to 1,999 acres.....	183,183	21.5	67,283
Less than 100 acres.....	1,379	0.2	923	2,000 to 4,999 acres.....	219,882	25.8	108,250
100 to 199 acres.....	8,554	1.0	3,937	5,000 to 9,999 acres.....	63,616	9.8	58,471
200 to 499 acres.....	66,404	7.8	28,726	10,000 to 19,999 acres.....	135,532	15.9	55,175
500 to 999 acres.....	97,758	11.4	41,909	20,000 to 49,999 acres.....	57,254	6.7	30,340

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	395,014	100.0	454,883	100.0
Drainage districts.....	395,014	100.0	454,883	100.0
Other, or not reported.....				

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940

TYPE OF DRAINAGE	Land in enterprises		Capital invested in enterprises	
	Acres	Percent	Dollars	Percent
All enterprises.....	395,014	100.0	454,883	100.0
Gravity drainage only by—				
Open ditches.....	395,014	100.0	454,883	100.0
All or part by pumping.....				

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises		Capital invested		Area delinquent ¹
	Acres	Percent	Dollars	Percent	Acres
All enterprises.....	395,014	100.0	454,883	100.0	1,195
Enterprises in arrears.....					
Enterprises not in arrears.....	395,014	100.0	454,883	100.0	1,195
With some delinquent land.....	12,979	3.3	6,130	1.3	1,195
With no delinquent land.....	382,035	96.7	448,753	98.7	
Enterprises not reporting on arrearage.....					

¹If any land is delinquent in 2 or more overlapping enterprises, these areas are too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	395,014	454,883	1,271			1,195	5,028
Enterprises in debt.....	8,468	1,261	1,271				
In arrears.....	8,468	1,261	1,271				
Not in arrears.....	1,684	246	46				200
Collecting drainage taxes in 1939.....	6,784	1,015	1,225				200
No collections reported.....	386,546	447,622				1,195	4,828
Enterprises not in debt.....	39,789	12,697				1,195	4,828
Collecting drainage taxes in 1939.....	352,757	434,925					
No collections reported.....	6,000	6,000					
Enterprises not reporting as to debt.....							
No collections reported.....							

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

CENSUS OF DRAINAGE—DELAWARE

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE,
AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Kent	Sussex
LAND AREA			
1 Approximate land area..... acres.....1940..	1,265,920	380,800	605,440
2 Drainage enterprises..... number.....1940..	1 ¹ 287	34	253
3 Land in enterprises..... acres.....1940..	395,014	135,949	259,065
4 Area of all enterprises, overlapping included..... acres.....1940..	853,562	280,374	573,188
5 Amount of overlapping..... acres.....1940..	458,548	144,425	314,123
CONDITION AND USE OF LAND			
6 Land with drainage sufficient for normal crop..... acres.....1940..	295,400	114,632	180,768
7 Land undrained, unfit for any crop..... acres.....1940..	33,908	4,090	29,818
8 Land partly drained, for partial crop..... acres.....1940..	65,706	17,227	48,479
9 Improved land..... acres.....1940..	264,465	99,893	164,572
Unimproved land:			
10 Woodland and cut-over land..... acres.....1940..	129,654	36,056	93,598
11 Other unimproved land..... acres.....1940..	895	.....	895
12 Land in occupied farms..... acres.....1940..	394,164	135,949	258,215
13 Land in planted crops..... acres.....1940..	224,551	87,495	137,056
14 Land idle..... acres.....1940..	170,080	48,454	121,626
15 Land available for settlement..... acres.....1940..	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940			
16 Land drained by open ditches only..... acres.....	395,014	135,949	259,065
17 Length of these ditches..... miles.....	1,482.3	326.9	1,155.4
18 Part protected by levees of an outside agency..... acres.....	.....	.....	.....
19 Land drained by open ditches and own levees..... acres.....	.....	.....	.....
20 Land drained by tile only..... acres.....	.....	.....	.....
21 Land drained by tile and own levees..... acres.....	.....	.....	.....
22 Land drained by open ditches and tile..... acres.....	.....	.....	.....
23 Land drained by open ditches, tile, and levees..... acres.....	.....	.....	.....
24 Land in enterprises operating pumping plants..... acres.....	.....	.....	.....

¹No intercounty enterprises were reported. The total number of schedules tabulated was 640.

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, AND MAINTENANCE
AND OPERATION, AND FINANCIAL CONDITION, 1939

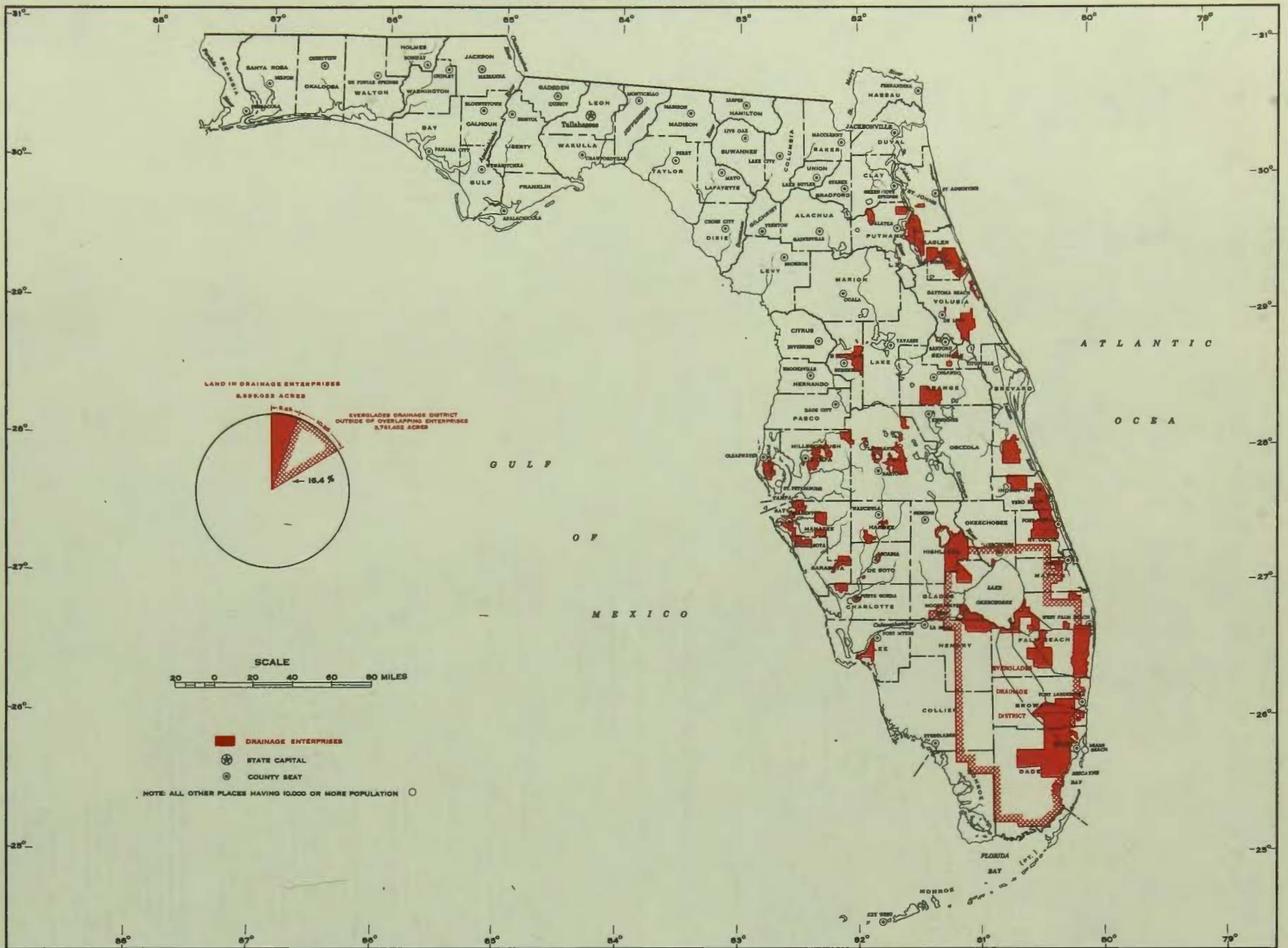
ITEM (See definitions in Introduction)	THE STATE	Kent	Sussex
DRAINAGE WORKS			
1 Drainage enterprises..... number.....1940..	1 ¹ 287	34	253
Open ditches:			
2 Completed..... miles.....1940..	1,482.3	326.9	1,155.4
3 Additional length authorized..... miles.....1940..	2.5	.....	2.5
Tile drains:			
4 Completed..... miles.....1940..	.....	.....	.....
5 Additional length authorized..... miles.....1940..	.....	.....	.....
Levees and dikes:			
6 Completed..... miles.....1940..	.....	.....	.....
7 Additional length authorized..... miles.....1940..	.....	.....	.....
Pumping plants:			
8 Engine capacity..... horsepower.....1940..	.....	.....	.....
9 Pump capacity..... gal. per min.....1940..	.....	.....	.....
10 Land served by pumps..... acres.....1940..	.....	.....	.....
11 Wells pumped for drainage..... number.....1940..	.....	.....	.....
CAPITAL INVESTED			
12 Capital invested to January 1..... dollars.....1940..	454,983	251,449	203,434
13 Estimated cost when completed..... dollars.....1940..	454,963	251,449	203,514
14 Average cost per acre when completed..... dollars.....1940..	1.15	1.85	0.78
Invested in and required for completion, 1940:			
15 Enterprises having open ditches only..... dollars.....	454,963	251,449	203,514
16 Average amount per acre..... dollars.....	1.15	1.85	0.78
17 Enterprises having open ditches and levees..... dollars.....	.....	.....	.....
18 Enterprises having tile only..... dollars.....	.....	.....	.....
19 Enterprises having tile and levees..... dollars.....	.....	.....	.....
20 Enterprises having open ditches and tile..... dollars.....	.....	.....	.....
21 Enterprises having ditches, tile, and levees..... dollars.....	.....	.....	.....
22 Enterprises operating pumping plants..... dollars.....	.....	.....	.....
MAINTENANCE AND OPERATION			
Cost of maintenance and operation in 1939:			
23 By enterprises operating pumping plants..... dollars.....	.....	.....	.....
24 By enterprises not operating pumping plants..... dollars.....	5,051	.....	5,051
25 Enterprises reporting..... number.....	20	.....	20
26 Land in these enterprises..... acres.....	29,582	.....	29,582
27 Average cost per acre..... dollars.....	0.17	.....	0.17
Federal aid in maintenance:			
28 Enterprises reporting..... number.....	205	36	169
29 Land in these enterprises..... acres.....	283,669	116,503	167,166
FINANCIAL CONDITION			
30 Drainage taxes collected in 1939..... dollars.....	5,028	(2)	(2)
31 Enterprises reporting..... number.....	17	2	15
32 Land in these enterprises..... acres.....	35,473	(2)	(2)
33 Average amount collected per acre..... dollars.....	0.14	(2)	(2)
34 Area delinquent in drainage taxes, Dec. 31, 1939..... acres.....	1,195	(2)	(2)
35 Enterprises reporting..... number.....	3	1	2
36 Land in these enterprises..... acres.....	12,979	(2)	(2)
37 Portion delinquent in these enterprises..... percent.....	9.2	(2)	(2)
38 Total indebtedness, Dec. 31, 1939..... dollars.....	1,271	.....	1,271
39 Enterprises reporting..... number.....	6	.....	6
40 Land in these enterprises..... acres.....	8,468	.....	8,468
41 Average indebtedness per acre..... dollars.....	0.15	.....	0.15
42 Indebtedness in arrears, Dec. 31, 1939..... dollars.....	.....	.....	.....
43 Reduction of debt by refinancing, prior to 1940..... dollars.....	.....	.....	.....

¹See footnote 1, County table I.

²Where there are less than 3 enterprises reporting, data are included only in State totals.

FLORIDA

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — FLORIDA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	34,727,680	35,111,040	36,111,040				
Land in drainage enterprises.....acres.....	5,699,022	5,954,934	1,637,073	-255,912	-4.3	4,317,861	263.8
Improved.....acres.....	685,959	783,033	94,589	-97,174	-12.4	688,444	727.8
Unimproved:							
Timber and cut-over.....acres.....	1,196,322	1,839,512	542,648	-643,190	-35.0	1,296,864	239.0
Other.....acres.....	3,816,841	3,332,389	999,836	484,452	14.5	2,332,553	233.3
Drainage sufficient for normal crop.....acres.....	2,056,893	1,967,568	(1)	89,325	4.5		
Partly drained, for partial crop.....acres.....	451,372	2,606,783	(1)	-2,155,411	-82.7		
Unfit to raise any crop for lack of drainage.....acres.....	3,190,757	1,380,583	2 731,671	1,810,174	131.1	648,892	88.7
In occupied farms.....acres.....	614,220	398,200	(1)	216,020	54.2		
In planted crops.....acres.....	223,117	216,536	(1)	6,581	3.0		
Idle.....acres.....	4,690,711	5,505,445	(1)	-814,734	-14.8		
Available for settlement.....acres.....	1,573,706	2,325,423	(1)	-751,717	-32.3		
Open ditches, completed.....miles.....	5,022.1	5,112.6	1,990.8	-90.5	-1.8	3,121.8	156.8
Tile drains, completed.....miles.....							
Drainage pumping plants, capacity.....horsepower.....	7,204	5,065	120	2,139	42.2	4,945	(3)
gal. per min..	3,394,600	1,980,799	39,000	1,413,801	71.4	1,941,799	(3)
Capital invested in enterprises.....dollars.....	43,356,692	45,487,795	13,846,807	-2,131,103	-4.7	31,640,988	228.5
Average per acre.....dollars.....	7.61	7.64	8.46	-0.03	-0.4	-0.82	-9.7

¹Not available. ²Reported as "Swampy or subject to overflow." ³Percent not shown when more than 1,000.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ²	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ²
	1940	1930	1920	1940		1940	1930	1920	1940
All enterprises.....	Acres 6,463,446	Acres 7,373,627	Acres 1,759,941	Acres 5,699,022	10,000 to 19,999 acres.....	Acres 319,224	Acres 1,017,982	Acres 694,045	Acres 319,224
200 to 499 acres.....	1,505	824		1,505	20,000 to 49,999 acres.....	530,097			530,097
500 to 999 acres.....	2,510	2,980	3,370	2,510	50,000 to 99,999 acres.....	709,654	732,777	604,913	638,074
1,000 to 1,999 acres.....	20,060			18,973	100,000 to 199,999 acres.....	482,958			482,958
2,000 to 4,999 acres.....	73,882	101,486	63,157	70,242	200,000 to 499,999 acres.....	1,258,908	5,330,327	280,000	1,138,998
5,000 to 9,999 acres.....	156,326	197,251	114,456	156,326	500,000 acres and over.....	2,908,322			2,340,115

¹The sum of the areas in the individual enterprises, without deduction for overlapping.
²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	5,699,022	100.0	43,356,692	100.0
Drainage districts.....	5,676,382	99.6	43,006,106	99.2
Commercial developments—incorporated.....	4,140	0.1	81,046	0.2
Individually owned projects.....	18,500	0.3	269,540	0.6

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES								
	1940		1930		1920		1940		1930		1920				
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent			
All enterprises.....	5,699,022	100.0	5,954,934	100.0	1,637,073	100.0	43,356,692	100.0	45,487,795	100.0	13,846,807	100.0			
Gravity drainage only by—															
Open ditches.....	5,418,629	95.1	5,452,246	91.6	1,631,073	99.6	36,532,018	84.2	41,124,738	90.4	13,763,307	99.4			
Tile drains.....															
Open ditches and tile drains.....															
All drained by pumping by—															
Open ditches.....	115,400	2.0	59,652	1.0	3,000	0.2	3,103,882	7.2	1,300,108	2.9	38,500	0.3			
Tile drains.....															
Open ditches and tile drains.....															
Part only by pumping by—															
Open ditches.....	164,993	2.9	443,036	7.4	3,000	0.2	3,720,792	8.6	3,062,949	6.7	45,000	0.3			
Tile drains.....															
Open ditches and tile drains.....															
Total area served by pumps.....	185,693	3.2	129,872	2.2	4,500	0.3									

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

CENSUS OF DRAINAGE — FLORIDA

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY			Land served Acres	
		Engine or motor		Pump		
		Number	Hp.			Percent
All pumping enterprises.....	1940..	14	7,204	100.0	3,394,600	185,693
	1930..	12	5,065	100.0	1,960,799	129,872
	1920..	2	120	100.0	39,000	4,500
Electric.....	1940..	3	275	5.4	118,300	11,523
Internal combustion.....	1940..	10	6,420	89.1	3,169,600	172,194
	1930..	9	4,790	94.6	1,862,499	118,347
	1920..	1	45	37.5	1,000	1,500
Steam and internal combustion.....	1940..	1	75	62.5	38,000	3,000
	1930..	4	784	10.9	225,000	13,499
	1920..					

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity Hp.	Land served Acres	
		Capacity				
		G. p. m.	Percent			
All pumping enterprises.....	1940..	68	3,394,600	100.0	7,204	185,693
	1930..	37	1,960,799	100.0	5,065	129,872
Centrifugal.....	1940..	17	1,586,000	46.7	1,542	27,158
	1930..	17	450,799	22.8	1,110	40,119
Rotary.....	1940..	7	365,000	19.4	1,095	23,558
	1930..	20	1,228,000	36.2	3,580	71,714
Screw.....	1940..	13	1,145,000	57.8	2,860	66,195
	1930..	10	246,000	7.2	672	11,863
Centrifugal and screw.....	1940..	21	334,600	9.9	1,410	74,958
	1930..					

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	5,699,022	100.0	5,954,934	100.0	43,356,692	100.0	45,487,795	100.0	5,206,344	3,044,462
Enterprises in arrears.....	4,696,094	82.4	1,240,168	20.8	27,658,828	63.8	17,563,684	38.6	4,739,808	888,060
With some delinquent land.....	4,692,130	82.3	1,227,046	20.6	27,614,288	63.7	17,432,335	38.3	4,739,808	888,060
With no delinquent land.....	3,964	0.1	8,642	0.1	44,540	0.1	116,349	0.3		
With no report on delinquency.....			4,480	0.1			15,000	(²)		
Enterprises not in arrears.....	1,002,928	17.6	4,714,766	79.2	15,697,864	36.2	27,924,111	61.4	466,536	2,156,402
With some delinquent land.....	764,931	13.4	4,436,657	74.5	14,282,441	32.9	24,361,900	53.6	466,536	2,156,402
With no delinquent land.....	237,997	4.2	272,323	4.6	1,415,423	3.3	3,453,001	7.6		
With no report on delinquency.....			5,786	0.1			109,210	0.2		

¹The acreage delinquent includes duplication as a result of the same land being reported delinquent in 2 or more overlapping enterprises.
²Less than one-tenth of 1 percent.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	5,699,022	43,356,692	32,295,849	20,211,153	9,418,634	5,206,344	723,793
Enterprises in debt.....	5,422,547	41,748,660	32,295,849	20,211,153	9,306,634	5,167,518	701,152
In arrears, amount of arrearage stated.....	4,696,094	27,658,828	28,469,140	20,211,153	270,433	4,739,808	247,962
Collecting drainage taxes in 1939.....	4,104,425	25,775,654	25,562,395	17,751,247	270,433	4,157,236	247,962
No collections reported.....	591,669	1,883,174	2,906,745	2,459,906		582,572	
Not in arrears.....	726,453	14,089,832	3,826,709		9,036,201	427,710	453,190
Collecting drainage taxes in 1939.....	700,953	13,754,832	3,561,969		8,939,201	427,710	453,190
No collections reported.....	25,500	335,000	264,750		97,000		
Enterprises not in debt.....	276,475	1,608,032			112,000	38,826	22,631
Collecting drainage taxes in 1939.....	52,598	564,202				21,957	22,631
No collections reported.....	223,877	1,043,830			112,000	16,869	

¹The acreage delinquent includes duplication as a result of the same land being reported delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE — FLORIDA

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	5,699,022	100.0	43,356,692	100.0
Reclamation of swamp land not previously in farms.....	5,508,074	96.6	41,756,819	96.3
Protection against overflow.....	190,948	3.4	1,599,873	3.7

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	5,699,022	100.0	6,463,446	764,424	43,356,692	100.0
1900-1904.....	1,968	(3)	3,055	1,087	30,655	0.1
1905-1909.....	1,912	(3)	1,912	.....	52,352	0.1
1910-1914.....	3,966,610	69.6	4,726,307	759,697	19,002,351	43.8
1915-1919.....	856,281	15.0	856,281	.....	13,050,756	30.1
1920-1924.....	512,982	9.0	516,622	3,640	7,633,381	17.6
1925-1929.....	339,133	6.0	339,133	.....	3,282,127	7.6
1930-1934.....	17,000	0.3	17,000	.....	250,000	0.6
1935-1939.....	3,136	0.1	3,136	.....	55,070	0.1

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

³Less than one-tenth of 1 percent.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT				USE OF LAND					
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	In occupied farms		Acres	Acres	Acres
										Partly drained	Undrained				Improved land	Timber and cut-over land	Other un-improved land	Acres	Per-cent	In planted crops	Idle	Land available for settlement
All enterprises..	5,699,022	2,056,893	36.1	451,372	3,190,757	685,959	12.0	1,196,322	3,816,841	614,220	10.8	223,117	4,690,711	1,573,706
1900-1904.....	1,968	1,968	100.0	.....	.....	1,180	60.0	450	338	906	46.0	620	788	788
1905-1909.....	1,912	1,912	100.0	.....	.....	365	19.1	740	807	276	14.4	175	1,547	1,547
1910-1914.....	3,966,610	671,603	16.9	258,972	3,026,035	282,675	7.1	656,871	3,027,064	240,998	6.1	72,882	3,503,409	561,438
1915-1919.....	856,281	765,888	89.4	25,085	65,308	214,477	25.0	328,159	313,645	154,383	18.0	90,059	611,851	544,697
1920-1924.....	512,982	392,533	76.5	52,330	68,119	125,843	24.5	99,893	287,246	133,207	26.0	40,580	325,568	255,969
1925-1929.....	339,133	213,853	63.0	95,985	29,295	52,183	15.4	110,209	176,741	75,275	22.2	12,990	238,048	209,267
1930-1934.....	17,000	6,000	35.3	9,000	2,000	6,000	35.3	.....	11,000	6,470	38.0	3,816	9,500	.....
1935-1939.....	3,136	3,136	100.0	.....	.....	3,136	100.0	.....	.....	2,705	86.2	1,995	.....	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION				COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—		
						Total reporting	Area incurring	
All enterprises.....	Acres 5,699,022	Acres 5,687,982	Acres 5,283,545	Acres 404,437	Dollars 439,497	Dollars 0.08	Dollars 0.08	
Gravity drainage only.....	5,418,329	5,407,589	5,003,152	404,437	202,874	0.04	0.04	
Open ditches only.....	3,144,176	3,135,758	2,764,862	370,896	88,981	0.03	0.03	
Open ditches and levees.....	2,274,451	2,271,831	2,238,290	33,541	113,893	0.05	0.05	
Pumping for all or part of drainage.....	280,393	280,393	280,393	.....	235,623	0.84	0.84
All drainage by pumping.....	115,400	115,400	115,400	.....	157,073	1.35	1.35
Part pumping and part gravity.....	164,993	164,993	164,993	.....	79,550	0.48	0.48

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	5,699,022	100.0	43,356,692	100.0
Method:				
By district forces.....	925,791	16.2	17,212,508	39.7
By contract.....	73,224	1.3	1,096,006	2.5
Work apportioned to landowners.....	15,038	0.3	157,000	0.4
"None," or not reporting.....	4,684,969	82.2	24,891,178	57.4
Whether systematic:				
Reporting "yes".....	947,329	16.6	17,078,610	39.4
Reporting "no".....	4,751,693	83.4	26,278,082	60.6

CENSUS OF DRAINAGE — FLORIDA

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	5,699,022	1,498,006	26.3
Capital invested.....dollars..	43,353,592	23,287,926	53.7
Drainage works:			
Open ditches.....miles....	5,022.1	1,959.5	39.2
Tile drains.....miles.....			
Levees.....miles.....	470.5	159.5	33.9

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS	
			Ditches	Levees
	Acres	Dollars	Miles	Miles
All enterprises reporting Federal aid received.....	1,183,258	3,530,218	543.2	33.0
Work Projects Administration.....	89,585	825,084	330.2	5.0
Other kind or combination.....	894,373	2,424,877	188.0	28.0
No report.....	199,300	280,257	25.0	

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	5,699,022	¹ 2,223,800	39.0
Capital invested.....dollars..	43,353,592	12,997,308	30.0
Drainage works:			
Open ditches.....miles....	5,022.1	1,468.5	29.2
Tile drains.....miles.....			
Levees.....miles.....	470.6	225.0	47.8

¹ The land actually dependent upon outside agencies for protection is 1,947,969 acres, which is 87.5 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE - FLORIDA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Brevard ¹	Broward	Dade	De Soto ²	Flagler	Glades ³	
LAND AREA								
1	Approximate land area.....acres....1940..	34,727,680	660,480	779,520	1,314,560	414,720	309,120	477,440
2	Drainage enterprises.....number...1940..	⁴ 126	²	⁷	⁹	³	⁵	⁵
3	Land in enterprises.....acres....1940..	5,699,022	65,908	714,602	1,147,202	9,338	119,441	292,488
4	.....1930..	5,954,934	127,945	739,469	1,110,296	11,770	126,182	299,366
5	.....1920..	1,637,073	17,000	162,250	199,300	165,640	76,313	.....
6	Area of all enterprises, overlapping included.....acres....1940..	6,463,446	65,908	852,892	1,409,692	9,338	119,441	360,023
7	Amount of overlapping.....acres....1940..	764,424	.....	138,290	262,490	.....	.....	67,535
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	2,056,893	64,708	166,669	312,339	9,338	106,493	202,488
9	.....1930..	1,967,568	65,679	211,295	232,337	9,770	73,880	96,000
10	Increase or decrease (-), 1930-1940.....acres.....	89,325	-971	-44,626	80,002	-432	32,613	106,488
11	.....percent.....	4.5	-1.5	21.1	34.4	-4.4	44.1	110.9
12	Land undrained, unfit for any crop.....acres....1940..	3,190,757	1,200	441,282	696,867	.....	12,703	90,000
13	.....1930..	1,380,583	52,116	124,770	345,600	2,000	23,796	31,960
14	Increase or decrease (-), 1930-1940.....acres.....	1,810,174	-50,916	316,512	351,267	-2,000	-11,093	58,040
15	.....percent.....	131.1	-97.7	253.7	101.6	-100.0	-46.6	181.6
16	Land partly drained, for partial crop.....acres....1940..	451,372	.....	106,651	137,996	.....	245	.....
17	.....1930..	2,606,783	10,150	403,404	532,359	.....	28,506	171,406
18	Increase or decrease (-), 1930-1940.....acres.....	-2,155,411	-10,150	-296,753	-394,363	.....	-28,261	-171,406
19	.....percent.....	-82.7	-100.0	-73.6	-74.1	.....	-99.1	-100.0
20	Improved land.....acres....1940..	685,859	10,204	146,398	160,804	2,850	11,560	9,750
21	.....1930..	783,033	15,500	112,305	102,571	2,340	9,600	86,550
22	.....1920..	94,589	200	⁵ 4,792	8,048	12,541	⁵ 2,026	.....
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	1,196,322	36,500	1,364	2,452	1,910	92,062	70,880
24	.....1930..	1,839,512	44,824	41,000	185,000	8,450	79,806	97,660
25	.....1920..	542,648	4,000	18,810	6,000	34,146	63,221	.....
26	Other unimproved land.....acres....1940..	3,816,841	19,204	566,940	963,946	4,578	15,819	211,858
27	.....1930..	3,332,389	67,621	586,164	822,725	980	36,776	115,156
28	.....1920..	999,836	12,800	138,648	185,252	118,953	11,066	.....
29	Land in occupied farms.....acres....1940..	614,220	7,200	71,100	70,500	2,415	11,560	136,040
30	.....1930..	398,200	1,375	38,535	28,500	2,040	9,600	35,335
31	Increase or decrease (-), 1930-1940.....acres.....	216,020	5,825	32,565	42,000	375	1,960	100,705
32	.....percent.....	54.2	423.6	84.5	147.4	18.4	20.4	285.0
33	Land in planted crops.....acres....1940..	223,117	6,100	27,000	37,500	2,290	3,900	2,150
34	.....1930..	216,536	1,150	19,510	13,600	1,220	8,700	14,565
35	Increase or decrease (-), 1930-1940.....acres.....	6,581	4,950	7,490	23,900	1,070	-4,800	-12,415
36	.....percent.....	3.0	430.4	38.4	175.7	87.7	-55.2	-85.2
37	Land idle.....acres....1940..	4,690,711	55,704	566,674	955,310	6,488	107,881	155,348
38	.....1930..	5,505,445	111,685	706,027	1,075,014	9,730	113,582	280,906
39	Increase or decrease (-), 1930-1940.....acres.....	-814,734	-55,981	-139,353	-119,704	-3,242	-5,701	-125,558
40	.....percent.....	-14.8	-50.1	-19.7	-11.1	-33.3	-5.0	-44.7
41	Land available for settlement.....acres....1940..	1,573,706	54,504	45,110	249,978	6,488	93,422	155,348
42	.....1930..	2,325,423	73,479	183,820	205,429	7,300	64,280	67,350
43	Increase or decrease (-), 1930-1940.....acres.....	-751,717	-18,975	-138,710	44,549	-812	29,142	87,998
44	.....percent.....	-32.3	-25.8	-75.4	21.7	-11.1	45.3	130.6
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	3,144,178	.....	632,472	896,682	9,338	60,729	39,040
46	Length of these ditches.....miles.....	1,827.0	.....	240.0	111.4	18.8	62.1	8.0
47	Part protected by levees of an outside agency.....acres.....	685,365	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	2,274,451	65,908	82,130	233,520	.....	58,712	233,209
49	Length of these ditches.....miles.....	1,949.1	241.0	40.0	195.0	.....	81.0	72.0
50	Length of these levees.....miles.....	282.6	19.0	9.0	11.0	.....	7.5	29.0
51	Part protected by levees of an outside agency.....acres.....	1,178,342	1,800	16,640	40,000	.....	.....	231,489
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁶.....acres.....	280,393	.....	.....	17,000	.....	.....	20,239
69	Length of open ditches owned by these enterprises.....miles.....	1,246.0	.....	.....	150.0	.....	.....	65.0
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	188.0	.....	.....	2.0	.....	.....	12.0
72	Part protected by levees of an outside agency.....acres.....	114,262	.....	.....	.....	.....	.....	20,239

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ²Parts taken to form Charlotte, Glades, Hardee, and Highlands in 1921. ³Organized from part of De Soto in 1921. ⁴An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 101. ⁵Estimated total for county. ⁶Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—FLORIDA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Hendry ¹	Highlands ²	Hills- borough	Indian River ³	Manatee ⁴	Palm Beach ⁵	Pinellas ⁶	Polk
LAND AREA									
1	Approximate land area.....acres....1940..	759,680	666,240	665,600	327,040	448,640	1,265,920	168,960	1,191,040
2	Drainage enterprises.....number...1940..	5	3	5	3	19	13	2	7
3	Land in enterprises.....acres....1940..	419,840	144,965	56,334	105,545	82,283	1,129,323	27,201	82,133
4	.....1930..	425,044	135,242	52,700	95,770	81,899	1,140,373	(?)	76,940
5	.....1920..	.....	.....	.....	.....	60,250	448,785	32,900	56,400
6	Area of all enterprises, overlapping included.....acres....1940..	470,535	214,085	56,334	105,545	83,370	1,296,750	27,201	82,133
7	Amount of overlapping.....acres....1940..	50,695	69,120	.....	.....	1,087	167,427	.....	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	94,235	30,540	55,296	90,545	82,283	207,329	25,336	78,021
9	.....1930..	64,000	32,000	43,000	72,385	48,999	427,100	(?)	14,170
10	Increase or decrease (-), 1930-1940.....acres.....	30,235	-1,460	12,296	18,160	33,284	-219,771	.....	63,851
11	.....percent.....	47.2	-4.6	28.6	25.1	67.9	-51.4	.....	450.6
12	Land undrained, unfit for any crop.....acres....1940..	325,605	.....	1,038	15,000	.....	910,664	1,865	4,112
13	.....1930..	118,000	70,000	5,131	23,385	32,900	115,200	(?)	56,270
14	Increase or decrease (-), 1930-1940.....acres.....	207,605	-70,000	-4,093	-8,385	-32,900	795,464	.....	-52,158
15	.....percent.....	175.9	-100.0	-79.8	-35.8	-100.0	690.5	.....	-92.7
16	Land partly drained, for partial crop.....acres....1940..	.....	114,425	.....	.....	.....	11,330	.....	.....
17	.....1930..	243,044	33,242	4,569	.....	.....	598,073	(?)	6,500
18	Increase or decrease (-), 1930-1940.....acres.....	-243,044	81,183	-4,569	.....	.....	-586,743	.....	-6,500
19	.....percent.....	-100.0	244.2	-100.0	.....	.....	-98.1	.....	-100.0
20	Improved land.....acres....1940..	63,479	2,400	13,466	19,211	8,550	87,547	5,783	18,063
21	.....1930..	18,000	10,000	18,169	9,350	21,765	175,000	(?)	18,510
22	.....1920..	.....	.....	.....	.....	10,204	⁸ 7,658	2,598	7,800
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	175,393	27,500	11,650	16,000	48,715	267,591	17,563	17,000
24	.....1930..	200,000	41,250	24,400	44,500	47,275	230,350	(?)	7,960
25	.....1920..	.....	.....	.....	.....	23,336	122,570	23,450	21,700
26	Other unimproved land.....acres....1940..	180,968	115,065	31,218	70,334	25,018	774,185	3,855	47,070
27	.....1930..	207,044	83,992	10,131	41,920	12,859	735,023	(?)	50,470
28	.....1920..	.....	.....	.....	.....	26,710	318,558	6,852	26,900
29	Land in occupied farms.....acres....1940..	16,514	82,040	6,950	16,450	7,565	79,042	5,383	3,959
30	.....1930..	26,000	10,000	17,769	8,350	19,525	58,900	(?)	4,280
31	Increase or decrease (-), 1930-1940.....acres.....	-9,486	72,040	-10,819	8,100	-11,960	20,142	.....	-321
32	.....percent.....	-36.5	720.4	-60.9	97.0	-61.2	34.2	.....	-7.5
33	Land in planted crops.....acres....1940..	16,514	1,200	6,370	13,706	6,999	37,700	3,536	3,565
34	.....1930..	11,000	5,000	16,200	7,800	16,045	29,375	(?)	3,810
35	Increase or decrease (-), 1930-1940.....acres.....	5,514	-3,800	-9,830	5,906	-9,046	8,325	.....	-245
36	.....percent.....	50.1	-76.0	-60.7	75.7	-56.4	28.3	.....	-6.4
37	Land idle.....acres....1940..	325,410	62,925	42,978	84,334	74,233	1,031,890	21,418	64,070
38	.....1930..	404,604	128,322	20,131	87,420	60,604	1,061,852	(?)	70,335
39	Increase or decrease (-), 1930-1940.....acres.....	-79,194	-65,397	22,847	-3,086	13,629	-29,962	.....	-6,265
40	.....percent.....	-19.6	-51.0	113.5	-3.5	22.5	-2.8	.....	-8.9
41	Land available for settlement.....acres....1940..	80,553	62,925	41,358	69,334	76,733	130,313	19,553	60,658
42	.....1930..	284,044	22,000	29,800	64,650	59,110	352,600	(?)	16,410
43	Increase or decrease (-), 1930-1940.....acres.....	-203,491	40,925	11,558	4,684	17,623	-222,287	.....	44,248
44	.....percent.....	-71.6	186.0	38.8	7.2	29.8	-63.0	.....	269.6
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	369,995	144,965	56,334	.....	82,283	18,980	27,201	78,933
46	Length of these ditches.....miles.....	10.0	36.0	182.1	.....	242.5	93.0	197.0	111.9
47	Part protected by levees of an outside agency.....acres.....	369,145	.....	.....	.....	.....	8,420	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	105,545	.....	917,034	.....	3,200
49	Length of these ditches.....miles.....	.....	.....	.....	466.0	.....	269.0	.....	15.0
50	Length of these levees.....miles.....	.....	.....	.....	74.0	.....	71.0	.....	1.0
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	885,953	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁹.....acres.....	49,845	.....	.....	.....	.....	193,309	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	171.0	.....	.....	.....	.....	860.0	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	47.0	.....	.....	.....	.....	127.0	.....	.....
72	Part protected by levees of an outside agency.....acres.....	7,885	.....	.....	.....	.....	86,138	.....	.....

¹ Organized from part of Lee in 1923. ² Organized from part of De Soto in 1921. ³ Organized from part of St. Lucie in 1925. ⁴ Part taken to form Sarasota in 1921. ⁵ Part taken to form part of Martin in 1925. ⁶ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ⁷ Included in "Other counties." ⁸ Estimated total for county. ⁹ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — FLORIDA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Putnam	St. Lucie ¹	Sarasota ²	Seminole	Sumter ³	Volusia	Other counties ⁴
LAND AREA							
1 Approximate land area.....acres.....1940..	513,920	376,320	375,040	205,440	359,040	713,600	5,764,480
2 Drainage enterprises.....number.....1940..	5	3	4	4	2	5	15
3 Land in enterprises.....acres.....1940..	57,293	165,211	45,810	13,140	48,632	76,476	895,857
4	1930..	46,065	167,188	48,941	13,139	78,720	1,177,895
5	1920..	34,000	115,645	.....	6,972	48,937	212,680
6 Area of all enterprises, overlapping included.....acres.....1940..	57,293	165,211	49,450	13,140	48,632	76,476	899,997
7 Amount of overlapping.....acres.....1940..	.....	.....	3,640	.....	.....	.....	4,140
CONDITION AND USE OF LAND							
8 Land with drainage sufficient for normal crop.....acres.....1940..	51,323	118,862	35,810	10,140	48,632	72,433	194,073
9	1930..	35,269	97,705	48,941	8,853	75,612	310,573
10 Increase or decrease (-), 1930-1940.....acres.....	16,054	21,157	-13,131	1,287	.....	-3,179	-116,500
11	percent.....	45.5	21.6	-26.8	14.5	.....	-37.5
12 Land undrained, unfit for any crop.....acres.....1940..	5,970	46,349	10,000	3,000	.....	4,043	621,059
13	1930..	5,468	18,000	.....	650	1,845	353,492
14 Increase or decrease (-), 1930-1940.....acres.....	502	28,349	10,000	2,350	.....	2,198	267,567
15	percent.....	9.2	157.5	.....	361.5	119.1	75.7
16 Land partly drained, for partial crop.....acres.....1940..	.....	.....	.....	.....	.....	.....	80,725
17	1930..	5,328	51,483	.....	3,636	1,263	513,820
18 Increase or decrease (-), 1930-1940.....acres.....	-5,328	-51,483	.....	-3,636	.....	-1,263	-433,095
19	percent.....	-100.0	-100.0	.....	-100.0	.....	-84.3
20 Improved land.....acres.....1940..	11,150	30,392	4,587	3,185	7,310	9,415	59,755
21	1930..	17,300	15,000	8,800	1,500	8,673	132,100
22	1920..	7,700	9,347	.....	405	673	20,597
Unimproved land:							
23 Woodland and cut-over land.....acres.....1940..	29,973	116,672	17,250	4,054	32,000	28,610	181,183
24	1930..	24,971	81,000	33,061	11,539	67,527	568,939
25	1920..	16,600	53,540	.....	6,511	25,230	123,534
26 Other unimproved land.....acres.....1940..	16,170	18,147	23,973	5,901	9,322	38,451	654,919
27	1930..	3,794	71,188	7,060	100	2,520	476,846
28	1920..	9,700	52,758	.....	56	23,034	68,549
29 Land in occupied farms.....acres.....1940..	6,800	26,760	3,035	2,990	5,475	3,352	49,090
30	1930..	11,500	15,000	6,800	1,500	8,050	95,141
31 Increase or decrease (-), 1930-1940.....acres.....	-4,700	11,760	-3,765	1,490	.....	-4,698	-46,051
32	percent.....	-40.9	78.4	-55.4	99.3	.....	-48.4
33 Land in planted crops.....acres.....1940..	6,240	16,900	2,780	2,775	5,200	2,962	17,730
34	1930..	7,000	3,500	6,300	1,460	6,700	43,601
35 Increase or decrease (-), 1930-1940.....acres.....	-760	13,400	-3,520	1,315	.....	-3,738	-25,871
36	percent.....	-10.8	382.8	-55.9	90.1	.....	-59.3
37 Land idle.....acres.....1940..	46,143	134,818	41,223	9,955	41,322	67,061	795,526
38	1930..	38,765	128,566	41,801	11,639	66,942	1,086,942
39 Increase or decrease (-), 1930-1940.....acres.....	7,378	5,252	-578	-1,684	.....	119	-290,994
40	percent.....	19.0	4.0	-1.4	-14.5	0.2	-26.8
41 Land available for settlement.....acres.....1940..	37,173	88,469	31,223	6,955	41,322	61,089	161,198
42	1930..	26,950	73,118	41,518	8,286	69,000	670,279
43 Increase or decrease (-), 1930-1940.....acres.....	10,223	9,351	-10,295	-1,331	.....	-7,911	-509,081
44	percent.....	37.9	11.8	-24.8	-16.1	.....	-76.0
LAND CLASSIFIED BY WORKS, 1940							
45 Land drained by open ditches only.....acres.....	57,293	.....	20,591	13,140	24,072	76,476	535,654
46 Length of these ditches.....miles.....	87.0	.....	30.5	51.9	13.5	72.8	258.5
47 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	277,800
48 Land drained by open ditches and own levees.....acres.....	.....	165,211	25,219	.....	24,560	.....	360,203
49 Length of these ditches.....miles.....	.....	393.1	85.0	.....	45.0	.....	67.0
50 Length of these levees.....miles.....	.....	45.6	7.0	.....	0.5	.....	8.0
51 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	2,460
52 Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55 Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59 Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60 Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63 Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64 Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68 Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69 Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70 Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71 Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹ Parts taken to form Indian River and part of Martin in 1925. ² Organized from part of Manatee in 1921. ³ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ⁴ Includes Charlotte, Collier, Hardee, Lake, Lee, Martin, Monroe, Okeechobee, Orange, and St. Johns Counties in 1940; Alachua, Charlotte, Collier, Duval, Hardee, Lake, Lee, Marion, Martin, Monroe, Nassau, Okeechobee, Orange, Pinellas, St. Johns, and Sumter Counties in 1930; and Bradford, Duval, Lake, Lee, Marion, Nassau, Okeechobee, Orange, St. Johns, Santa Rosa, and Sumter Counties in 1920. ⁵ Included in "Other counties." ⁶ Estimated total for county.

CENSUS OF DRAINAGE — FLORIDA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Brevard ¹	Broward	Dade	De Soto ²	Flagler	Glades ³
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	4 126	2	7	9	3	5	5
Open ditches:							
2 Completed.....miles.....1940..	5,022.1	221.0	280.0	456.4	18.8	149.1	145.0
3 1930..	5,112.6	378.0	334.9	330.3	23.0	163.7	203.4
4 1920..	1,990.8	116.5	173.3	77.2	210.3	62.6	.....
5 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Tile drains:							
6 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
7 1930..	.....	.....	.....	.....	.....	.....	.....
8 1920..	.....	.....	.....	.....	.....	.....	.....
9 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:							
10 Completed.....miles.....1940..	470.6	19.0	9.0	13.0	.....	7.5	41.0
11 1930..	718.4	22.0	84.6	123.0	.....	.....	33.8
12 1920..	66.2	.....	10.5	.....	1.8	6.0	.....
13 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Pumping plants:							
14 Engine capacity.....horsepower.....1940..	7,204	.....	.....	1,200	.....	.....	360
15 1930..	5,065	.....	.....	.....	.....	.....	475
16 1920..	120	.....	.....	.....	.....	.....	.....
17 Pump capacity.....gal. per min. 1940..	3,394,600	.....	.....	1,500,000	.....	.....	130,000
18 1930..	1,980,799	.....	.....	.....	.....	.....	320,000
19 1920..	39,000	.....	.....	.....	.....	.....	.....
20 Land served by pumps.....acres.....1940..	185,693	.....	.....	17,000	.....	.....	20,239
21 1930..	129,872	.....	.....	.....	.....	.....	23,768
22 1920..	4,500	.....	.....	.....	.....	.....	.....
23 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....
24 1930..	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	43,356,692	1,944,256	2,143,527	13,851,987	39,435	887,859	1,235,215
26 1930..	45,487,795	2,864,526	5,444,886	3,143,432	43,800	886,588	1,772,109
27 1920..	13,846,807	585,000	1,689,945	710,894	1,030,110	277,590	.....
28 Estimated cost when completed.....dollars.....1940..	43,356,692	1,944,256	2,143,527	13,851,987	39,435	887,859	1,235,215
29 1930..	48,407,539	3,367,470	5,474,886	4,036,232	43,800	886,588	1,792,109
30 1920..	26,762,497	585,000	3,634,992	4,060,562	1,204,550	382,650	.....
31 Average cost per acre when completed.....dollars.....1940..	7.61	29.50	3.00	12.07	4.22	7.43	4.22
32 1930..	8.13	26.32	7.40	3.64	3.72	7.03	5.09
33 1920..	16.35	34.41	22.40	20.37	7.27	5.01	.....
Invested in and required for completion, 1940:							
34 Enterprises having open ditches only.....dollars..	22,571,481	.....	1,759,380	12,239,491	39,435	371,644	105,089
35 Average amount per acre.....dollars..	7.18	.....	2.78	13.65	4.22	6.12	2.69
36 Enterprises having open ditches and levees.....dollars..	13,960,537	1,944,256	384,147	1,362,486	.....	516,215	702,262
37 Average amount per acre.....dollars..	6.14	29.50	4.68	5.83	.....	8.79	3.01
38 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....
39 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
40 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
41 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
42 Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	.....
43 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
44 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
46 Enterprises operating pumping plants ⁵.....dollars..	6,824,674	.....	.....	250,000	.....	.....	427,200
47 Average amount per acre.....dollars..	24.34	.....	.....	14.70	.....	.....	21.11
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48 By enterprises operating pumping plants.....dollars..	236,623	.....	.....	(⁶)	.....	.....	(⁶)
49 Enterprises reporting.....number..	14	.....	.....	1	.....	.....	1
50 Land in these enterprises.....acres..	280,393	.....	.....	(⁶)	.....	.....	(⁶)
51 Average cost per acre.....dollars..	0.84	.....	.....	(⁶)	.....	.....	(⁶)
52 By enterprises not operating pumping plants.....dollars..	202,874	11,166	17,527	48,355	.....	3,984	2,055
53 Enterprises reporting.....number..	78	2	5	6	.....	4	3
54 Land in these enterprises.....acres..	5,003,152	65,908	697,482	1,120,062	.....	114,935	233,209
55 Average cost per acre.....dollars..	0.04	0.17	0.02	0.04	.....	0.03	0.01
Federal aid in maintenance:							
56 Enterprises reporting.....number..	11	.....	.....	1	.....	.....	.....
57 Land in these enterprises.....acres..	1,183,258	.....	.....	(⁷)	.....	.....	.....
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..	723,783	12,529	27,788	117,654	(⁷)	13,815	39,607
59 Enterprises reporting.....number..	96	2	6	7	1	5	4
60 Land in these enterprises.....acres..	4,857,976	65,908	699,882	986,202	(⁷)	119,441	253,448
61 Average amount collected per acre.....dollars..	0.15	0.19	0.04	0.12	(⁷)	0.12	0.16
62 Area delinquent in drainage taxes, Dec. 31, 1939 ⁸.....acres..	5,206,344	52,120	792,698	909,576	(⁷)	99,183	339,506
63 Enterprises reporting.....number..	109	2	7	7	2	5	5
64 Land in these enterprises.....acres..	5,457,061	65,908	714,602	988,202	(⁷)	119,441	292,488
65 Portion delinquent in these enterprises.....percent..	95.4	79.1	110.9	92.0	(⁷)	83.0	116.1
66 Total indebtedness, Dec. 31, 1939.....dollars..	32,295,849	529,440	1,740,929	12,184,749	(⁷)	878,977	1,250,743
67 Enterprises reporting.....number..	94	2	5	7	2	5	5
68 Land in these enterprises.....acres..	5,422,547	65,908	697,482	1,001,862	(⁷)	119,441	292,488
69 Average indebtedness per acre.....dollars..	5.96	8.03	2.50	12.16	(⁷)	7.36	4.28
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	20,211,153	175,440	1,174,460	8,672,844	(⁷)	663,624	804,697
71 Enterprises reporting.....number..	64	1	3	3	1	4	4
72 Land in these enterprises.....acres..	4,686,094	5,920	610,232	883,670	(⁷)	94,710	290,768
73 Average arrearage per acre.....dollars..	4.30	29.64	1.92	9.81	(⁷)	7.01	2.77
74 Reduction of debt by refinancing, prior to 1940.....dollars..	9,418,634	2,200,000	330,832	449,812	.....	(⁷)	(⁷)
75 Enterprises reporting.....number..	29	1	3	3	.....	1	1
76 Land in these enterprises.....acres..	713,478	59,988	91,610	101,192	.....	(⁷)	(⁷)
77 Average reduction per acre.....dollars..	13.20	36.67	3.60	4.44	.....	(⁷)	(⁷)

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ² Parts taken to form Charlotte, Glades, Hardee, and Highlands in 1921. ³ Organized from part of De Soto in 1921. ⁴ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 101. ⁵ Data in lines 46 and 47 are not included in lines 34 to 45. ⁶ One enterprise in Dade and Glades Counties included in data for Palm Beach County to avoid disclosure of individual operations. ⁷ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnotes 1 and 6. ⁸ In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE — FLORIDA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Hendry ¹	Highlands ²	Hills- borough	Indian River ³	Volusia ⁴	Palm Beach ⁵	Pinellas ⁶	Polk
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	5	3	5	3	19	13	2	7
Open ditches:								
2 Completed.....miles.....1940..	181.0	36.0	182.1	465.0	242.5	1,222.0	197.0	126.9
3	1930..	18.8	181.0	381.0	230.0	1,115.8	(?)	75.9
4	1920..				55.5	266.1	148.0	167.0
5 Additional length authorized.....miles.....1940..								
6 Tile drains:								
7 Completed.....miles.....1940..								
8	1930..							
9	1920..							
10 Additional length authorized.....miles.....1940..								
11 Levees and dikes:								
12 Completed.....miles.....1940..	47.0			74.0		198.0		1.0
13	1930..		0.1	45.0		239.9	(?)	1.0
14	1920..							
15 Additional length authorized.....miles.....1940..								
16 Pumping plants:								
17 Engine capacity.....horsepower.....1940..	892					4,752		
18	1930..					3,810	(?)	
19	1920..							
20 Pump capacity.....gal. per min.....1940..	320,000					1,444,600		
21	1930..					1,374,133	(?)	
22	1920..							
23 Land served by pumps.....acres.....1940..	18,178					130,276		
24	1930..					72,204	(?)	
25	1920..							
26 Wells pumped for drainage.....number.....1940..								
27	1930..							
CAPITAL INVESTED								
28 Capital invested to January 1.....dollars.....1940..	1,456,449	328,515	778,298	1,882,337	1,112,501	8,411,817	220,000	810,504
29	1930..	404,086	720,500	1,716,468	1,100,636	10,593,387	(?)	1,380,593
30	1920..				297,276	4,778,218	167,000	325,000
31 Estimated cost when completed.....dollars.....1940..	1,456,449	328,515	778,298	1,882,337	1,112,501	8,411,817	220,000	810,504
32	1930..	434,086	720,500	2,416,468	1,180,636	10,593,387	(?)	1,380,593
33	1920..				412,276	9,703,753	167,000	355,000
34 Average cost per acre when completed.....dollars.....1940..	3.47	2.27	13.82	17.83	13.52	7.45	8.09	9.37
35	1930..	4.34	3.21	13.67	25.23	14.42	(?)	17.94
36	1920..				6.84	21.62	5.08	6.29
37 Invested in and required for completion, 1940:								
38 Enterprises having open ditches only.....dollars..	427,176	328,515	778,298		1,112,501	421,346	220,000	751,004
39 Average amount per acre.....dollars.....	1.15	2.27	13.82		13.52	23.20	8.09	9.51
40 Enterprises having open ditches and levees.....dollars..				1,882,337		2,872,270		59,500
41 Average amount per acre.....dollars.....				17.83		3.13		18.59
42 Enterprises having tile only.....dollars.....								
43 Average amount per acre.....dollars.....								
44 Enterprises having tile and levees.....dollars.....								
45 Average amount per acre.....dollars.....								
46 Enterprises having open ditches and tile.....dollars.....								
47 Average amount per acre.....dollars.....								
48 Enterprises having ditches, tile, and levees.....dollars..								
49 Average amount per acre.....dollars.....								
50 Enterprises operating pumping plants ⁸.....dollars.....	1,029,273					5,118,201		
51 Average amount per acre.....dollars.....	20.65					26.48		
MAINTENANCE AND OPERATION								
52 Cost of maintenance and operation in 1939:								
53 By enterprises operating pumping plants.....dollars..	33,113					⁹ 203,510		
54 Enterprises reporting.....number.....	3					9		
55 Land in these enterprises.....acres.....	49,645					⁹ 230,548		
56 Average cost per acre.....dollars.....	⁽¹⁰⁾ 0.66					⁹ 0.88		
57 By enterprises not operating pumping plants.....dollars..		⁽¹⁰⁾	4,667	⁽¹⁰⁾	5,648	⁽¹⁰⁾	5,680	6,649
58 Enterprises reporting.....number.....	2	1	4	2	17	1	2	5
59 Land in these enterprises.....acres.....	⁽¹⁰⁾	⁽¹⁰⁾	53,416	⁽¹⁰⁾	62,383	⁽¹⁰⁾	27,201	58,683
60 Average cost per acre.....dollars.....	⁽¹⁰⁾	⁽¹⁰⁾	0.09	⁽¹⁰⁾	0.09	⁽¹⁰⁾	0.21	0.11
61 Federal aid in maintenance:								
62 Enterprises reporting.....number.....						1	2	1
63 Land in these enterprises.....acres.....						⁽¹⁰⁾	27,201	⁽¹⁰⁾
FINANCIAL CONDITION								
64 Drainage taxes collected in 1939.....dollars.....	60,727	⁽¹⁰⁾	6,185	⁽¹⁰⁾	7,606	248,199	10,577	5,538
65 Enterprises reporting.....number.....	5	1	5	2	18	9	2	5
66 Land in these enterprises.....acres.....	419,840	⁽¹⁰⁾	56,334	⁽¹⁰⁾	73,903	1,081,144	27,201	71,169
67 Average amount collected per acre.....dollars.....	0.14	⁽¹⁰⁾	0.11	⁽¹⁰⁾	0.10	0.23	0.39	0.08
68 Area delinquent in drainage taxes, Dec. 31, 1939 ¹¹.....acres....	373,297	211,621	41,683	⁽¹⁰⁾	67,762	1,138,848	12,286	40,106
69 Enterprises reporting.....number.....	5	3	5	2	19	11	2	5
70 Land in these enterprises.....acres.....	419,840	144,965	56,334	⁽¹⁰⁾	82,283	1,125,183	27,201	71,169
71 Portion delinquent in these enterprises.....percent.....	88.9	146.0	74.0	⁽¹⁰⁾	82.4	101.2	45.2	56.4
72 Total indebtedness, Dec. 31, 1939.....dollars.....	763,315	558,633	592,361	⁽¹⁰⁾	1,054,576	5,297,581	96,090	415,490
73 Enterprises reporting.....number.....	5	3	5	2	15	11	2	7
74 Land in these enterprises.....acres.....	419,840	144,965	56,334	⁽¹⁰⁾	58,125	1,125,183	27,201	82,133
75 Average indebtedness per acre.....dollars.....	1.82	3.85	10.52	⁽¹⁰⁾	18.14	4.71	3.53	5.06
76 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	⁽¹⁰⁾	530,096	246,425	⁽¹⁰⁾	677,802	2,916,230	54,590	255,673
77 Enterprises reporting.....number.....	2	3	3	1	5	5	1	5
78 Land in these enterprises.....acres.....	⁽¹⁰⁾	144,965	41,916	⁽¹⁰⁾	58,125	942,552	14,014	70,433
79 Average arrearage per acre.....dollars.....	⁽¹⁰⁾	3.66	5.88	⁽¹⁰⁾	11.66	3.09	3.90	3.63
80 Reduction of debt by refinancing, prior to 1940.....dollars..	629,103		331,047	⁽¹⁰⁾		3,272,357	74,000	166,533
81 Enterprises reporting.....number.....	3		3	1		5	1	3
82 Land in these enterprises.....acres.....	49,845		31,198	⁽¹⁰⁾		178,351	13,187	14,080
83 Average reduction per acre.....dollars.....	12.62		10.61	⁽¹⁰⁾		18.35	5.61	11.83

¹ Organized from part of Lee in 1923. ² Organized from part of De Soto in 1921. ³ Organized from part of St. Lucie in 1925. ⁴ Part taken to form Sarasota in 1921. ⁵ Part taken to form part of Martin in 1925. ⁶ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ⁷ Included in "Other counties." ⁸ Data in lines 46 and 47 are not included in lines 34 to 45. ⁹ One enterprise in Dade and Glades Counties included in data for Palm Beach County to avoid disclosure of individual operations. ¹⁰ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnotes 6 and 9. ¹¹ In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE — FLORIDA

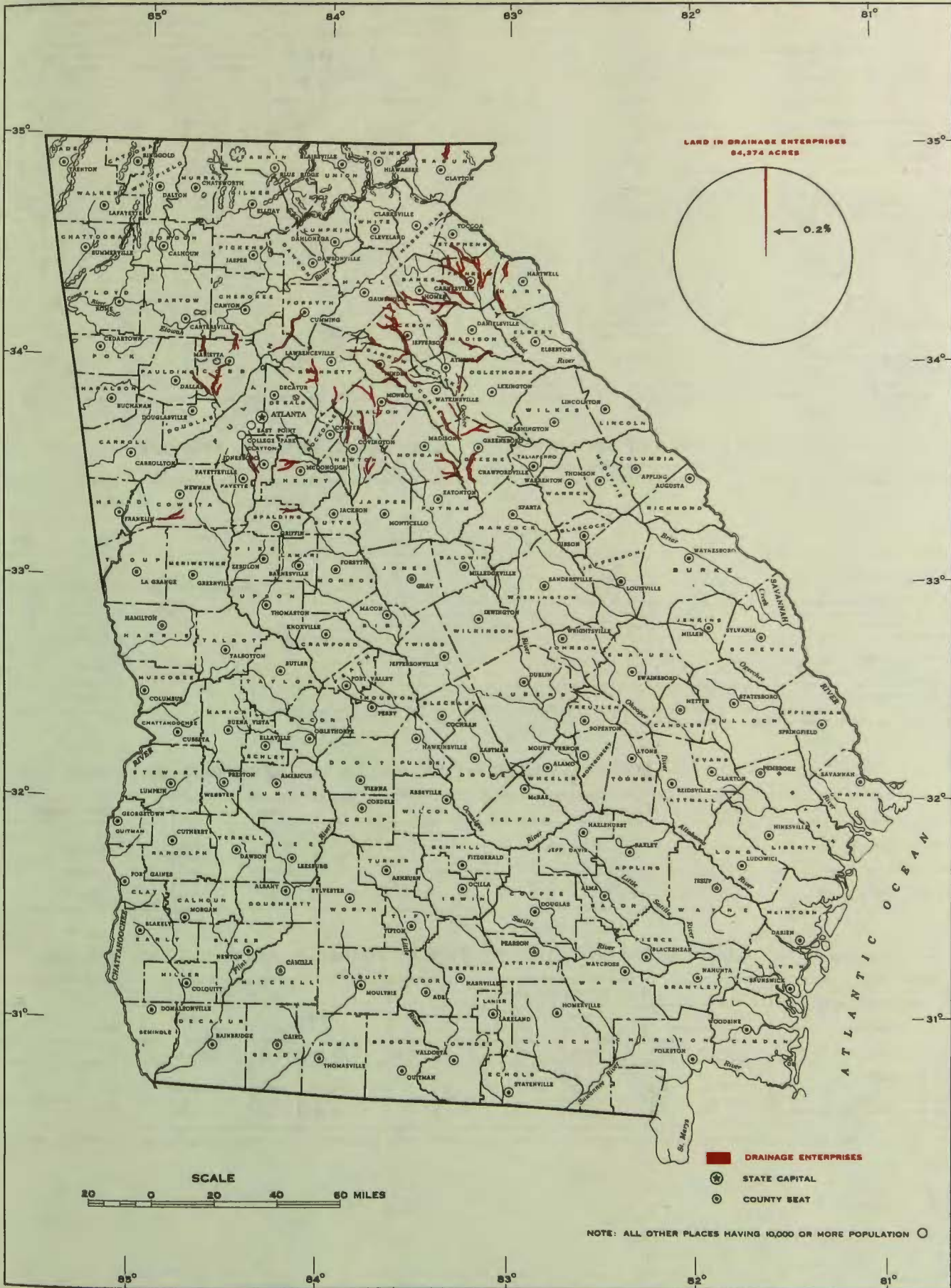
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Putnam	St. Lucie ¹	Sarasota ²	Seminole	Sumter ³	Volusia	Other counties ⁴
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	5	3	4	4	2	5	15
Open ditches:							
2 Completed.....miles.....1940..	87.0	393.1	115.5	51.9	58.5	72.8	325.5
3	1930..	94.8	255.0	133.5	(5)	214.8	734.6
4	1920..	26.5	319.9	.....	(5)	22.2	321.2
5 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
6 Tile drains:							
7 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
8	1930..	.....	.....	.....	(5)	.....	.....
9	1920..	.....	.....	.....	(5)	.....	.....
10 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
11 Levees and dikes:							
12 Completed.....miles.....1940..	.....	45.6	7.0	.....	0.5	.....	8.0
13	1930..	.....	38.2	5.0	(5)	10.8	72.5
14	1920..	.....	23.5	.....	(5)	6.7	17.7
15 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
16 Pumping plants:							
17 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....
18	1930..	.....	.....	.....	(5)	.....	140
19	1920..	.....	.....	.....	(5)	.....	120
20 Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....
21	1930..	.....	.....	.....	(5)	.....	46,666
22	1920..	.....	.....	.....	(5)	.....	39,000
23 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
24	1930..	.....	.....	.....	(5)	.....	3,520
25	1920..	.....	.....	.....	(5)	.....	4,500
26 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....
27	1930..	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED							
28 Capital invested to January 1.....dollars.....1940..	369,174	2,732,447	792,740	163,040	495,500	1,242,911	2,458,180
29	1930..	328,793	2,327,500	762,240	156,000	1,241,100	9,336,700
30	1920..	67,000	2,801,308	.....	52,000	306,370	759,096
31 Estimated cost when completed.....dollars.....1940..	369,174	2,732,447	792,740	163,040	495,500	1,242,911	2,458,180
32	1930..	328,793	2,327,500	787,240	176,000	1,241,100	9,373,730
33	1920..	83,000	4,261,308	.....	52,000	536,310	1,324,096
34 Average cost per acre when completed.....dollars.....1940..	6.44	16.54	17.30	12.41	10.19	16.25	2.74
35	1930..	7.14	13.92	16.09	13.40	15.77	1.57
36	1920..	2.44	36.85	.....	7.46	10.96	0.81
37 Invested in and required for completion, 1940:							
38 Enterprises having open ditches only.....dollars..	369,174	.....	199,102	163,040	45,500	1,242,911	1,997,875
39 Average amount per acre.....dollars..	6.44	.....	9.67	12.41	1.89	16.25	3.73
40 Enterprises having open ditches and levees.....dollars..	.....	2,732,447	593,638	.....	450,000	.....	460,305
41 Average amount per acre.....dollars..	.....	16.54	23.54	.....	18.32	.....	1.28
42 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....
43 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
44 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
46 Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	.....
47 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
48 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
49 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
50 Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....
51 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION							
52 Cost of maintenance and operation in 1939:							
53 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....
54 Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....
55 Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....
56 Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
57 By enterprises not operating pumping plants.....dollars..	4,352	29,636	13,038	(5)	800	5,115	14,875
58 Enterprises reporting.....number..	4	3	4	1	1	3	8
59 Land in these enterprises.....acres..	41,562	165,211	45,810	(5)	24,560	65,561	844,637
60 Average cost per acre.....dollars..	0.10	0.18	0.28	(5)	0.03	0.08	0.02
61 Federal aid in maintenance:							
62 Enterprises reporting.....number..	2	.....	.....	.....	.....	1	3
63 Land in these enterprises.....acres..	(5)	.....	.....	.....	.....	(5)	211,843
FINANCIAL CONDITION							
64 Drainage taxes collected in 1939.....dollars..	5,416	63,127	24,248	(5)	30,159	5,501	10,265
65 Enterprises reporting.....number..	4	3	3	2	2	3	7
66 Land in these enterprises.....acres..	41,562	165,211	45,010	(5)	48,632	72,769	499,037
67 Average amount collected per acre.....dollars..	0.13	0.38	0.54	(5)	0.62	0.08	0.02
68 Area delinquent in drainage taxes, Dec. 31, 1939 ⁷.....acres..	26,833	107,517	36,140	(5)	19,150	61,893	802,611
69 Enterprises reporting.....number..	4	3	4	2	2	4	10
70 Land in these enterprises.....acres..	41,562	165,211	45,810	(5)	48,632	75,290	860,297
71 Portion delinquent in these enterprises.....percent..	64.6	65.1	78.9	(5)	39.4	82.2	93.3
72 Total indebtedness, Dec. 31, 1939.....dollars..	221,201	1,323,659	469,266	63,260	358,080	1,558,468	2,111,839
73 Enterprises reporting.....number..	3	3	3	3	2	4	10
74 Land in these enterprises.....acres..	23,002	165,211	45,010	11,740	48,632	75,290	860,297
75 Average indebtedness per acre.....dollars..	9.62	8.01	10.42	5.39	7.36	20.70	2.45
76 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(5)	(5)	(5)	(5)	251,080	797,941	1,563,625
77 Enterprises reporting.....number..	2	2	1	2	2	4	10
78 Land in these enterprises.....acres..	(5)	(5)	(5)	(5)	48,632	75,290	860,297
79 Average arrearage per acre.....dollars..	(5)	(5)	(5)	(5)	5.16	10.60	1.84
80 Reduction of debt by refinancing, prior to 1940.....dollars..	(5)	(5)	.....	(5)	.....	.....	(5)
81 Enterprises reporting.....number..	1	1	.....	1	.....	.....	1
82 Land in these enterprises.....acres..	(5)	(5)	.....	(5)	.....	.....	(5)
83 Average reduction per acre.....dollars..	(5)	(5)	.....	(5)	.....	.....	(5)

¹Parts taken to form Indian River and part of Martin in 1925. ²Organized from part of Manatee in 1921. ³For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ⁴Includes Charlotte, Collier, Hardee, Lake, Lee, Martin, Monroe, Okeechobee, Orange, and St. Johns Counties in 1940; Alachua, Charlotte, Collier, Duval, Hardee, Lake, Lee, Marion, Martin, Monroe, Nassau, Okeechobee, Orange, Pinellas, St. Johns, and Sumter Counties in 1930; and Bradford, Duval, Lake, Lee, Marion, Nassau, Okeechobee, Orange, St. Johns, Santa Rosa, and Sumter Counties in 1920. ⁵Included in "Other counties." ⁶Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 3. ⁷In some counties there may be duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

GEORGIA

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE - GEORGIA

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	37,451,520	37,584,000	37,584,000				
Land in drainage enterprises.....acres.....	84,374	84,255	65,452	119	0.1	18,803	28.7
Improved.....acres.....	47,727	44,975	29,753	2,752	6.1	15,222	51.2
Unimproved:							
Timber and cut-over.....acres.....	36,247	10,153	10,155	26,094	257.0	-2	
Other.....acres.....	400	29,127	25,544	-28,727	-98.6	3,593	14.0
Drainage sufficient for normal crop.....acres.....	80,514	46,592	(¹)	33,922	72.8		
Partly drained, for partial crop.....acres.....	3,360	13,549	(¹)	-10,189	-75.2		
Unfit to raise any crop for lack of drainage.....acres.....	500	24,114	² 21,951	-23,614	-97.9	2,163	9.9
In occupied farms.....acres.....	83,874	63,865	(¹)	20,009	31.3		
In planted crops.....acres.....	39,420	37,097	(¹)	1,323	3.6		
Idle.....acres.....	45,954	35,040	(¹)	10,314	28.9		
Available for settlement.....acres.....		4,787	(¹)	-4,787	-100.0		
Open ditches, completed.....miles.....	550.3	496.9	276.3	53.4	10.7	220.1	79.5
Tile drains, completed.....miles.....	2.0	40.0		-38.0	-95.0	40.0	
Drainage pumping plants, capacity.....horsepower.....	(³)	60		(³)	(³)	60	
.....gal. per min.....	(³)	4,000		(³)	(³)	4,000	
Capital invested in enterprises.....dollars.....	2,064,840	1,918,525	794,585	146,315	7.6	1,123,940	141.4
Average per acre.....dollars.....	24.47	22.77	12.14	1.70	7.5	10.63	87.6

¹Not available. ²Reported as "Swampy, subject to overflow, seeped, or alkali." ³Where there are less than 3 enterprises reporting, data are not shown.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	LAND IN ENTERPRISES ¹		
	1940	1930	1920
All enterprises.....	Acres 84,374	Acres 84,255	Acres 65,452
Less than 100 acres.....	185	142	488
100 to 199 acres.....	1,133	250	
200 to 499 acres.....	6,601	2,316	2,764
500 to 999 acres.....	22,399	15,704	11,750
1,000 to 1,999 acres.....	15,822		
2,000 to 4,999 acres.....	20,703	40,043	25,205
5,000 to 9,999 acres.....	17,531	15,800	15,245
10,000 acres and over.....		10,000	10,000

¹No overlapping of drainage enterprises indicated in Georgia.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	84,374	100.0	2,064,840	100.0
Drainage districts.....	80,674	95.6	1,949,840	94.4
Individually owned projects.....	3,700	4.4	115,000	5.6

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	84,374	100.0	84,255	100.0	65,452	100.0	2,064,840	100.0	1,918,525	100.0	794,585	100.0
Gravity drainage only by ² —												
Open ditches.....	83,674	99.2	80,555	95.6	65,452	100.0	1,964,840	95.2	1,848,525	96.4	794,585	100.0
Tile drains.....												
Open ditches and tile drains.....	700	0.8	3,700	4.4								

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified. ²Includes 1 enterprise drained partly by pumping.

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	84,374	100.0	84,255	100.0	2,064,840	100.0	1,919,525	100.0	28,195	25,436
Enterprises in arrears.....	52,458	62.2	57,058	67.7	1,328,026	64.3	1,245,795	64.9	28,195	25,486
With some delinquent land.....	52,010	61.7	38,755	46.0	1,303,273	63.1	885,563	46.1	28,195	25,486
With no delinquent land.....	448	0.5	4,139	4.9	24,753	1.2	87,867	5.1		
With no report on delinquency.....			14,164	16.8			262,365	13.7		
Enterprises not in arrears.....	31,916	37.8	27,197	32.3	736,814	35.7	672,730	35.1		
With no delinquent land.....	31,916	37.8	19,248	22.9	736,814	35.7	373,860	19.3		
With no report on delinquency.....			7,949	9.4			301,870	15.8		

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	84,374	2,064,840	410,163	396,963	173,760	28,195	2,950
Enterprises in debt.....	52,458	1,328,026	410,163	396,963	58,000	28,195	1,750
In arrears, amount of arrearage stated.....	51,308	1,289,026	396,963	396,963	58,000	27,270	1,750
Collecting drainage taxes in 1939.....	4,474	119,000	18,000	18,000	50,000	1,320	1,750
No collections reported.....	46,834	1,176,026	378,963	378,963	8,000	25,350	
In arrears, amount not stated.....	1,150	39,000	13,200			925	
No collections reported.....	1,150	39,000	13,200			925	
Enterprises not in debt.....	31,916	736,814			115,760		1,200
Collecting drainage taxes in 1939.....	2,637	100,900			24,960		1,200
No collections reported.....	29,279	636,814			90,800		

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	84,374	100.0	2,064,840	100.0
Improvement of land already in farms.....	83,970	99.5	2,047,840	99.2
Reclamation of swamp land not previously in farms.....	404	0.5	17,000	0.8

¹It is probable that, when the enterprises were organized, a considerable portion of this acreage was swamp land not previously farmed although forming parts of large plantations.

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land in enterprises		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	84,374	100.0	2,064,840	100.0
1890-1899.....	3,000	3.6	15,000	0.7
1910-1914.....	12,662	15.0	142,061	6.9
1915-1919.....	63,257	75.0	1,692,920	82.0
1920-1924.....	4,755	5.6	114,859	5.6
1925-1929.....	700	0.8	100,000	4.8

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	All land in enterprises	DRAINAGE CONDITION			DEVELOPMENT				USE OF LAND					
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres
All enterprises..	84,374	80,514	95.4	3,360	500	47,727	56.6	36,247	400	83,874	99.4	38,420	45,954	
1890-1899.....	3,000	3,000	100.0			2,000	66.7	1,000		3,000	100.0	2,000	1,000	
1910-1914.....	12,662	12,662	100.0			8,100	64.0	4,562		12,662	100.0	6,050	6,612	
1915-1919.....	63,257	59,897	94.7	3,360		34,927	55.2	28,330		63,257	100.0	28,220	35,037	
1920-1924.....	4,755	4,755	100.0			2,500	52.6	2,255		4,755	100.0	1,950	2,805	
1925-1929.....	700	200	28.6		500	200	28.6	100	400	200	28.6	200	500	

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STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 84,374	Acres 84,374	Acres 700	Acres 83,674	Dollars 600	Dollars 0.01	Dollars 0.86
Gravity drainage only ¹	84,374	84,374	700	83,674	600	0.86	0.86
Open ditches only.....	83,674	83,674	.....	83,674	.....	.....	.....
Open ditches, tile drains, and levees.....	700	700	700	.....	600	0.86	0.86

¹ Includes 1 enterprise drained partly by pumping.

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	84,374	100.0	2,064,840	100.0
Method:				
Work apportioned to landowners.....	700	0.8	100,000	4.8
"None," or not reporting.....	83,674	99.2	1,964,840	95.2
Whether systematic:				
Reporting "yes".....	700	0.8	100,000	4.8
Reporting "no".....	83,674	99.2	1,964,840	95.2

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	Acres 12,106	Dollars 244,174	Miles 50.0	Miles 2.0	Miles 5.0
Work Projects Administration.....	11,406	144,174	38.0
Civilian Conservation Corps.....	700	100,000	12.0	2.0	5.0

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COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Lanks	Larrow	Cobb	Franklin	Greene	
LAND AREA							
1	Approximate land area.....acres....1940..	37,451,520	147,840	109,440	222,720	172,160	258,530
2	Drainage enterprises.....number....1940..	178	6	6	5	5	3
3	Land in enterprises.....acres....1940..	84,374	3,738	3,088	5,104	23,619	2,826
4	.....1930..	84,255	3,915	4,100	2,910	25,965	2,390
5	.....1920..	65,452	5,097	3,274	2,502	21,055	.....
6	Area of all enterprises, overlapping included.....acres....1940..	84,374	3,738	3,088	5,104	23,619	2,826
7	Amount of overlapping.....acres....1940..	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	80,514	3,738	2,618	4,102	23,619	2,826
9	.....1930..	45,532	3,815	1,140	1,633	16,015	1,050
10	Increase or decrease (-), 1930-1940.....acres.....	33,982	-77	1,478	2,439	7,604	1,776
11	.....percent.....	72.8	-2.0	129.6	151.2	47.5	169.1
12	Land undrained, unfit for any crop.....acres....1940..	500	.....	.....	.....	.....	.....
13	.....1930..	24,114	100	2,550	500	6,385	1,270
14	Increase or decrease (-), 1930-1940.....acres.....	-23,614	-100	-2,550	-500	-6,385	-1,250
15	.....percent.....	-97.9	-100.0	-100.0	-100.0	-100.0	-100.0
16	Land partly drained, for partial crop.....acres....1940..	3,360	.....	470	1,002	.....	.....
17	.....1930..	13,549	.....	470	777	3,565	390
18	Increase or decrease (-), 1930-1940.....acres.....	-10,189	.....	.....	225	-3,565	-390
19	.....percent.....	-75.2	.....	.....	29.0	-100.0	-100.0
20	Improved land.....acres....1940..	47,727	2,065	1,830	3,050	13,260	1,550
21	.....1930..	44,975	2,500	1,490	1,653	12,715	910
22	.....1920..	29,753	2,419	889	1,500	5,548	.....
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	36,247	1,673	1,258	2,054	10,359	1,275
24	.....1930..	10,153	600	.....	730	1,755	80
25	.....1920..	10,155	1,077	433	250	3,797	.....
26	Other unimproved land.....acres....1940..	400	.....	.....	.....	.....	.....
27	.....1930..	29,127	815	2,670	527	11,495	1,700
28	.....1920..	25,544	1,601	1,952	752	11,710	.....
29	Land in occupied farms.....acres....1940..	83,874	3,738	3,088	5,104	23,619	2,826
30	.....1930..	63,865	3,915	4,160	1,813	17,015	2,100
31	Increase or decrease (-), 1930-1940.....acres.....	20,009	-177	-1,072	3,291	6,604	725
32	.....percent.....	31.3	-4.5	-25.8	181.5	38.8	34.6
33	Land in planted crops.....acres....1940..	38,420	1,555	1,325	2,525	10,450	1,250
34	.....1930..	37,097	2,500	865	1,440	11,275	840
35	Increase or decrease (-), 1930-1940.....acres.....	1,323	-945	400	1,085	-825	410
36	.....percent.....	3.6	-37.8	53.2	75.3	-7.3	48.8
37	Land idle.....acres....1940..	45,954	2,183	1,763	2,579	13,169	1,575
38	.....1930..	35,640	865	2,972	890	10,890	1,385
39	Increase or decrease (-), 1930-1940.....acres.....	10,314	1,318	-1,209	1,689	2,279	-109
40	.....percent.....	28.9	152.4	-40.7	193.1	20.9	-6.5
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....
42	.....1930..	4,787	.....	.....	497	805	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-4,787	.....	.....	-497	-805	.....
44	.....percent.....	-100.0	.....	.....	-100.0	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	83,674	3,738	3,088	5,104	23,619	2,826
46	Length of these ditches.....miles.....	538.3	26.5	35.5	47.0	71.7	33.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	(2)	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	(2)	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	(2)	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	(2)	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 52.

²Where there are less than 3 enterprises reporting, data are not shown.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Gwinnett	Hall	Jackson	Newton	Oconee	Walton	Other counties ¹
LAND AREA								
1	Approximate land area.....acres....1940..	279,680	272,640	215,680	174,720	119,040	211,200	3,898,880
2	Drainage enterprises.....number....1940..	4	3	8	4	4	5	24
3	Land in enterprises.....acres....1940..	3,022	891	6,319	2,392	2,121	4,359	26,895
4	.....1930..	(²)	6,000	3,700	1,869	1,904	5,653	25,489
5	.....1920..	2,692	.....	4,681	(²)	2,750	3,292	20,169
6	Area of all enterprises, overlapping included.....acres....1940..	3,022	891	6,319	2,392	2,121	4,359	26,895
7	Amount of overlapping.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	3,022	891	5,194	2,392	2,121	3,696	26,295
9	.....1930..	(²)	1,000	2,000	455	150	875	18,459
10	Increase or decrease (-), 1930-1940.....acres.....	.....	-109	3,194	1,937	1,971	2,821	7,836
11	.....percent.....	.....	-10.9	159.7	425.7	(³)	322.4	42.4
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	.....	.....	.....	.....	500
13	.....1930..	(²)	.....	1,700	1,175	1,650	4,200	4,504
14	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-1,700	-1,175	-1,650	-4,200	-4,104
15	.....percent.....	.....	.....	-100.0	-100.0	-100.0	-100.0	-89.1
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	1,125	.....	.....	663	100
17	.....1930..	.....	5,000	.....	239	104	578	2,426
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-5,000	1,125	-239	-104	85	-2,326
19	.....percent.....	.....	-100.0	.....	-100.0	-100.0	14.7	-95.9
20	Improved land.....acres....1940..	1,895	630	4,125	1,350	1,350	2,413	14,209
21	.....1930..	(²)	6,000	1,300	440	174	1,250	16,543
22	.....1920..	1,661	.....	1,442	(²)	1,385	2,305	12,604
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	1,127	261	2,194	1,042	771	1,946	12,285
24	.....1930..	(²)	.....	1,700	.....	19	.....	5,269
25	.....1920..	113	.....	2,305	(²)	523	306	1,351
26	Other unimproved land.....acres....1940..	.....	.....	.....	.....	.....	.....	400
27	.....1930..	(²)	.....	700	1,429	1,711	4,403	3,677
28	.....1920..	918	.....	934	(²)	842	621	6,214
29	Land in occupied farms.....acres....1940..	3,022	891	3,319	2,392	2,121	4,359	26,395
30	.....1930..	(²)	6,000	1,300	1,869	1,811	5,253	18,629
31	Increase or decrease (-), 1930-1940.....acres.....	.....	-5,109	5,019	523	310	-894	7,766
32	.....percent.....	.....	-85.1	386.1	28.0	17.1	-17.0	41.7
33	Land in planted crops.....acres....1940..	1,570	560	3,180	1,150	1,080	2,000	11,775
34	.....1930..	(²)	5,300	1,000	360	120	830	12,247
35	Increase or decrease (-), 1930-1940.....acres.....	.....	-5,040	2,180	770	960	1,170	-472
36	.....percent.....	.....	-90.0	218.0	202.6	800.0	141.0	-3.8
37	Land idle.....acres....1940..	1,452	331	3,139	1,242	1,041	2,359	15,120
38	.....1930..	(²)	.....	2,500	1,489	1,650	4,580	8,129
39	Increase or decrease (-), 1930-1940.....acres.....	.....	331	639	-247	-609	-2,221	6,991
40	.....percent.....	.....	.....	25.6	-16.6	-36.9	-48.5	86.0
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	800	.....	.....	.....	2,685
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-800	.....	.....	.....	-2,685
44	.....percent.....	.....	.....	-100.0	.....	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	3,022	891	6,319	2,392	2,121	4,359	26,195
46	Length of these ditches.....miles.....	30.2	7.1	47.8	25.5	23.2	35.9	154.9
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	(⁴)
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	(⁴)
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	(⁴)
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	(⁴)
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	(⁴)

¹ Includes Bartow, Cherokee, Clarke, Clayton, Coweta, Fayette, Forsyth, Fulton, Hart, Henry, McIntosh, Madison, Morgan, Oglethorpe, Paulding, Putnam, Rabun, Spalding, and Stephens Counties in 1940; Bartow, Clarke, Clayton, Fayette, Forsyth, Gwinnett, Hart, Henry, McIntosh, Madison, Milton, Morgan, Oglethorpe, Paulding, Putnam, Rabun, Spalding, Stephens, and Wilkes Counties in 1930; and Bartow, Clarke, Clayton, Fayette, Hart, Madison, Oglethorpe, Paulding, Rabun, and Stephens Counties in 1920.
² Included in "Other counties."
³ Percent not shown when more than 1,000.
⁴ Where there are less than 3 enterprises reporting, data are not shown.

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Banks	Barrow	Cobb	Franklin	Greene
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	178	6	6	5	6	3
Open ditches:						
2 Completed.....miles.....1940..	550.3	26.5	35.5	47.0	71.7	33.0
3	496.9	27.5	35.5	24.7	69.2	30.0
4	276.8	28.5	15.9	16.3	54.5	
5 Additional length authorized.....miles.....1940..						
Tile drains:						
6 Completed.....miles.....1940..	2.0					
7	40.0					
8						
9 Additional length authorized.....miles.....1940..						
Levees and dikes:						
10 Completed.....miles.....1940..	5.0					
11						
12						
13 Additional length authorized.....miles.....1940..						
Pumping plants:						
14 Engine capacity.....horsepower.....1940..	(²)					
15	60					
16						
17 Pump capacity.....gal. per min.....1940..	(²)					
18	4,000					
19						
20 Land served by pumps.....acres.....1940..	(²)					
21	200					
22						
23 Wells pumped for drainage.....number.....1940..						
24						
CAPITAL INVESTED						
25 Capital invested to January 1.....dollars.....1940..	2,064,840	97,583	112,820	151,100	321,408	111,060
26	1,918,525	111,509	99,644	86,614	328,500	87,365
27	794,585	100,500	52,570	53,000	182,857	
28 Estimated cost when completed.....dollars.....1940..	2,064,840	97,583	112,820	151,100	321,408	111,060
29	1,918,525	111,509	99,644	86,614	328,500	87,365
30	1,098,239	100,500	94,558	73,000	308,574	
31 Average cost per acre when completed.....dollars.....1940..	24.47	26.10	36.53	29.60	13.61	39.30
32	22.77	28.48	23.95	29.76	12.65	32.48
33	16.78	19.72	28.88	29.18	14.66	
Invested in and required for completion, 1940:						
34 Enterprises having open ditches only.....dollars..	1,964,840	97,583	112,820	151,100	321,408	111,060
35 Average amount per acre.....dollars.....	23.48	26.10	36.53	29.60	13.61	39.30
36 Enterprises having open ditches and levees.....dollars..						
37 Average amount per acre.....dollars.....						
38 Enterprises having tile only.....dollars..						
39 Average amount per acre.....dollars.....						
40 Enterprises having tile and levees.....dollars..						
41 Average amount per acre.....dollars.....						
42 Enterprises having open ditches and tile.....dollars..						
43 Average amount per acre.....dollars.....						
44 Enterprises having ditches, tile, and levees.....dollars..						
45 Average amount per acre.....dollars.....						
46 Enterprises operating pumping plants.....dollars..	(²)					
47 Average amount per acre.....dollars.....	(²)					
MAINTENANCE AND OPERATION						
Cost of maintenance and operation in 1939:						
48 By enterprises operating pumping plants.....dollars..	(²)					
49 Enterprises reporting.....number.....	1					
50 Land in these enterprises.....acres.....	(²)					
51 Average cost per acre.....dollars.....	(²)					
52 By enterprises not operating pumping plants.....dollars..						
53 Enterprises reporting.....number.....						
54 Land in these enterprises.....acres.....						
55 Average cost per acre.....dollars.....						
Federal aid in maintenance:						
56 Enterprises reporting.....number.....	5			(²) 1	(²) 1	
57 Land in these enterprises.....acres.....	12,106					
FINANCIAL CONDITION						
58 Drainage taxes collected in 1939.....dollars..	2,950					(⁴)
59 Enterprises reporting.....number.....	5					1
60 Land in these enterprises.....acres.....	7,111					(⁴)
61 Average amount collected per acre.....dollars..	0.41					(⁴)
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	28,195	2,410	(³)	3,825	6,440	(³)
63 Enterprises reporting.....number.....	52	6	2	5	4	2
64 Land in these enterprises.....acres.....	52,010	3,738	(³)	5,104	14,067	(³)
65 Portion delinquent in these enterprises.....percent..	54.2	64.5	(³)	74.9	45.8	(³)
66 Total indebtedness, Dec. 31, 1939.....dollars..	410,163	27,300	(³)	53,700	68,100	(³)
67 Enterprises reporting.....number.....	53	6	2	5	4	2
68 Land in these enterprises.....acres.....	52,458	3,738	(³)	5,104	14,067	(³)
69 Average indebtedness per acre.....dollars.....	7.82	7.30	(³)	10.52	4.84	(³)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	396,963	27,300	(³)	44,700	68,100	(³)
71 Enterprises reporting.....number.....	51	6	2	4	4	2
72 Land in these enterprises.....acres.....	52,458	3,738	(³)	5,104	14,067	(³)
73 Average arrearage per acre.....dollars.....	7.56	7.30	(³)	8.76	4.84	(³)
74 Reduction of debt by refinancing, prior to 1940.....dollars..	173,760					(³)
75 Enterprises reporting.....number.....	11					2
76 Land in these enterprises.....acres.....	13,923					(³)
77 Average reduction per acre.....dollars.....	12.48					(³)

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 52.

²Where there are less than 3 enterprises reporting in the State, data are not shown.

³Where there are less than 3 enterprises reporting, data are included only in State totals.

⁴Included in "Other counties."

CENSUS OF DRAINAGE — GEORGIA

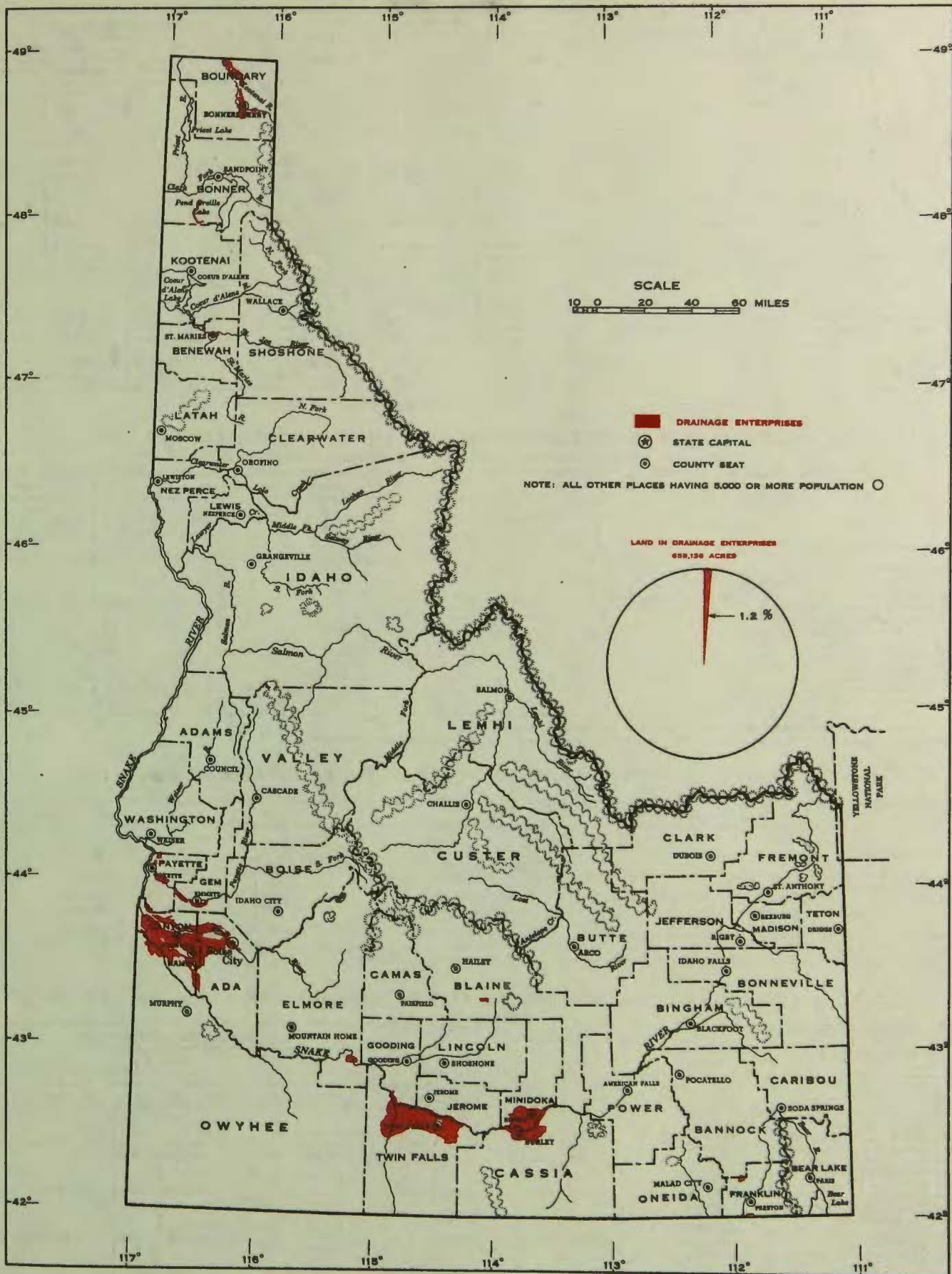
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Gwinnett	Hall	Jackson	Newton	Oconee	Walton	Other counties ¹
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	4	3	8	4	4	5	24
2 Open ditches:							
3 Completed.....miles.....1940..	30.2	7.1	47.8	25.5	23.2	35.9	166.9
4 1930..	(²)	2.0	19.7	21.7	20.1	56.3	190.2
5 1920..	23.1		19.8	(²)	20.9	34.5	63.3
6 Additional length authorized.....miles.....1940..							
7 Tile drains:							
8 Completed.....miles.....1940..	(²)						2.0
9 1930..							40.0
10 1920..							
11 Additional length authorized.....miles.....1940..							
12 Levees and dikes:							
13 Completed.....miles.....1940..							5.0
14 1930..							
15 1920..							
16 Additional length authorized.....miles.....1940..							
17 Pumping plants:							
18 Engine capacity.....horsepower.....1940..							(³)
19 1930..	(²)						60
20 1920..							
21 Pump capacity.....gal. per min.....1940..							(³)
22 1930..	(²)						4,000
23 1920..							
24 Land served by pumps.....acres.....1940..	(²)						(³)
25 1930..							200
26 1920..							
27 Wells pumped for drainage.....number.....1940..							
28 1930..							
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	64,307	28,400	236,468	101,572	49,381	108,104	682,037
26 1930..	(²)	50,000	150,644	83,122	52,690	225,121	643,316
27 1920..	42,000		78,179	(²)	48,258	68,500	168,721
28 Estimated cost when completed.....dollars.....1940..	64,907	28,400	236,468	101,572	49,381	108,104	682,037
29 1930..	(²)	50,000	150,644	83,122	52,690	225,121	643,316
30 1920..	53,000		152,581	(²)	48,258	68,500	199,268
31 Average cost per acre when completed.....dollars.....1940..	21.48	31.87	37.42	42.46	23.28	24.80	25.36
32 1930..	(²)	8.33	40.71	44.47	27.67	39.82	25.24
33 1920..	19.69		32.60	(²)	17.55	21.19	9.88
34 Invested in and required for completion, 1940:							
35 Enterprises having open ditches only.....dollars..	64,907	28,400	236,468	101,572	49,381	108,104	582,037
36 Average amount per acre.....dollars..	21.48	31.87	37.42	42.46	23.28	24.80	22.22
37 Enterprises having open ditches and levees.....dollars..							
38 Average amount per acre.....dollars..							
39 Enterprises having tile only.....dollars..							
40 Average amount per acre.....dollars..							
41 Enterprises having tile and levees.....dollars..							
42 Average amount per acre.....dollars..							
43 Enterprises having open ditches and tile.....dollars..							
44 Average amount per acre.....dollars..							
45 Enterprises having ditches, tile, and levees.....dollars..							
46 Average amount per acre.....dollars..							
47 Enterprises operating pumping plants.....dollars..							(³)
Average amount per acre.....dollars..							(³)
MAINTENANCE AND OPERATION							
48 Cost of maintenance and operation in 1939:							
49 By enterprises operating pumping plants.....dollars..							(³)
50 Enterprises reporting.....number.....							1
51 Land in these enterprises.....acres.....							(³)
52 Average cost per acre.....dollars.....							(³)
53 By enterprises not operating pumping plants.....dollars..							
54 Enterprises reporting.....number.....							
55 Land in these enterprises.....acres.....							
56 Average cost per acre.....dollars.....							
57 Federal aid in maintenance:							
Enterprises reporting.....number.....						1	2
Land in these enterprises.....acres.....						(⁴)	(⁴)
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..							⁵ 2,950
59 Enterprises reporting.....number.....							4
60 Land in these enterprises.....acres.....							⁵ 7,111
61 Average amount collected per acre.....dollars..							⁵ 0.41
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	1,110	590	3,620	1,000	(⁴)	(⁴)	6,285
63 Enterprises reporting.....number.....	3	3	7	3	2	2	13
64 Land in these enterprises.....acres.....	2,310	891	5,919	1,944	(⁴)	(⁴)	12,617
65 Portion delinquent in these enterprises.....percent..	48.0	66.2	61.2	51.4	(⁴)	(⁴)	49.8
66 Total indebtedness, Dec. 31, 1939.....dollars..	14,700	8,900	50,280	25,000	(⁴)	(⁴)	114,573
67 Enterprises reporting.....number.....	3	3	7	4	2	2	13
68 Land in these enterprises.....acres.....	2,310	891	5,919	2,392	(⁴)	(⁴)	12,617
69 Average indebtedness per acre.....dollars..	6.36	9.87	8.50	10.70	(⁴)	(⁴)	9.08
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	14,700	8,900	50,280	25,600	(⁴)	(⁴)	110,373
71 Enterprises reporting.....number.....	3	3	7	4	2	2	12
72 Land in these enterprises.....acres.....	2,310	891	5,919	2,392	(⁴)	(⁴)	12,617
73 Average arrearage per acre.....dollars..	6.36	9.87	8.50	10.70	(⁴)	(⁴)	8.75
74 Reduction of debt by refinancing, prior to 1940.....dollars..				(⁴)			118,460
75 Enterprises reporting.....number.....				1			8
76 Land in these enterprises.....acres.....				(⁴)			10,981
77 Average reduction per acre.....dollars..				(⁴)			10.79

¹Includes Bartow, Cherokee, Clarke, Clayton, Coweta, Fayette, Forsyth, Fulton, Hart, Henry, McIntosh, Madison, Morgan, Oglethorpe, Paulding, Putnam, Rabun, Spalding, and Stephens Counties in 1940; Bartow, Clarke, Clayton, Fayette, Forsyth, Gwinnett, Hart, Henry, McIntosh, Madison, Milton, Morgan, Oglethorpe, Paulding, Putnam, Rabun, Spalding, Stephens, and Wilkes Counties in 1930; and Bartow, Clarke, Clayton, Fayette, Hart, Madison, Oglethorpe, Paulding, Rabun, and Stephens Counties in 1920. ²Included in "Other counties." ³Where there are less than 3 enterprises reporting in the State, data are not shown. ⁴Where there are less than 3 enterprises reporting, data are included only in State totals. ⁵Includes data for Greene County with others named in footnote 1.

IDAHO

LOCATION OF LAND IN DRAINAGE ENTERPRISES



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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY				Land served	KIND OF POWER	Enter-prises	CAPACITY				Land served
		Engine or motor		Pump	Acres				Engine or motor		Pump	Acres	
		Number	Hp.	Percent					G. p. m.	Number	Hp.			Percent	G. p. m.
All pumping enterprises.....	1940..	26	2,292	100.0	211,850	53,938	Internal combustion.....	1940..	10	655	28.6	76,400.	20,967
	1930..	23	1,435	100.0	171,675	40,434		1930..	8	345	24.1	42,600	21,557
	1920..	4	285	100.0	36,200	7,912	Steam and internal combustion..	1940..	1	100	4.4	9,500	1,179
Steam.....	1940..	2	115	8.0	15,000	1,580	Electric and internal combustion.....	1940..	1	45	3.1	6,000	2,300
	1930..	1	25	8.8	3,000	900		1930..					
Electric.....	1940..	15	1,537	67.0	125,950	31,792							
	1930..	12	930	64.8	108,075	14,997							
	1920..	3	260	91.2	33,200	7,012							

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	PUMPS				Engine or motor capacity	Land served	
	Number	Capacity		Hp.			Acres
		G. p. m.	Percent				
All pumping enterprises.....	1940..	73	211,850	100.0	2,292	53,938	
	1930..	37	171,675	100.0	1,435	40,434	
Centrifugal.....	1940..	19	91,800	43.3	7,675	16,642	
	1930..	36	169,875	99.0	1,405	40,114	
Rotary.....	1940..	2	14,900	7.0	100	4,375	
	1930..						
Screw.....	1940..	1	4,500	2.1	60	5,361	
	1930..						
Turbine.....	1940..	45	72,540	34.3	1,140	21,162	
	1930..	1	1,800	1.0	30	320	
Centrifugal and—							
Rotary.....	1940..	2	11,500	5.4	60	1,589	
	1930..						
Turbine.....	1940..	4	16,610	7.9	165	4,309	
	1930..						

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	659,136	100.0	375,464	100.0	7,567,032	100.0	5,112,444	100.0	32,342	12,027
Enterprises in arrears.....	47,405	7.2	10,721	2.9	1,401,289	18.5	351,099	6.9	13,498	3,923
With some delinquent land.....	43,203	6.6	10,021	2.7	1,311,289	17.3	308,099	6.0	13,498	3,923
With no delinquent land.....			700	0.2			43,000	0.9		
With no report on delinquency.....	4,202	0.6			90,000	1.2				
Enterprises not in arrears.....	606,370	92.0	364,743	97.1	5,833,743	77.1	4,761,345	93.1	16,644	8,104
With some delinquent land.....	45,878	7.0	161,814	43.1	1,101,441	14.6	1,666,413	32.6	16,644	8,104
With no delinquent land.....	505,091	76.6	186,279	49.6	3,924,102	51.8	2,953,932	57.9		
With no report on delinquency.....	55,401	8.4	16,650	4.4	808,200	10.7	141,000	2.7		
Enterprises not reporting on arrearage—with some delinquent land.....	5,361	0.8			332,000	4.4			2,200	

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	659,136	7,567,032	1,905,858	493,335	1,166,985	32,342	219,809
Enterprises in debt.....	258,013	4,429,968	1,905,858	493,335	906,985	31,103	185,468
In arrears, amount of arrearage stated.....	47,405	1,401,289	823,710	493,335	250,099	13,498	95,092
Collecting drainage taxes in 1939.....	49,945	1,271,905	742,710	412,335	250,099	10,023	95,092
No collections reported.....	4,460	129,384	81,000	81,000		3,475	
Not in arrears.....	205,247	2,696,679	960,984		446,050	15,405	85,471
Collecting drainage taxes in 1939.....	136,257	1,780,777	651,271		405,550	15,405	85,471
No collections reported.....	68,990	915,902	309,713		40,500		
Not reporting as to arrears.....	5,361	332,000	121,164		210,836	2,200	4,905
Collecting drainage taxes in 1939.....	5,361	332,000	121,164		210,836	2,200	4,905
Enterprises not in debt.....	343,299	2,369,254			120,000	1,239	29,930
Collecting drainage taxes in 1939.....	212,305	649,323			15,000	1,119	29,930
No collections reported.....	130,994	1,719,931			105,000	120	
Enterprises not reporting as to debt.....	57,824	767,810			140,000		4,411
Collecting drainage taxes in 1939.....	57,824	767,810			140,000		4,411

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	659,136	100.0	7,567,032	100.0	Protection against overflow.....	8,138	1.2	368,800	4.9
Improvement of land already in farms....	59,309	8.9	799,072	10.5	Removal of alkali or seepage from irrigation.....	564,738	85.7	4,659,523	61.6
Reclamation of swamp land not previously in farms.....	27,952	4.2	1,739,637	23.0					

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	659,136	100.0	674,532	15,396	7,567,032	100.0
1900-1904.....	96,959	14.7	99,434	2,475	949,265	12.5
1905-1909.....	29,264	4.4	29,264	.....	237,309	3.1
1910-1914.....	123,387	18.7	123,387	.....	1,263,853	16.7
1915-1919.....	250,222	38.0	254,707	4,485	1,594,914	21.1
1920-1924.....	27,529	4.2	29,033	1,504	1,030,937	13.6
1925-1929.....	103,110	15.6	110,042	6,932	1,804,674	23.9
1930-1934.....	16,508	2.5	16,508	.....	469,203	6.2
1935-1939.....	12,157	1.9	12,157	.....	217,483	2.9

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other un-improved land	In occupied farms	In planted crops	Idle	Land available for settlement			
All enterprises..	Acres 659,136	Acres 605,378	Per-cent 91.8	Acres 34,801	Acres 18,957	Acres 628,012	Per-cent 95.3	Acres 1,808	Acres 29,316	Acres 650,135	Per-cent 98.6	Acres 601,967	Acres 34,605	Acres 4,271
1900-1904.....	96,959	93,461	96.4	3,078	420	95,889	98.9	.....	1,070	95,889	98.9	88,212	650	.....
1905-1909.....	29,264	28,824	98.5	270	170	22,222	75.9	.....	7,042	26,392	90.2	21,059	7,042	4,000
1910-1914.....	123,387	120,051	97.3	1,502	1,834	122,387	99.2	.....	1,000	122,387	99.2	120,873	894	271
1915-1919.....	250,222	232,591	93.0	4,497	13,134	236,941	94.7	.....	13,281	248,558	99.3	230,131	13,282	.....
1920-1924.....	27,529	24,632	89.5	352	2,545	24,103	87.6	265	3,160	25,144	91.3	22,634	3,870	.....
1925-1929.....	103,110	78,064	75.7	24,192	854	101,924	98.8	722	464	103,100	99.9	95,509	4,411	.....
1930-1934.....	16,508	16,358	99.1	150	.....	15,758	95.4	450	300	16,508	100.0	14,761	1,147	.....
1935-1939.....	12,157	11,397	93.7	760	.....	8,788	72.3	370	2,999	12,157	100.0	8,788	3,369	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 659,136	Acres 627,611	Acres 558,226	Acres 69,385	Dollars 86,153	Dollars 0.14	Dollars 0.15
Gravity drainage only.....	272,765	272,765	207,832	64,933	22,070	0.08	0.11
Open ditches only.....	197,992	197,992	172,583	25,409	15,434	0.08	0.09
Open ditches and levees.....	2,600	2,600	.....	2,600	.....	.....	.....
Tile drains only.....	229	229	.....	229	.....	.....	.....
Open ditches and tile drains.....	71,944	71,944	35,249	36,695	6,636	0.09	0.19
Pumping for all or part of drainage.....	386,371	354,846	350,394	4,452	64,083	0.18	0.18
All drainage by pumping.....	31,468	31,468	27,016	4,452	17,871	0.57	0.66
Part pumping and part gravity.....	354,903	323,378	323,378	46,212	0.14	0.14

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	659,136	100.0	7,567,032	100.0
Method:				
By district forces.....	642,996	97.6	7,229,267	95.5
By contract.....	640	0.1	21,000	0.3
Work apportioned to landowners.....	2,035	0.3	102,252	1.4
"None," or not reporting.....	13,465	2.0	214,483	2.8
Whether systematic:				
Reporting "yes".....	623,188	94.6	7,146,465	94.5
Reporting "no".....	31,172	4.7	341,967	4.5
Not reporting.....	4,776	0.7	79,600	1.0

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises..... acres.....	659,136	503,461	76.4
Capital invested..... dollars..	7,567,032	5,021,034	66.4
Drainage works:			
Open ditches..... miles....	968.1	605.5	62.5
Tile drains..... miles....	174.6	124.5	71.3
Levees..... miles....	95.4	45.0	47.2

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	248,774	4,305,439	529.5	6.2	57.4
Work Projects Administration.....	241,699	3,323,139	507.2	6.2	35.1
Other.....	7,075	482,300	22.3	22.3

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Ada	Benewah	Blaine ¹	Boundary	Canyon
LAND AREA						
1 Approximate land area.....acres....1940..	52,997,120	729,600	506,240	1,695,360	816,000	371,200
2 Drainage enterprises.....number....1940..	57	5	5	1	15	10
3 Land in enterprises.....acres....1940..	659,136	59,351	2,656	2,500	31,934	181,396
4	1930..	375,464	56,223	(3)	31,137	106,256
5	1920..	64,642	5,800	1,912	.....	12,200
6 Area of all enterprises, overlapping included.....acres....1940..	674,532	59,351	2,656	2,500	31,934	194,116
7 Amount of overlapping.....acres....1940..	15,396	.....	.....	.....	.....	12,720
CONDITION AND USE OF LAND						
8 Land with drainage sufficient for normal crop.....acres....1940..	605,378	58,137	2,651	2,500	30,932	152,625
9	1930..	333,204	52,223	(3)	26,411	93,671
10 Increase or decrease (-), 1930-1940.....acres.....	272,174	5,964	25	.....	4,521	58,954
11	percent.....	81.7	11.4	1.0	17.1	63.0
12 Land undrained, unfit for any crop.....acres....1940..	18,957	180	5	.....	419	1,347
13	1930..	13,670	3,800	171	4,526	3,423
14 Increase or decrease (-), 1930-1940.....acres.....	5,287	-3,620	-166	.....	-4,107	-2,076
15	percent.....	38.7	-95.3	-97.1	-90.7	-60.6
16 Land partly drained, for partial crop.....acres....1940..	34,801	984	.....	.....	583	27,424
17	1930..	23,590	200	(3)	200	9,162
18 Increase or decrease (-), 1930-1940.....acres.....	6,211	784	.....	.....	383	18,262
19	percent.....	21.7	392.0	.....	192.0	199.3
20 Improved land.....acres....1940..	628,012	58,356	2,641	2,500	29,517	176,743
21	1930..	354,575	52,208	(3)	22,280	103,393
22	1920..	52,098	5,655	1,075	.....	12,165
Unimproved land:						
23 Woodland and cut-over land.....acres....1940..	1,808	.....	10	.....	1,798	.....
24	1930..	637	.....	32	605	.....
25	1920..	87	.....	87	.....	.....
26 Other unimproved land.....acres....1940..	29,316	995	5	.....	619	4,653
27	1930..	20,252	4,015	153	(3)	2,863
28	1920..	12,457	145	750	.....	35
29 Land in occupied farms.....acres....1940..	650,135	58,871	2,656	2,500	31,924	180,142
30	1930..	362,303	52,723	2,562	(3)	27,577
31 Increase or decrease (-), 1930-1940.....acres.....	287,832	6,148	94	.....	4,347	78,526
32	percent.....	79.4	11.7	3.7	15.8	77.3
33 Land in planted crops.....acres....1940..	601,967	55,777	2,131	2,500	23,457	166,052
34	1930..	334,546	51,608	2,482	(3)	21,480
35 Increase or decrease (-), 1930-1940.....acres.....	267,421	4,169	-351	.....	1,977	99,071
36	percent.....	79.9	8.1	-14.1	9.2	67.6
37 Land idle.....acres....1940..	34,605	300	525	.....	6,622	4,280
38	1930..	28,673	4,100	110	.....	8,591
39 Increase or decrease (-), 1930-1940.....acres.....	5,932	-3,800	415	.....	-1,969	-760
40	percent.....	20.7	-92.7	377.3	-22.9	-15.1
41 Land available for settlement.....acres....1940..	4,271	.....	.....	.....	.....	.....
42	1930..	6,836	3,500	60	(3)	2,200
43 Increase or decrease (-), 1930-1940.....acres.....	-2,565	-3,500	-60	.....	-2,200	-1,000
44	percent.....	-37.5	-100.0	-100.0	-100.0	-100.0
LAND CLASSIFIED BY WORKS, 1940						
45 Land drained by open ditches only.....acres.....	197,992	35,125	.....	.....	.....	134,594
46 Length of these ditches.....miles.....	375.8	56.4	.....	.....	.....	199.8
47 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48 Land drained by open ditches and own levees.....acres.....	2,600	.....	.....	.....	2,600	.....
49 Length of these ditches.....miles.....	4.5	.....	.....	.....	4.5	.....
50 Length of these levees.....miles.....	5.5	.....	.....	.....	5.5	.....
51 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52 Land drained by tile only.....acres.....	229	.....	.....	.....	.....	.....
53 Length of these tile.....miles.....	3.7	.....	.....	.....	.....	.....
54 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55 Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59 Land drained by open ditches and tile.....acres.....	71,944	19,140	.....	2,500	.....	9,271
60 Length of these open ditches.....miles.....	198.8	42.0	.....	6.0	.....	40.0
61 Length of these tile.....miles.....	74.0	1.0	.....	6.0	.....	0.4
62 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63 Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64 Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68 Land in enterprises operating pumping plants ⁴.....acres.....	786,371	5,086	2,656	.....	29,334	37,531
69 Length of open ditches owned by these enterprises.....miles.....	389.0	31.8	15.7	.....	87.2	69.3
70 Length of tile owned by these enterprises.....miles.....	96.9	2.1	0.2	.....	0.2	0.4
71 Length of levees owned by these enterprises.....miles.....	89.9	0.1	13.9	.....	75.6	0.3
72 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 50.
³Included in "Other counties."
⁴Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — IDAHO

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

	ITEM (See definitions in Introduction)	Cassia ¹	Elmore ¹	Minidoka ¹	Owyhee ¹	Payette	Other counties ²
LAND AREA							
1	Approximate land area.....acres....1940..	1,823,160	1,399,520	480,000	4,994,720	257,920	5,164,160
2	Drainage enterprises.....number...1940..	1	1	1	1	9	8
3	Land in enterprises.....acres....1940..	47,937	7,890	65,070	29,264	15,095	216,053
4	.....1930..	47,947	.....	67,057	22,680	17,789	23,578
5	.....1920..	.....	.....	30,000	.....	5,790	8,940
6	Area of all enterprises, overlapping included.....acres....1940..	47,937	7,890	65,070	29,264	17,771	216,053
7	Amount of overlapping.....acres....1940..	.....	.....	.....	.....	2,676	.....
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	46,945	6,880	63,726	28,824	13,873	198,235
9	.....1930..	47,447	.....	60,674	16,675	15,894	17,583
10	Increase or decrease (-), 1930-1940.....acres.....	-502	.....	3,052	12,149	-2,021	180,652
11	.....percent.....	-1.0	.....	5.0	72.8	-12.7	(³)
12	Land undrained, unfit for any crop.....acres....1940..	356	1,000	478	170	.....	15,002
13	.....1930..	30	.....	1,300	.....	100	270
14	Increase or decrease (-), 1930-1940.....acres.....	276	.....	-822	.....	-100	14,732
15	.....percent.....	345.0	.....	-63.2	.....	-100.0	(³)
16	Land partly drained, for partial crop.....acres....1940..	636	.....	866	270	1,222	2,816
17	.....1930..	420	.....	5,083	6,005	5,725	5,725
18	Increase or decrease (-), 1930-1940.....acres.....	216	.....	-4,217	-5,735	-573	-2,909
19	.....percent.....	51.4	.....	-83.0	-96.0	-31.9	-50.8
20	Improved land.....acres....1940..	47,937	6,880	65,070	22,222	15,095	201,051
21	.....1930..	47,947	.....	67,057	22,680	14,894	21,504
22	.....1920..	.....	.....	29,440	.....	1,000	2,763
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....
25	.....1920..	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres....1940..	.....	1,000	.....	7,042	.....	15,002
27	.....1930..	.....	.....	.....	.....	2,895	2,074
28	.....1920..	.....	.....	560	.....	4,790	6,177
29	Land in occupied farms.....acres....1940..	47,937	6,880	65,070	26,392	15,095	212,668
30	.....1930..	47,947	.....	67,057	22,680	17,789	22,352
31	Increase or decrease (-), 1930-1940.....acres.....	-10	.....	-1,987	3,712	-2,694	190,316
32	.....percent.....	(⁴)	.....	-3.0	16.4	-15.1	851.4
33	Land in planted crops.....acres....1940..	47,581	6,200	64,592	21,059	14,093	198,525
34	.....1930..	45,394	.....	60,674	22,375	14,894	16,568
35	Increase or decrease (-), 1930-1940.....acres.....	2,187	.....	3,918	-1,316	-801	181,957
36	.....percent.....	4.8	.....	6.4	-5.9	-5.4	(³)
37	Land idle.....acres....1940..	356	.....	478	7,042	1,000	14,002
38	.....1930..	.....	.....	6,383	.....	100	4,349
39	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-5,905	.....	900	9,653
40	.....percent.....	.....	.....	-92.5	.....	900.0	222.0
41	Land available for settlement.....acres....1940..	43	.....	228	4,000	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	76
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	-76
44	.....percent.....	.....	.....	.....	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	.....	7,880	.....	.....	11,793	8,600
46	Length of these ditches.....miles.....	.....	0.8	.....	.....	84.0	34.8
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	229	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	3.7	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	29,264	3,073	8,696
60	Length of these open ditches.....miles.....	.....	.....	.....	85.1	8.7	17.0
61	Length of these tile.....miles.....	.....	.....	.....	28.8	3.5	34.3
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	47,937	.....	65,070	.....	.....	198,757
69	Length of open ditches owned by these enterprises.....miles.....	26.0	.....	147.0	.....	.....	10.0
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	94.0
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²Includes Bannock, Bonner, Franklin, Gem, Twin Falls, and Washington Counties in 1940; Bannock, Blaine, Bonner, Franklin, Gem, Koctenai, and Washington Counties in 1930; and Bannock, Bonner, and Gem Counties in 1920.
³Percent not shown where more than 1,000.
⁴Less than one-tenth of 1 percent.
⁵Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—IDAHO

COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Ada	Benewah	Blaine ¹	Boundary	Canyon
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	57	5	5	1	15	10
2 Open ditches:						
3 Completed.....miles.....1940..	968.1	130.2	15.7	6.0	91.7	309.1
4 1930..	651.2	92.5	22.5	(³)	52.9	157.0
5 1920..	274.5	41.5	6.0			91.5
6 Additional length authorized.....miles.....1940..	12.3	5.4				6.1
7 Tile drains:						
8 Completed.....miles.....1940..	174.6	3.1	0.2	6.0	0.2	0.8
9 1930..	19.9	1.0	0.6		0.5	4.5
10 1920..	1.8		1.0			0.8
11 Additional length authorized.....miles.....1940..						
12 Levees and dikes:						
13 Completed.....miles.....1940..	95.4	0.1	13.9		81.1	0.3
14 1930..	74.8		14.5		56.6	
15 1920..	9.5		9.5			
16 Additional length authorized.....miles.....1940..						
17 Pumping plants:						
18 Engine capacity.....1940.....horsepower.....	2,292	30	205		960	789
19 1930..	1,435	10	295		640	160
20 1920..	285		135			
21 Pump capacity.....1940.....gal. per min.....	211,850	960	31,300		119,010	44,230
22 1930..	171,675	1,350	42,700		77,600	8,800
23 1920..	36,200		13,700			
24 Land served by pumps.....1940.....acres.....	53,938	450	2,434		29,394	17,650
25 1930..	40,434	400	2,797		29,937	3,320
26 1920..	7,912		1,912			
27 Wells pumped for drainage.....1940.....number.....	57	1	5		12	37
28 1930..	6	1				5
CAPITAL INVESTED						
29 Capital invested to January 1.....1940.....dollars.....	7,567,032	788,923	162,300	60,000	1,912,753	2,088,813
30 1930..	5,112,444	619,483	155,367	(³)	1,558,923	1,138,227
31 1920..	1,668,569	277,565	120,000			395,824
32 Estimated cost when completed.....1940.....dollars.....	8,177,119	818,923	167,300	60,000	1,915,253	2,122,530
33 1930..	5,345,944	619,483	156,867	(³)	1,664,423	1,206,727
34 1920..	1,788,569	284,423	120,000			398,966
35 Average cost per acre when completed.....1940.....dollars.....	12.40	13.80	62.99	24.00	59.98	11.70
36 1930..	14.24	11.02	56.08	(³)	53.45	11.36
37 1920..	27.67	49.04	62.76			32.70
38 Invested in and required for completion, 1940:						
39 Enterprises having open ditches only.....dollars.....	2,064,962	305,022				1,385,998
40 Average amount per acre.....dollars.....	10.43	8.68				10.30
41 Enterprises having open ditches and levees.....dollars.....	144,000				144,000	
42 Average amount per acre.....dollars.....	55.38				55.38	
43 Enterprises having tile only.....dollars.....	18,582					
44 Average amount per acre.....dollars.....	81.14					
45 Enterprises having tile and levees.....dollars.....						
46 Average amount per acre.....dollars.....						
47 Enterprises having open ditches and tile.....dollars.....	1,274,670	412,134		60,000		233,200
48 Average amount per acre.....dollars.....	17.72	21.53		24.00		25.15
49 Enterprises having ditches, tile, and levees.....dollars.....						
50 Average amount per acre.....dollars.....						
51 Enterprises operating pumping plants ⁴.....dollars.....	4,674,905	101,767	167,300		1,771,253	502,332
52 Average amount per acre.....dollars.....	12.10	20.01	62.89		60.38	13.38
MAINTENANCE AND OPERATION						
Cost of maintenance and operation in 1939:						
53 By enterprises operating pumping plants.....dollars.....	64,083	(⁵)	1,858		16,163	(⁵)
54 Enterprises reporting.....number.....	19	1	4		10	1
55 Land in these enterprises.....acres.....	350,394	(⁵)	2,146		25,392	(⁵)
56 Average cost per acre.....dollars.....	0.18	(⁵)	0.86		0.64	(⁵)
57 By enterprises not operating pumping plants.....dollars.....	22,070	6,829		100		6,894
58 Enterprises reporting.....number.....	21	3		1		5
59 Land in these enterprises.....acres.....	207,832	54,265		2,500		121,865
60 Average cost per acre.....dollars.....	0.11	0.12		0.04		0.06
61 Federal aid in maintenance:						
62 Enterprises reporting.....number.....	29	4		2		6
63 Land in these enterprises.....acres.....	248,774	55,149	(⁵)		19,963	152,506
FINANCIAL CONDITION						
64 Drainage taxes collected in 1939.....dollars.....	219,809	28,503	4,039	5,500	109,328	44,360
65 Enterprises reporting.....number.....	34	4	3	1	10	9
66 Land in these enterprises.....acres.....	454,692	58,467	1,624	2,500	27,263	150,755
67 Average amount collected per acre.....dollars.....	0.48	0.49	2.49	2.20	4.01	0.29
68 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	32,342	(⁵)			10,504	12,124
69 Enterprises reporting.....number.....	22	2			8	4
70 Land in these enterprises.....acres.....	94,442	(⁵)			23,484	31,230
71 Portion delinquent in these enterprises.....percent.....	34.2	(⁵)			44.7	38.8
72 Total indebtedness, Dec. 31, 1939.....dollars.....	1,905,858	399,683	17,500	36,000	594,552	596,163
73 Enterprises reporting.....number.....	33	4	3	1	11	8
74 Land in these enterprises.....acres.....	258,013	56,830	1,689	2,500	27,942	123,572
75 Average indebtedness per acre.....dollars.....	7.39	7.03	10.48	14.40	21.28	4.82
76 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	493,335	(⁵)			(⁵)	(⁵)
77 Enterprises reporting.....number.....	9	2			2	2
78 Land in these enterprises.....acres.....	47,405	(⁵)			(⁵)	(⁵)
79 Average arrearage per acre.....dollars.....	10.41	(⁵)			(⁵)	(⁵)
80 Reduction of debt by refinancing, prior to 1940.....dollars.....	1,166,985	(⁵)	(⁵)		804,886	194,449
81 Enterprises reporting.....number.....	17	1	1		10	3
82 Land in these enterprises.....acres.....	132,907	(⁵)	(⁵)		20,264	84,235
83 Average reduction per acre.....dollars.....	8.82	(⁵)	(⁵)		39.72	2.31

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 50.
³Included in "Other counties."
⁴Data in lines 46 and 47 are not included in lines 34 to 45.
⁵Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE — IDAHO

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Cassia ¹	Elmore ¹	Minidoka ¹	Uwyhee ¹	Payette	Other counties ²
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	1	1	1	1	9	8
Open ditches:						
2 Completed.....miles.....1940..	28.0	0.8	147.0	85.1	92.7	61.8
3	14.0	.....	128.0	27.8	73.6	82.9
4 .....	.....	.....	108.0	.....	3.0	24.5
5 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	0.8	.....
Tile drains:						
6 Completed.....miles.....1940..	.....	.....	.....	28.8	7.2	128.3
7 .....	.....	.....	.....	.....	5.8	7.4
8 .....	.....	.....	.....	.....	.....	.....
9 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
Levees and dikes:						
10 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....
11 .....	.....	.....	.....	.....	.....	3.7
12 .....	.....	.....	.....	.....	.....	.....
13 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
Pumping plants:						
14 Engine capacity.....horsepower.....1940..	288	.....	.....	.....	.....	20
15	45	.....	210	.....	.....	75
16 .....	.....	.....	150	.....	.....	.....
17 Pump capacity.....gal. per min.....1940..	15,000	.....	.....	.....	.....	1,350
18	7,000	.....	24,225	.....	.....	10,000
19 .....	.....	.....	22,500	.....	.....	.....
20 Land served by pumps.....acres.....1940..	4,000	.....	.....	.....	.....	70
21	2,260	.....	1,200	.....	.....	520
22 .....	.....	.....	6,000	.....	.....	.....
23 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	2
24 .....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED						
25 Capital invested to January 1.....dollars.....1940..	192,360	1,600	1,009,893	237,303	337,638	775,449
26	61,000	.....	749,430	122,600	288,225	419,189
27 .....	.....	.....	778,000	.....	22,667	74,513
28 Estimated cost when completed.....dollars.....1940..	272,360	1,600	1,429,893	270,173	343,638	775,449
29	61,000	.....	757,430	172,600	288,225	419,189
30 .....	.....	.....	778,000	.....	86,000	121,180
31 Average cost per acre when completed.....dollars.....1940..	5.68	0.20	21.97	9.23	22.76	3.59
32	1.27	.....	11.30	7.61	16.20	17.78
33 .....	.....	.....	25.93	.....	14.85	13.55
Invested in and required for completion, 1940:						
34 Enterprises having open ditches only.....dollars..	.....	1,600	.....	.....	206,493	164,849
35 Average amount per acre.....dollars..	.....	0.20	.....	.....	17.51	19.17
36 Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....
37 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....
38 Enterprises having tile only.....dollars..	.....	.....	.....	.....	18,582	.....
39 Average amount per acre.....dollars..	.....	.....	.....	.....	81.14	.....
40 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....
41 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....
42 Enterprises having open ditches and tile.....dollars..	.....	.....	.....	270,173	118,563	180,600
43 Average amount per acre.....dollars..	.....	.....	.....	9.23	38.58	20.77
44 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....
46 Enterprises operating pumping plants ³.....dollars..	272,360	.....	1,429,893	.....	.....	430,000
47 Average amount per acre.....dollars..	5.68	.....	21.97	.....	.....	2.16
MAINTENANCE AND OPERATION						
Cost of maintenance and operation in 1939:						
48 By enterprises operating pumping plants.....dollars..	2,940	.....	15,436	.....	.....	(4)
49 Enterprises reporting.....number..	1	.....	1	.....	.....	1
50 Land in these enterprises.....acres..	47,937	.....	65,070	.....	.....	(4)
51 Average cost per acre.....dollars..	0.06	.....	0.24	.....	.....	(4)
52 By enterprises not operating pumping plants.....dollars..	.....	.....	.....	.....	5,062	3,185
53 Enterprises reporting.....number..	.....	.....	.....	.....	7	5
54 Land in these enterprises.....acres..	.....	.....	.....	.....	14,866	14,336
55 Average cost per acre.....dollars..	.....	.....	.....	.....	0.34	0.22
Federal aid in maintenance:						
56 Enterprises reporting.....number..	.....	.....	.....	.....	7	2
57 Land in these enterprises.....acres..	.....	.....	.....	.....	14,866	(4)
FINANCIAL CONDITION						
58 Drainage taxes collected in 1939.....dollars..	.....	.....	.....	.....	3,450	24,629
59 Enterprises reporting.....number..	.....	.....	.....	.....	4	3
60 Land in these enterprises.....acres..	.....	.....	.....	.....	9,590	204,493
61 Average amount collected per acre.....dollars..	.....	.....	.....	.....	0.36	0.12
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	.....	.....	.....	.....	1,080	8,634
63 Enterprises reporting.....number..	.....	.....	.....	.....	4	5
64 Land in these enterprises.....acres..	.....	.....	.....	.....	8,831	30,897
65 Portion delinquent in these enterprises.....percent..	.....	.....	.....	.....	12.2	27.9
66 Total indebtedness, Dec. 31, 1939.....dollars..	.....	.....	.....	85,960	.....	176,000
67 Enterprises reporting.....number..	.....	.....	.....	1	.....	5
68 Land in these enterprises.....acres..	.....	.....	.....	29,264	.....	16,236
69 Average indebtedness per acre.....dollars..	.....	.....	.....	2.94	.....	10.84
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	.....	81,000
71 Enterprises reporting.....number..	.....	.....	.....	.....	.....	3
72 Land in these enterprises.....acres..	.....	.....	.....	.....	.....	4,460
73 Average arrearage per acre.....dollars..	.....	.....	.....	.....	.....	18.16
74 Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	(4)	(4)
75 Enterprises reporting.....number..	.....	.....	.....	.....	1	1
76 Land in these enterprises.....acres..	.....	.....	.....	.....	(4)	(4)
77 Average reduction per acre.....dollars..	.....	.....	.....	.....	(4)	(4)

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ² Includes Bannock, Bonner, Franklin, Gem, Twin Falls, and Washington Counties in 1940; Bannock, Blain, Bonner, Franklin, Gem, Kootenai, and Washington Counties in 1930; and Bannock, Bonner, and Gem Counties in 1920. ³ Data in lines 46 and 47 are not included in lines 34 to 45. ⁴ Where there are less than 3 enterprises reporting, data are included only in the State totals. ⁵ Includes data for Ada County with those for other counties named in footnote 2.

CENSUS OF DRAINAGE — ILLINOIS

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (—)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	35,806,080	35,867,520	35,867,520				
Land in drainage enterprises.....acres.....	5,091,364	5,032,682	3,909,049	58,682	1.2	1,123,633	28.7
Improved.....acres.....	4,750,910	4,745,840	3,532,316	5,070	0.1	1,213,524	34.4
Unimproved:							
Timber and cut-over.....acres.....	193,198	175,571	184,573	17,627	10.0	-9,002	-4.9
Other.....acres.....	147,256	111,271	192,160	35,985	32.3	-80,889	-42.1
Drainage sufficient for normal crop.....acres.....	4,754,490	4,510,111	(1)	244,379	5.4		
Partly drained, for partial crop.....acres.....	190,217	246,771	(1)	-56,554	-22.9		
Unfit to raise any crop for lack of drainage.....acres.....	146,657	275,800	228,337	-129,143	-46.8	47,463	20.8
In occupied farms.....acres.....	4,911,263	5,005,376	(1)	-94,113	-1.9		
In planted crops.....acres.....	4,549,562	4,248,907	(1)	300,655	7.1		
Idle.....acres.....	273,248	232,052	(1)	41,196	17.8		
Open ditches, completed.....miles.....	6,862.2	5,996.4	4,754.5	865.8	14.4	1,241.9	26.1
Tile drains, completed.....miles.....	4,246.6	3,825.6	3,507.1	421.0	11.0	318.5	9.1
Drainage pumping plants, capacity.....horsepower....	23,206	18,658	18,225	4,548	24.4	433	2.4
gal. per min..	3,632,600	3,156,700	2,843,066	475,900	15.1	313,634	11.0
Capital invested in enterprises.....dollars.....	72,567,174	74,565,923	43,595,069	-1,998,749	-2.7	30,970,854	71.0
Average per acre.....dollars.....	14.25	14.82	11.15	-0.57	-3.8	3.67	32.3

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

³Revised.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	
All enterprises.....	Acres 5,897,124	Acres 5,741,916	Acres 4,090,599	Acres 5,091,364
Less than 100 acres.....	1,319	516	3,951	1,135
100 to 199 acres.....	4,314	3,393	}	4,044
200 to 499 acres.....	80,960	69,788	50,556	75,894
500 to 999 acres.....	330,937	320,566	210,371	305,152
1,000 to 1,999 acres.....	747,792	} 2,160,720	1,547,003	686,549
2,000 to 4,999 acres.....	1,598,036	1,360,351	976,666	1,464,159
5,000 to 9,999 acres.....	1,342,317	}	}	1,188,957
10,000 to 19,999 acres.....	1,008,760	} 1,728,101	1,239,719	831,889
20,000 to 49,999 acres.....	694,208	98,481	62,333	477,322
50,000 to 99,999 acres.....	98,481	}	}	56,273

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	5,091,364	100.0	72,567,174	100.0
Drainage districts.....	5,054,612	99.3	72,269,383	99.6
County drains.....	1,400	(1)	72,000	0.1
Township drains.....	3,307	0.1	44,930	0.1
State projects.....	1,223	(1)	37,000	(1)
Individually owned projects.....	30,822	0.6	143,861	0.2

¹Less than one-tenth of 1 percent.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	5,091,364	100.0	5,032,682	100.0	3,909,049	100.0	72,567,174	100.0	74,565,923	100.0	43,595,069	100.0
Gravity drainage only by—												
Open ditches.....	2,243,748	44.1	2,118,459	42.1	} 3,583,206	91.7	23,068,081	31.8	30,286,003	40.6	} 31,533,478	72.3
Tile drains.....	723,590	14.2	701,261	13.9	}	}	6,740,652	9.3	5,664,200	7.6	}	}
Open ditches and tile drains...	1,726,495	33.9	1,855,984	36.9	}	}	16,496,734	22.7	19,399,653	26.0	}	}
All drained by pumping by—												
Open ditches.....	208,128	4.1	} 232,934	4.6	157,360	4.0	15,724,858	21.7	} 14,191,551	19.1	6,226,386	14.3
Tile drains.....	1,644	(3)	}	}	}	}	67,062	0.1	}	}	}	}
Open ditches and tile drains...	115,727	2.3	}	}	}	}	7,433,466	10.2	}	}	}	}
Part only by pumping by—												
Open ditches.....	44,919	0.9	} 124,044	2.5	168,483	4.3	1,896,582	2.6	} 5,024,616	6.7	5,835,205	13.4
Tile drains.....	}	}	}	}	}	}	}	}	}	}	}	}
Open ditches and tile drains...	27,113	0.5	}	}	}	}	1,139,739	1.6	}	}	}	}
Total area served by pumps.....	375,437	7.4	331,448	6.6	291,816	7.5	}	}	}	}	}	}

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

²Revised.

³Less than one-tenth of 1 percent.

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY				Land served	KIND OF POWER	Enter-prises	CAPACITY				Land served
		Engine or motor		Pump	G. p. m.				Engine or motor		Pump	G. p. m.	
		Number	Hp.						Percent	Number				Hp.	Percent
All pumping enterprises.....	1940..	68	23,206	100.0	3,648,100	375,437	Steam and electric.....	1940..	3	2,100	9.0	260,900	13,086
	1930..	60	18,658	100.0	3,156,700	331,448		1930..	1	1,650	8.8	250,000	12,318
	1920..	48	18,225	100.0	2,843,086	291,815		1920..	1	1,650	9.1	190,000	15,323
Steam.....	1940..	9	2,550	11.0	429,150	47,516	Steam and internal combustion.....	1940..	1	500	2.2	80,000	8,000
	1930..	7	2,425	13.0	451,000	50,143		1930..	5	2,830	15.2	513,000	43,367
	1920..	22	5,805	31.9	1,070,900	137,291		1920..	.....	.....	.....	.....	.....
Electric.....	1940..	27	8,893	29.7	1,086,450	119,569	Electric and internal combustion.....	1940..	4	1,870	8.1	297,700	31,946
	1930..	29	8,158	43.7	1,395,700	157,518		1930..	4	1,520	8.2	224,000	22,991
	1920..	21	10,445	57.3	1,529,666	134,959		1920..	.....	.....	.....	.....	.....
Internal combustion.....	1940..	24	9,283	40.0	1,483,900	155,310		.....	.....	.....	.....	.....	.....
	1930..	14	2,075	11.1	323,000	45,111		.....	.....	.....	.....	.....	.....
	1920..	4	325	1.8	52,500	4,243		.....	.....	.....	.....	.....	.....

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	PUMPS				Engine or motor capacity	Land served
	Number	Capacity		Hp.		
		G. p. m.	Percent			
All pumping enterprises.....	1940..	125	3,648,100	100.0	23,206	375,437
	1930..	120	3,156,700	100.0	18,658	331,448
Centrifugal.....	1940..	107	2,637,600	72.3	17,973	284,884
	1930..	101	2,614,200	82.8	15,453	254,955
Rotary.....	1940..	2	40,000	1.1	240	6,370
	1930..	11	276,000	8.8	1,530	39,427
Screw.....	1940..	13	860,500	23.6	4,223	70,464
	1930..	.....	.....	.....	.....	.....
Centrifugal and screw.....	1940..	3	110,000	3.0	770	13,719
	1930..	8	266,500	8.4	1,675	37,066

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	5,091,364	100.0	5,032,682	100.0	72,567,174	100.0	74,565,923	100.0	143,747	94,944
Enterprises in arrears.....	232,081	4.6	160,300	3.2	8,031,608	11.1	4,712,722	6.3	48,765	38,689
With some delinquent land.....	153,651	3.0	114,809	2.3	5,951,996	8.2	4,141,820	5.5	48,765	38,689
With no delinquent land.....	47,468	1.0	16,790	0.3	945,610	1.2	142,911	0.2	.....	.....
With no report on delinquency.....	30,962	0.6	28,701	0.6	1,234,002	1.7	428,891	0.6	.....	.....
Enterprises not in arrears.....	4,806,407	94.4	4,872,382	96.8	63,205,067	87.1	69,853,201	93.7	94,982	56,245
With some delinquent land.....	439,823	8.7	417,495	8.3	9,741,479	13.4	11,677,036	15.7	94,982	56,245
With no delinquent land.....	4,313,439	84.7	4,175,927	83.0	52,180,663	71.9	53,033,666	71.1	.....	.....
With no report on delinquency.....	53,145	1.0	278,960	5.5	1,282,925	1.8	2,514,299	3.4	.....	.....
Enterprises not reporting on arrearage.....	52,876	1.0	.....	.....	1,330,489	1.8	.....	.....	.....	.....
With no delinquent land.....	6,304	0.1	.....	.....	553,615	0.7	.....	.....	.....	.....
With no report on delinquency.....	46,572	0.9	.....	.....	776,884	1.1	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Revised.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	5,091,364	72,567,174	6,974,400	842,282	4,302,649	143,747	1,617,438
Enterprises in debt.....	² 864,748	31,842,488	6,974,400	842,282	4,040,854	84,446	1,133,819
In arrears, amount of arrearage stated.....	216,114	7,545,415	1,840,843	842,282	1,838,841	48,765	156,916
Collecting drainage taxes in 1939.....	167,931	5,968,866	1,516,761	635,868	1,445,321	39,393	156,916
No collections reported.....	48,183	1,576,549	323,882	206,414	93,220	9,372	.....
In arrears, amount not stated.....	² 15,967	486,193	70,000	.....	19,367	.....	7,500
Collecting drainage taxes in 1939.....	5,900	235,125	29,500	.....	.....	.....	7,500
No collections reported.....	² 10,367	251,068	41,500	.....	19,367	.....	.....
Not in arrears.....	632,667	23,810,880	5,063,757	.....	2,482,746	35,681	969,403
Collecting drainage taxes in 1939.....	558,683	22,546,766	4,941,702	.....	2,439,198	35,081	969,403
No collections reported.....	73,984	1,264,114	122,055	.....	43,548	600	.....
Enterprises not in debt.....	4,162,307	39,236,987	.....	.....	261,895	59,301	478,264
Collecting drainage taxes in 1939.....	1,099,126	12,858,038	.....	.....	261,895	56,026	478,264
No collections reported.....	3,063,181	26,378,949	.....	.....	.....	3,275	.....
Enterprises not reporting as to debt.....	64,309	1,487,689	.....	.....	.....	.....	5,355
Collecting drainage taxes in 1939.....	5,713	30,132	.....	.....	.....	.....	5,355
No collections reported.....	58,596	1,457,557	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Includes 3,914 acres for which amount of indebtedness was not reported.

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	5,091,364	100.0	72,567,174	100.0
Improvement of land already in farms.....	4,582,563	90.0	52,073,385	71.8
Reclamation of swamp land not previously in farms.....	169,900	3.3	3,327,590	4.6
Protection against overflow.....	338,901	6.7	17,166,199	23.6

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	5,091,364	100.0	5,897,124	805,760	72,567,174	100.0
1870-1879.....	34,948	0.7	42,253	7,405	1,065,128	1.5
1880-1889.....	923,504	18.1	1,224,822	301,318	14,617,920	20.2
1890-1899.....	635,868	12.5	794,933	159,065	5,387,387	7.4
1900-1904.....	572,455	11.2	695,164	122,709	5,862,956	8.1
1905-1909.....	931,347	18.3	1,039,140	107,793	19,319,918	26.6
1910-1914.....	780,275	15.3	857,123	76,848	10,794,761	14.9
1915-1919.....	389,340	7.7	396,512	7,172	6,126,515	8.4
1920-1924.....	269,663	5.3	282,463	12,800	4,282,652	5.9
1925-1929.....	352,612	6.9	363,262	10,650	4,087,702	5.6
1930-1934.....	122,902	2.4	122,902	.....	667,127	0.9
1935-1939.....	78,450	1.6	78,450	.....	355,108	0.5

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres
All enterprises..	5,091,364	4,754,490	93.4	190,217	146,657	4,750,910	93.3	193,198	147,256	4,911,263	96.5	4,549,562	273,248	.....
1870-1879.....	34,948	32,062	91.7	143	2,443	30,492	87.2	170	4,266	34,703	99.3	28,796	5,845	.....
1880-1889.....	923,504	854,376	92.5	45,556	23,572	866,204	93.8	13,168	44,132	909,553	98.5	841,101	43,032	.....
1890-1899.....	635,868	604,090	95.0	17,701	14,077	601,824	94.6	18,058	15,986	617,871	97.2	574,547	28,114	.....
1900-1904.....	572,455	552,241	96.5	9,949	10,265	552,136	96.4	10,482	9,837	565,227	98.7	531,253	18,334	.....
1905-1909.....	931,347	865,713	93.0	25,743	39,691	864,385	92.8	32,741	34,221	908,625	97.6	831,036	70,806	.....
1910-1914.....	780,275	680,427	87.2	63,142	36,706	688,221	88.2	69,504	22,550	708,160	90.8	641,311	60,068	.....
1915-1919.....	389,340	371,689	95.5	8,560	9,091	373,715	96.0	9,974	5,651	381,885	98.1	360,207	13,101	.....
1920-1924.....	269,663	253,503	94.0	12,404	3,756	251,181	93.1	14,202	4,280	258,918	96.0	239,165	12,954	.....
1925-1929.....	352,612	342,671	97.2	4,647	5,294	324,588	92.0	23,966	4,058	325,661	92.4	312,681	11,103	.....
1930-1934.....	122,902	122,688	99.8	92	122	122,165	99.4	368	369	122,495	99.7	114,108	7,785	.....
1935-1939.....	78,450	75,000	95.6	1,980	1,440	75,999	96.9	565	1,886	78,165	99.6	75,357	2,106	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	5,091,364	5,026,560	2,309,525	2,717,035	1,049,344	0.21	0.45
Gravity drainage only.....	4,693,833	4,632,399	1,935,644	2,696,755	490,414	0.10	0.25
Open ditches only.....	1,839,923	1,839,923	796,770	1,043,153	138,883	0.08	0.17
Open ditches and levees.....	373,655	366,256	307,151	59,105	128,029	0.35	0.42
Tile drains only.....	721,420	717,226	95,171	622,055	37,842	0.05	0.40
Tile drains and levees.....	2,170	2,170	.....	2,170	.....	.....	.....
Open ditches and tile drains.....	1,702,391	1,682,720	731,606	951,114	177,760	0.10	0.24
Open ditches, tile drains, and levees.....	24,104	24,104	4,946	19,158	7,900	0.33	1.60
Pumping for all or part of drainage.....	397,531	394,161	373,881	20,280	558,930	1.42	1.49
All drainage by pumping.....	325,499	322,129	303,072	19,057	498,056	1.55	1.64
Part pumping and part gravity.....	72,032	72,032	70,809	1,223	60,874	0.84	0.86

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	5,091,364	100.0	72,567,174	100.0
Method:				
By district forces.....	767,585	15.1	21,760,889	30.0
By contract.....	3,537,999	69.5	42,576,827	58.7
Work apportioned to landowners.....	407,817	8.0	3,368,969	4.6
"None," or not reporting.....	377,963	7.4	4,860,489	6.7
Whether systematic:				
Reporting "yes".....	2,654,097	52.1	47,173,611	65.0
Reporting "no".....	2,377,444	46.7	24,698,943	34.0
Not reporting.....	59,823	1.2	694,630	1.0

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	5,091,364	271,693	5.3
Capital invested.....dollars..	72,567,174	9,369,042	12.9
Drainage works:			
Open ditches.....miles....	6,862.2	434.9	6.3
Tile drains.....miles....	4,246.6	78.0	1.8
Levees.....miles....	1,157.8	269.9	23.3

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	923,684	26,921,594	1,433.3	382.8	553.4
Works Projects Administration.....	297,869	3,256,622	500.0	206.2	66.8
Civilian Conservation Corps.....	271,807	5,492,160	474.8	139.2	55.5
Corps of Engineers, U.S.A.....	112,393	2,806,846	125.2	3.5	169.9
W.P.A. and C.C.C.....	21,678	1,252,460	29.2	8.0	42.2
W.P.A. and Corps of Engineers.....	69,042	7,946,340	50.6	.....	51.4
C.C.C. and Corps of Engineers.....	10,541	279,000	20.0	1.3	12.0
Other kind or combination.....	140,414	5,888,166	233.5	24.6	155.6

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	5,091,364	¹ 415,225	8.2
Capital invested.....dollars..	72,567,174	9,646,399	13.3
Drainage works:			
Open ditches.....miles....	6,862.2	672.9	9.8
Tile drains.....miles....	4,246.6	20.5	0.5
Levees.....miles....	1,157.8	310.4	26.8

¹The land actually dependent upon outside agencies for protection is 341,779 acres, which is 82.3 percent of all land in these protected enterprises.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Adams	Alexander	Brown	Bureau	Carroll	
LAND AREA							
1	Approximate land area.....acres.....1940..	35,803,080	554,240	143,360	196,480	555,520	299,520
2	Drainage enterprises.....number.....1940..	1,961	4	6	3	15	3
3	Land in enterprises.....acres.....1940..	5,091,364	40,270	28,351	7,821	61,380	4,600
4	.....1930..	5,032,692	42,322	28,330	9,000	55,537	9,300
5	.....1920..	3,909,049	56,843	18,875	7,890	64,788	4,690
6	Area of all enterprises, overlapping included.....acres.....1940..	5,897,124	44,445	28,351	7,821	61,800	5,032
7	Amount of overlapping.....acres.....1940..	805,760	4,175	.....	.....	120	432
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres.....1940..	4,754,490	32,855	17,328	4,759	58,317	4,600
9	.....1930..	4,510,111	38,773	28,393	6,475	49,217	7,700
10	Increase or decrease (-), 1930-1940.....acres.....	244,379	-5,918	-11,065	-1,716	9,100	-3,100
11	.....percent.....	5.4	-15.3	-39.0	-26.5	18.5	-40.2
12	Land undrained, unfit for any crop.....acres.....1940..	146,657	2,299	5,230	639	630	.....
13	.....1930..	275,800	2,278	.....	1,825	2,320	500
14	Increase or decrease (-), 1930-1940.....acres.....	-129,143	21	5,230	-1,186	-1,690	-500
15	.....percent.....	-46.8	0.9	.....	-65.0	-72.8	-100.0
16	Land partly drained, for partial crop.....acres.....1940..	190,217	5,116	5,793	2,423	2,433	.....
17	.....1930..	246,771	1,271	.....	700	4,000	1,100
18	Increase or decrease (-), 1930-1940.....acres.....	-56,554	3,845	5,793	1,723	-1,567	-1,100
19	.....percent.....	-22.9	302.5	.....	246.1	-39.2	-100.0
20	Improved land.....acres.....1940..	4,750,910	32,203	18,845	6,558	57,801	4,585
21	.....1930..	4,745,840	37,905	26,593	8,300	55,037	7,400
22	.....1920..	3,532,316	39,831	13,319	6,122	63,360	3,646
Unimproved land:							
23	Woodland and cut-over land.....acres.....1940..	193,198	270	7,633	763	656	15
24	.....1930..	175,571	2,563	1,800	550	.....	300
25	.....1920..	184,573	15,269	3,886	965	693	170
26	Other unimproved land.....acres.....1940..	147,256	7,797	1,873	500	2,923	.....
27	.....1930..	111,271	1,854	.....	150	500	1,400
28	.....1920..	192,160	1,743	1,670	803	735	874
29	Land in occupied farms.....acres.....1940..	4,911,263	40,201	18,795	7,821	61,224	4,600
30	.....1930..	5,005,376	40,904	28,393	9,000	55,537	9,300
31	Increase or decrease (-), 1930-1940.....acres.....	-94,113	-703	-9,598	-1,179	5,687	-4,700
32	.....percent.....	-1.9	-1.7	-33.8	-13.1	10.2	-50.5
33	Land in planted crops.....acres.....1940..	4,549,562	31,508	16,700	5,867	56,103	4,445
34	.....1930..	4,248,907	27,400	24,693	7,080	52,562	4,900
35	Increase or decrease (-), 1930-1940.....acres.....	300,655	4,108	-7,993	-1,213	3,541	-455
36	.....percent.....	7.1	15.0	-32.4	-17.1	6.7	-9.3
37	Land idle.....acres.....1940..	273,248	8,693	1,800	974	3,369	155
38	.....1930..	232,052	7,381	900	275	100	440
39	Increase or decrease (-), 1930-1940.....acres.....	41,196	1,312	900	699	3,269	-285
40	.....percent.....	17.8	17.8	100.0	254.2	(2)	-64.8
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	1,870,093	.....	3,333	.....	23,630	432
46	Length of these ditches.....miles.....	3,342.7	.....	6.0	.....	56.5	0.5
47	Part protected by levees of an outside agency.....acres.....	115,674	.....	.....	.....	640	.....
48	Land drained by open ditches and own levees.....acres.....	373,655	3,755	14,550	.....	.....	768
49	Length of these ditches.....miles.....	604.8	4.2	20.5	.....	.....	0.8
50	Length of these levees.....miles.....	540.1	7.2	20.5	.....	.....	2.5
51	Part protected by levees of an outside agency.....acres.....	175,542	.....	3,650	.....	.....	.....
52	Land drained by tile only.....acres.....	721,420	.....	.....	.....	800	.....
53	Length of these tile.....miles.....	1,886.5	.....	.....	.....	2.0	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	2,170	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	2.8	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	5.0	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,702,391	.....	4,073	.....	36,950	.....
60	Length of these open ditches.....miles.....	2,172.9	.....	9.4	.....	59.3	.....
61	Length of these tile.....miles.....	2,193.5	.....	1.1	.....	16.7	.....
62	Part protected by levees of an outside agency.....acres.....	3,080	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	24,104	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	34.2	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	12.3	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	18.7	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	1,500	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	397,531	36,515	6,395	7,821	.....	3,400
69	Length of open ditches owned by these enterprises.....miles.....	707.7	66.7	2.0	17.0	.....	10.0
70	Length of tile owned by these enterprises.....miles.....	145.5	20.9	.....	10.0	.....	.....
71	Length of levees owned by these enterprises.....miles.....	594.0	56.0	15.0	17.2	.....	3.5
72	Part protected by levees of an outside agency.....acres.....	45,983	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 1,695.

²Percent not shown when more than 1,000.

³Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — ILLINOIS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Cass	Champaign	Christian	Clark	Clinton	Coles
LAND AREA							
1	Approximate land area.....acres....1940..	236,800	640,000	453,760	323,200	318,720	324,480
2	Drainage enterprises.....number...1940..	16	274	81	3	4	71
3	Land in enterprises.....acres....1940..	46,691	458,051	132,456	4,550	8,723	93,238
4	.....1930..	46,974	443,262	147,761	6,590	9,045	111,907
5	.....1920..	35,109	331,646	110,129	5,344	8,303	65,595
6	Area of all enterprises, overlapping included.....acres....1940..	50,462	624,791	141,697	4,550	8,723	99,588
7	Amount of overlapping.....acres....1940..	3,771	166,740	12,241	.....	.....	6,350
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	38,591	457,200	132,018	4,094	6,574	93,238
9	.....1930..	35,431	426,302	147,261	6,290	5,275	111,907
10	Increase or decrease (-), 1930-1940.....acres.....	3,160	30,898	-15,243	-2,196	1,299	-18,669
11	.....percent.....	8.9	7.2	-10.4	-34.9	24.6	-16.7
12	Land undrained, unfit for any crop.....acres....1940..	4,281	651	.....	.....	.....	.....
13	.....1930..	6,031	14,950	.....	300	2,200	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-1,750	-14,299	.....	-300	-2,200	.....
15	.....percent.....	-29.0	-95.6	.....	-100.0	-100.0	.....
16	Land partly drained, for partial crop.....acres....1940..	3,819	200	438	456	2,149	.....
17	.....1930..	5,512	2,010	500	.....	1,570	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-1,693	-1,810	-62	456	579	.....
19	.....percent.....	-30.7	-90.0	-12.4	.....	36.9	.....
20	Improved land.....acres....1940..	37,494	456,169	131,731	4,364	7,499	93,238
21	.....1930..	38,676	440,962	147,261	6,430	6,825	111,807
22	.....1920..	26,022	327,787	108,690	4,810	7,955	65,132
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	3,961	1,832	575	86	200	.....
24	.....1930..	1,768	1,800	500	90	405	.....
25	.....1920..	1,292	1,899	.....	174	348	450
26	Other unimproved land.....acres....1940..	5,236	50	150	100	1,024	.....
27	.....1930..	6,530	500	.....	70	1,815	100
28	.....1920..	7,795	1,960	1,439	360	.....	13
29	Land in occupied farms.....acres....1940..	43,015	456,996	132,456	4,550	7,913	92,249
30	.....1930..	46,974	443,262	147,761	6,590	9,045	111,907
31	Increase or decrease (-), 1930-1940.....acres.....	-3,959	13,734	-15,305	-2,040	-1,132	-19,658
32	.....percent.....	-8.4	3.1	-10.4	-31.0	-12.5	-17.6
33	Land in planted crops.....acres....1940..	36,173	455,566	126,736	4,364	7,370	91,700
34	.....1930..	35,336	404,655	135,019	6,330	6,450	99,645
35	Increase or decrease (-), 1930-1940.....acres.....	837	50,911	-8,283	-1,966	920	-7,945
36	.....percent.....	2.4	12.6	-6.1	-31.0	14.3	-8.0
37	Land idle.....acres....1940..	6,387	911	1,381	186	789	1,188
38	.....1930..	3,671	560	1,192	.....	1,735	190
39	Increase or decrease (-), 1930-1940.....acres.....	2,716	351	189	186	-946	998
40	.....percent.....	74.0	62.7	15.8	.....	-545	525.3
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	15,370	179,888	8,430	4,550	.....	16,537
46	Length of these ditches.....miles.....	27.0	295.7	19.0	7.5	.....	28.2
47	Part protected by levees of an outside agency.....acres.....	5,985	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	12,315	.....	4,800	.....	5,623	.....
49	Length of these ditches.....miles.....	25.9	.....	8.0	.....	17.6	.....
50	Length of these levees.....miles.....	29.1	.....	4.0	.....	5.2	.....
51	Part protected by levees of an outside agency.....acres.....	2,133	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	109,963	30,763	.....	.....	24,070
53	Length of these tile.....miles.....	.....	299.8	124.8	.....	.....	71.4
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	168,200	88,463	.....	.....	52,631
60	Length of these open ditches.....miles.....	.....	159.4	179.1	.....	.....	60.1
61	Length of these tile.....miles.....	.....	157.9	225.6	.....	.....	103.0
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	3,104	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	5.5	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	0.8	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	2.4	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ².....acres.....	15,902	.....	.....	.....	3,100	.....
69	Length of open ditches owned by these enterprises.....miles.....	44.0	.....	.....	.....	9.3	.....
70	Length of tile owned by these enterprises.....miles.....	23.0	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	34.8	.....	.....	.....	10.4	.....
72	Part protected by levees of an outside agency.....acres.....	7,676	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

²Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - ILLINOIS

COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Fulton	Gallatin	Greene	Grundy	Hamilton	Henderson
LAND AREA							
1	Approximate land area.....acres....1940..	559,360	209,920	347,520	276,480	278,400	243,840
2	Drainage enterprises.....number....1940..	10	13	9	4	6	3
3	Land in enterprises.....acres....1940..	27,006	50,873	51,045	13,915	58,092	18,057
4	.....1930..	27,855	40,530	51,456	13,915	53,752	18,960
5	Area of all enterprises, overlapping included.....acres....1940..	27,194	22,176	36,548	11,360	50,470	17,500
6	.....1930..	27,006	53,240	51,045	13,915	58,092	19,057
7	Amount of overlapping.....acres....1940..	.....	2,367	.....	.....	.....	.....
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	26,396	46,216	49,111	13,915	36,057	18,790
9	.....1930..	24,959	40,530	42,242	13,915	37,552	16,500
10	Increase or decrease (-), 1930-1940.....acres.....	1,437	5,686	6,869	.....	-1,495	2,290
11	.....percent.....	5.8	14.0	16.3	.....	-4.0	13.5
12	Land undrained, unfit for any crop.....acres....1940..	218	434	822	.....	100	.....
13	.....1930..	2,620	.....	6,011	.....	16,200	2,040
14	Increase or decrease (-), 1930-1940.....acres.....	-2,402	434	-5,189	.....	-16,100	-2,040
15	.....percent.....	-91.7	.....	-86.3	.....	-100.4	-100.0
16	Land partly drained, for partial crop.....acres....1940..	392	4,223	1,112	.....	21,936	327
17	.....1930..	276	.....	3,203	.....	.....	420
18	Increase or decrease (-), 1930-1940.....acres.....	116	4,223	-2,091	.....	21,936	-93
19	.....percent.....	42.0	.....	-65.3	.....	.....	-22.1
20	Improved land.....acres....1940..	26,402	45,711	47,788	13,435	38,040	18,416
21	.....1930..	26,099	39,585	49,776	13,835	31,640	16,290
22	.....1920..	17,354	19,947	28,699	3,296	24,240	15,773
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	51	1,329	3,147	411	17,567	161
24	.....1930..	1,236	945	1,673	80	19,292	1,070
25	.....1920..	3,290	2,229	2,409	.....	26,230	967
26	Other unimproved land.....acres....1940..	553	3,833	110	69	2,485	480
27	.....1930..	520	.....	7	.....	2,820	1,600
28	.....1920..	6,550	.....	5,440	8,064	.....	760
29	Land in occupied farms.....acres....1940..	27,006	50,143	51,045	13,915	37,870	17,847
30	.....1930..	27,855	40,430	51,456	13,915	51,232	18,960
31	Increase or decrease (-), 1930-1940.....acres.....	-849	9,713	-411	.....	-13,362	-1,113
32	.....percent.....	-3.0	24.0	-0.8	.....	-26.1	-5.9
33	Land in planted crops.....acres....1940..	25,439	42,579	47,785	12,867	33,240	16,626
34	.....1930..	23,017	34,469	43,222	13,312	18,740	16,150
35	Increase or decrease (-), 1930-1940.....acres.....	2,422	8,110	4,563	-445	14,600	476
36	.....percent.....	10.5	23.5	10.6	-3.3	77.9	2.9
37	Land idle.....acres....1940..	1,567	1,734	141	1,008	9,270	1,221
38	.....1930..	1,218	2,581	5,715	990	18,000	665
39	Increase or decrease (-), 1930-1940.....acres.....	349	-827	-5,574	18	-8,730	556
40	.....percent.....	28.6	-32.3	-97.5	1.8	-48.5	83.6
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	.....	24,983	12,738	.....	58,092	.....
46	Length of these ditches.....miles.....	.....	28.2	36.0	.....	112.8	.....
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	3,809	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	12.0	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,456	25,890	.....	10,106	.....	.....
60	Length of these open ditches.....miles.....	3.0	39.0	.....	10.4	.....	.....
61	Length of these tile.....miles.....	5.0	7.0	.....	14.5	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ¹.....acres.....	25,540	.....	38,307	.....	.....	19,057
69	Length of open ditches owned by these enterprises.....miles.....	60.2	.....	84.9	.....	.....	33.0
70	Length of tile owned by these enterprises.....miles.....	19.1	.....	8.8	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	45.6	.....	70.5	.....	.....	27.0
72	Part protected by levees of an outside agency.....acres.....	.....	.....	18,583	.....	.....	.....

¹Included in "Other counties."

²Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — ILLINOIS

AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

Henry	Iroquois	Jackson	Jasper	Jersey	Johnson	Kane	Kankakee	Kendall	Lake	La Salle	
528,640	718,080	385,920	316,800	239,360	220,800	330,240	435,200	204,800	292,480	737,920	1
15	99	3	9	3	5	21	50	9	15	31	2
100,206	363,273	19,075	15,591	11,338	14,205	50,639	128,128	9,638	25,027	63,243	3
121,378	344,520	(¹)	13,471	12,634	17,076	106,850	137,214	9,548	37,496	32,658	4
84,560	283,159	19,078	(¹)	12,412	15,896	48,626	125,344	7,414	14,520	41,861	5
102,786	398,504	19,075	16,669	11,338	16,552	51,539	128,189	9,698	25,027	63,243	6
2,580	35,231	.....	1,078	.....	2,347	900	60	.....	.....	.....	7
95,270	361,455	17,377	14,471	10,247	10,800	49,906	119,510	9,638	24,327	63,243	8
104,728	342,510	(¹)	8,771	10,300	15,896	98,780	135,974	6,798	29,874	32,658	9
-9,458	18,945	.....	5,700	-53	-5,096	-48,874	-16,464	2,840	-5,547	30,585	10
-9.0	5.5	.....	65.0	-0.5	-32.0	-49.5	-12.1	41.8	-18.6	93.6	11
634	1,818	381	500	28	1,730	128	2,894	.....	700	.....	12
11,550	650	(¹)	1,800	1,400	513	4,145	200	550	3,446	.....	13
-10,916	1,168	.....	-1,300	-1,372	1,217	-4,017	2,694	-550	-2,746	.....	14
-94.5	179.7	.....	-72.2	-98.0	237.2	-96.9	(²)	-100.0	-79.7	.....	15
4,302	.....	1,317	620	1,063	1,675	605	5,725	.....	.....	.....	16
5,100	1,360	(¹)	2,900	934	667	3,925	1,040	2,200	4,176	.....	17
-798	-1,360	.....	-2,280	129	1,008	-3,320	4,685	-2,200	-4,176	.....	18
-15.6	-100.0	.....	-78.6	13.8	151.1	-84.6	450.5	-100.0	-100.0	.....	19
96,011	358,824	15,832	14,451	10,837	10,677	48,952	121,463	9,417	22,992	63,243	20
112,728	343,260	(¹)	10,641	11,691	13,929	97,155	136,254	8,598	27,608	32,658	21
78,135	278,159	16,083	(¹)	10,842	7,663	46,829	115,704	7,264	14,430	40,812	22
124	3,749	2,861	990	501	3,038	1,265	2,797	221	1,915	.....	23
2,350	960	(¹)	1,760	800	3,147	5,120	960	250	248	.....	24
1,105	950	.....	(¹)	1,570	5,283	51	.....	.....	90	.....	25
4,071	700	382	150	.....	490	422	3,869	.....	120	.....	26
6,300	300	(¹)	1,070	143	.....	4,575	.....	700	9,640	.....	27
5,320	4,050	2,995	(¹)	.....	2,950	1,746	9,640	150	.....	1,049	28
100,006	360,655	17,377	15,591	11,338	11,108	50,639	127,259	9,628	23,187	63,243	29
121,378	343,820	(¹)	13,471	12,634	17,076	106,850	137,214	9,548	37,016	32,658	30
-21,372	16,835	.....	2,120	-1,296	-5,968	-56,211	-9,955	80	-13,829	30,585	31
-17.6	4.9	.....	15.7	-10.2	-34.9	-52.6	-7.2	0.8	-37.4	93.6	32
92,370	358,207	13,028	14,278	10,745	9,925	46,334	114,727	9,377	18,717	61,105	33
103,698	332,410	(¹)	10,075	11,620	12,472	96,125	128,556	8,212	25,918	29,525	34
-11,328	25,797	.....	4,203	-875	-2,547	-49,791	-13,829	1,165	-7,201	31,580	35
-10.9	7.8	.....	41.7	-7.5	-20.4	-51.8	-10.8	14.2	-27.8	107.0	36
5,061	2,910	1,025	105	64	4,280	1,667	6,353	211	525	2,188	37
1,200	925	(¹)	2,530	700	3,065	1,050	230	266	1,096	100	38
3,861	1,985	.....	-2,425	-636	1,215	617	6,123	-55	-571	2,088	39
321.8	214.6	.....	-95.8	-90.8	39.6	58.8	(²)	-20.7	-52.1	(²)	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
72,424	106,474	19,075	4,170	2,000	7,700	25,633	54,970	8,279	18,723	23,466	45
133.4	162.3	53.3	21.1	6.0	12.5	46.4	81.1	27.5	75.4	38.3	46
.....	.....	19,075	.....	.....	500	.....	.....	.....	.....	.....	47
4,167	.....	.....	9,793	.....	6,505	.....	.....	.....	.....	.....	48
26.0	.....	.....	15.4	.....	10.5	.....	.....	.....	.....	.....	49
8.8	.....	.....	24.5	.....	12.5	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	.....	200	.....	.....	.....	.....	.....	51
.....	15,888	.....	.....	.....	.....	5,155	22,982	1,099	5,499	14,355	52
.....	49.5	.....	.....	.....	.....	12.5	55.1	7.0	15.9	36.0	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
23,615	240,911	.....	550	1,797	.....	19,851	50,177	260	805	25,422	59
32.5	305.3	.....	4.2	7.0	.....	24.2	46.4	1.0	1.1	33.5	60
29.3	163.6	.....	0.8	0.5	.....	13.8	95.0	0.2	2.8	29.6	61
.....	.....	.....	280	.....	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	.....	.....	1,078	7,541	.....	.....	.....	.....	.....	.....	68
.....	.....	.....	1.0	15.0	.....	.....	.....	.....	.....	.....	69
.....	.....	.....	.....	1.0	.....	.....	.....	.....	.....	.....	70
.....	.....	.....	2.5	9.0	.....	.....	.....	.....	.....	.....	71
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72

²Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — ILLINOIS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Lawrence	Lee	Livingston	Logan	McHenry	McLean	Macon
LAND AREA								
1	Approximate land area.....acres....1940..	239,360	466,560	667,520	398,080	391,040	750,720	369,280
2	Drainage enterprises.....number....1940..	13	14	49	32	16	54	75
3	Land in enterprises.....acres....1940..	71,323	88,776	99,103	61,283	37,317	153,117	115,340
4	.....1930..	74,058	62,200	95,948	52,633	30,363	131,510	92,434
5	.....1920..	61,592	85,460	47,379	22,030	48,325	116,861	52,024
6	Area of all enterprises, overlapping included.....acres....1940..	73,499	90,466	106,430	61,403	37,317	174,690	153,650
7	Amount of overlapping.....acres....1940..	2,176	1,690	6,327	120	.....	21,573	36,310
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	56,634	74,302	98,853	59,191	35,195	153,117	114,626
9	.....1930..	43,161	62,000	94,946	49,633	29,168	131,510	92,234
10	Increase or decrease (-), 1930-1940.....acres.....	13,473	12,302	3,907	9,558	6,027	21,607	22,392
11	.....percent.....	31.2	19.6	4.1	19.2	20.7	16.4	24.3
12	Land undrained, unfit for any crop.....acres....1940..	5,943	2,834	.....	2,092	465	.....	200
13	.....1930..	19,910	200	122	.....	563	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-13,967	2,634	-122	2,092	-98	.....	200
15	.....percent.....	-70.2	(²)	-100.0	.....	-17.4	.....	.....
16	Land partly drained, for partial crop.....acres....1940..	8,746	11,640	250	.....	1,687	.....	514
17	.....1930..	10,957	.....	880	3,000	632	.....	200
18	Increase or decrease (-), 1930-1940.....acres.....	-2,241	11,640	-630	-3,000	1,025	.....	314
19	.....percent.....	-20.4	.....	-71.6	-100.0	162.2	.....	157.0
20	Improved land.....acres....1940..	58,433	76,024	99,103	59,181	35,793	153,117	114,463
21	.....1930..	57,361	61,500	95,826	45,833	29,460	131,510	92,434
22	.....1920..	48,898	84,026	46,314	21,850	45,650	113,161	51,688
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	12,760	4,514	.....	1,111	546	.....	677
24	.....1930..	11,317	500	122	5,500	155	.....	.....
25	.....1920..	5,812	263	.....	180	.....	.....	160
26	Other unimproved land.....acres....1940..	110	8,238	.....	991	978	.....	200
27	.....1930..	5,380	200	.....	1,300	748	.....	.....
28	.....1920..	6,942	1,171	1,065	.....	2,675	3,700	178
29	Land in occupied farms.....acres....1940..	57,532	87,724	99,103	59,191	37,317	153,117	115,140
30	.....1930..	74,058	62,200	95,948	51,633	30,363	131,510	92,434
31	Increase or decrease (-), 1930-1940.....acres.....	-16,526	25,524	3,155	7,558	6,954	21,607	22,706
32	.....percent.....	-22.3	41.0	3.3	14.6	22.9	16.4	24.6
33	Land in planted crops.....acres....1940..	42,868	69,008	99,103	59,091	34,040	152,097	113,235
34	.....1930..	40,191	56,924	88,576	41,613	22,300	125,659	85,369
35	Increase or decrease (-), 1930-1940.....acres.....	2,677	12,084	10,527	17,478	11,740	26,438	27,866
36	.....percent.....	6.7	21.2	11.9	42.0	52.6	21.0	32.6
37	Land idle.....acres....1940..	1,191	18,377	.....	2,192	2,349	1,020	1,128
38	.....1930..	13,847	300	.....	4,500	2,050	.....	.....
39	Increase or decrease (-), 1930-1940.....acres.....	-12,656	18,077	.....	-2,308	299	1,020	1,128
40	.....percent.....	-91.4	(²)	.....	-51.3	14.6	.....	.....
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	64,870	20,219	18,450	29,483	5,079	20,910	15,273
46	Length of these ditches.....miles.....	99.4	34.8	37.2	43.2	16.2	27.5	19.7
47	Part protected by levees of an outside agency.....acres.....	37,170	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	9,963	.....	10,900	.....	.....	6,642
49	Length of these ditches.....miles.....	.....	19.0	.....	15.5	.....	.....	11.8
50	Length of these levees.....miles.....	.....	14.0	.....	0.5	.....	.....	11.7
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	485	49,363	7,640	7,404	58,239	67,808
53	Length of these tile.....miles.....	.....	2.0	118.3	15.7	30.5	74.5	197.7
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	2,170	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	2.8	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	5.0	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	55,939	31,290	13,260	24,834	73,968	23,169
60	Length of these open ditches.....miles.....	.....	76.3	35.0	14.0	23.7	96.4	26.6
61	Length of these tile.....miles.....	.....	18.5	56.1	14.0	56.6	67.6	41.5
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	2,448
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	2.0
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	3.5
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	1.0
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	6,453	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	10.5	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	6.5	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — ILLINOIS

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

Wacoupin	Madison	Marshall	Mason	Massac	Menard	Mercer	Monroe	Montgomery	Morgan	Moultrie	Ogle	Peoria	
558,080	467,840	252,800	346,240	157,440	199,680	355,840	243,200	451,840	361,600	220,800	484,800	399,360	1
15	8	4	14	4	4	3	10	48	10	42	5	3	2
12,060	49,207	6,102	109,161	36,847	12,294	24,033	64,411	64,242	14,571	73,034	13,660	6,235	3
13,075	45,600	6,384	114,115	33,603	10,769	23,834	34,239	66,889	18,282	71,576	15,723	6,446	4
7,575	28,119	(1)	118,620	28,800	16,788	22,320	24,860	48,521	10,013	20,250	12,820	6,100	5
12,120	66,427	6,102	115,097	69,516	15,688	25,233	70,291	70,518	15,051	76,724	13,860	6,235	6
60	17,220	.....	5,936	32,869	3,394	1,200	5,880	6,276	480	3,630	.....	.....	7
12,060	32,452	6,102	101,502	27,913	11,994	23,295	53,519	64,242	14,145	73,034	13,660	5,695	8
12,305	32,050	5,445	107,705	33,603	8,838	22,500	21,429	66,229	12,096	71,576	15,623	6,446	9
-245	402	657	-6,203	-5,690	3,156	795	32,090	-1,987	2,049	1,458	-1,963	-751	10
-2.0	1.2	12.1	-5.8	-16.9	35.7	3.5	149.8	-3.0	16.9	2.0	-12.6	-11.6	11
.....	11,292	.....	4,410	3,400	.....	198	2,042	.....	.....	.....	.....	.....	36
470	8,510	839	4,229	.....	1,320	800	12,400	10	4,706	.....	100	.....	13
-470	2,782	-839	181	3,400	-1,320	-602	-10,358	-10	-4,706	.....	-100	.....	36
-100.0	32.7	-100.0	4.3	.....	-100.0	-75.2	-83.5	-100.0	-100.0	.....	-100.0	.....	15
.....	5,463	.....	3,249	5,534	300	540	8,850	.....	426	.....	.....	504	16
300	5,040	100	2,181	.....	611	534	410	650	1,480	.....	.....	.....	17
-300	423	-100	1,068	5,534	-311	6	8,440	-650	-1,054	.....	.....	504	18
-100.0	8.4	-100.0	49.0	.....	-50.9	1.1	(2)	-100.0	-71.2	.....	.....	.....	19
11,960	35,387	5,780	99,778	30,850	10,311	20,270	56,109	64,242	14,571	73,034	13,915	5,549	20
12,085	39,090	5,285	109,135	27,477	9,168	22,200	31,839	66,589	17,046	71,576	14,623	6,446	21
7,500	16,335	(1)	108,762	7,200	14,986	19,369	22,726	48,135	8,946	19,966	12,738	5,465	22
100	2,785	.....	4,511	5,584	1,683	3,565	1,197	.....	.....	.....	.....	100	23
560	2,650	.....	2,743	6,126	1,090	1,300	2,200	150	550	.....	1,000	.....	24
.....	2,400	(1)	1,989	21,600	600	1,040	.....	.....	49	294	.....	210	25
.....	11,035	322	4,872	413	300	198	7,105	.....	.....	.....	345	586	26
400	3,860	1,099	2,237	.....	511	334	200	150	686	.....	100	.....	27
75	9,384	(1)	7,869	.....	1,200	1,911	2,134	386	1,018	.....	44	425	28
12,060	45,373	6,102	109,161	31,400	12,264	24,033	64,411	64,242	14,470	73,034	13,660	5,946	29
13,075	45,600	6,384	114,115	33,603	10,769	23,834	34,239	66,889	18,282	71,576	15,723	6,446	30
-1,015	-227	-282	-4,954	-2,203	1,495	199	30,172	-2,647	-3,812	1,458	-2,063	-500	31
-7.8	-0.5	-4.4	-4.3	-6.6	13.9	0.8	86.1	-4.0	-20.8	2.0	-13.1	-7.8	32
11,918	30,367	5,680	98,493	27,700	10,311	15,420	53,991	64,123	13,419	72,550	12,910	4,868	33
10,845	28,425	4,885	104,535	23,672	8,968	22,200	31,100	61,835	15,304	66,261	13,501	6,381	34
1,073	1,942	795	-6,042	4,028	1,343	-6,780	22,891	2,228	-1,885	6,228	-591	-1,513	35
9.9	6.8	16.3	-5.8	17.0	15.0	-30.5	73.6	3.6	-12.3	9.5	-4.4	-23.7	36
.....	15,059	422	8,011	9,148	1,371	7,473	9,480	119	1,025	484	750	1,074	37
150	8,225	899	1,128	4,090	500	1,100	1,300	200	66	80	500	.....	38
-150	6,834	-477	6,883	5,058	871	6,373	8,180	-81	959	404	250	1,074	39
-100.0	83.1	-53.0	610.2	123.7	174.2	579.4	629.2	-40.5	(2)	505.0	50.0	.....	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
885	8,602	2,903	96,421	32,669	.....	1,680	20,116	7,040	4,767	37,447	5,098	230	45
4.4	13.1	6.3	209.9	43.5	.....	2.1	24.5	27.9	19.7	41.5	10.8	1.0	46
.....	8,602	.....	.....	1,000	.....	600	20,086	.....	440	.....	.....	.....	47
.....	6,895	.....	10,540	4,178	9,480	.....	35,105	.....	4,058	.....	.....	.....	48
.....	21.2	.....	22.5	4.0	26.1	.....	44.3	.....	7.5	.....	.....	.....	49
.....	23.9	.....	22.5	2.0	12.4	.....	59.5	.....	4.5	.....	.....	.....	50
.....	3,850	.....	4,178	3,500	.....	.....	26,115	.....	.....	.....	.....	.....	51
2,585	.....	1,375	.....	.....	.....	.....	.....	4,498	427	27,434	.....	.....	52
9.2	.....	1.5	.....	.....	.....	.....	.....	24.8	1.9	34.9	.....	.....	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
8,590	.....	1,824	2,200	.....	.....	2,880	.....	52,704	.....	8,153	4,050	.....	59
30.7	.....	0.5	1.5	.....	.....	2.1	.....	86.1	.....	6.5	7.0	.....	60
34.4	.....	1.4	4.5	.....	.....	0.5	.....	181.9	.....	6.2	11.0	.....	61
.....	.....	.....	.....	.....	.....	800	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	.....	3,668	.....	4,512	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.5	.....	5.0	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	.....	3.0	.....	0.2	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	2.3	.....	8.0	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	33,710	.....	.....	.....	2,814	19,473	9,190	.....	1,651	.....	.....	6,005	68
.....	19.3	.....	.....	.....	4.6	20.0	7.3	.....	.....	.....	.....	7.0	69
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.0	70
.....	20.4	.....	.....	.....	8.2	21.0	18.4	.....	.....	.....	.....	12.6	71
.....	3,500	.....	.....	.....	.....	.....	3,800	.....	480	.....	.....	.....	72

³Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — ILLINOIS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Piatt	Pike	Pulaski	Randolph	Rock Island	St. Clair	Saline
LAND AREA								
1	Approximate land area.....acres....1940..	279,680	530,560	130,560	380,160	268,800	428,800	245,760
2	Drainage enterprises.....number...1940..	80	13	8	5	6	8	14
3	Land in enterprises.....acres....1940..	175,492	114,034	39,156	17,475	21,402	49,915	78,100
4	.....1930..	161,721	109,784	37,155	14,307	33,628	55,275	68,269
5	.....1920..	122,384	67,683	19,298	18,949	23,906	55,242	66,251
6	Area of all enterprises, overlapping included.....acres....1940..	246,196	156,242	45,928	17,475	25,316	49,915	79,340
7	Amount of overlapping.....acres....1940..	70,704	42,208	6,772	.....	3,914	.....	1,240
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	175,492	85,027	26,213	15,897	17,959	32,978	76,299
9	.....1930..	161,721	47,795	26,713	9,237	27,210	31,375	67,894
10	Increase or decrease (-), 1930-1940.....acres.....	13,771	37,232	-500	6,660	-9,251	1,604	8,405
11	.....percent.....	8.5	77.9	-1.9	72.0	-34.0	5.1	12.4
12	Land undrained, unfit for any crop.....acres....1940..	.....	22,368	5,976	1,308	2,645	13,267	500
13	.....1930..	.....	30,814	3,820	4,070	2,910	15,550	375
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-8,446	2,156	-2,762	-265	-2,283	125
15	.....percent.....	.....	-27.4	56.4	-67.9	-9.1	-14.7	33.3
16	Land partly drained, for partial crop.....acres....1940..	.....	6,639	6,967	270	798	3,670	1,301
17	.....1930..	.....	31,175	6,622	1,000	3,508	8,350	.....
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-24,536	345	-730	-2,710	-4,680	1,301
19	.....percent.....	.....	-78.7	5.2	-73.0	-77.2	.....	.....
20	Improved land.....acres....1940..	175,425	88,817	28,327	15,202	18,513	32,697	76,988
21	.....1930..	161,721	85,470	25,224	14,107	31,988	44,325	64,621
22	.....1920..	121,934	60,379	13,829	16,418	23,221	33,337	57,640
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	67	3,948	8,959	1,980	233	3,671	977
24	.....1930..	.....	15,750	11,931	200	40	4,950	3,193
25	.....1920..	.....	3,385	5,469	1,510	282	5,575	8,321
26	Other unimproved land.....acres....1940..	.....	21,269	1,870	293	2,656	13,547	135
27	.....1930..	.....	8,564	.....	.....	1,600	6,000	455
28	.....1920..	450	3,919	.....	1,021	403	16,330	290
29	Land in occupied farms.....acres....1940..	175,492	109,648	31,786	17,475	21,278	49,764	76,299
30	.....1930..	161,721	109,784	37,155	14,307	33,628	35,275	68,269
31	Increase or decrease (-), 1930-1940.....acres.....	13,771	-136	-5,369	3,168	-12,350	14,489	8,030
32	.....percent.....	8.5	-0.1	-14.4	22.1	-36.7	41.1	11.8
33	Land in planted crops.....acres....1940..	169,570	86,134	26,515	15,152	16,589	30,499	70,181
34	.....1930..	159,004	73,660	16,472	11,552	28,913	24,150	59,711
35	Increase or decrease (-), 1930-1940.....acres.....	10,566	12,474	10,043	3,600	-12,324	6,349	10,470
36	.....percent.....	6.6	16.9	61.0	31.2	-42.6	26.3	17.5
37	Land idle.....acres....1940..	5,896	8,397	12,478	2,230	1,857	16,792	6,026
38	.....1930..	.....	30,831	9,233	850	2,260	10,850	2,547
39	Increase or decrease (-), 1930-1940.....acres.....	5,896	-22,434	3,245	1,380	-403	5,942	3,479
40	.....percent.....	.....	-72.8	35.1	162.4	-17.8	54.8	136.6
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	67,712	.....	33,562	370	7,473	11,544	70,700
46	Length of these ditches.....miles.....	107.4	.....	42.6	4.0	25.4	21.1	102.8
47	Part protected by levees of an outside agency.....acres.....	.....	.....	3,500	.....	.....	627	.....
48	Land drained by open ditches and own levees.....acres.....	.....	102,565	.....	17,105	.....	6,931	.....
49	Length of these ditches.....miles.....	.....	137.3	.....	13.5	.....	2.1	.....
50	Length of these levees.....miles.....	.....	113.9	.....	23.5	.....	9.8	.....
51	Part protected by levees of an outside agency.....acres.....	.....	102,170	.....	13,105	.....	6,270	.....
52	Land drained by tile only.....acres.....	37,342	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	103.9	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	70,438	.....	.....	.....	3,914	.....	7,400
60	Length of these open ditches.....miles.....	97.7	.....	.....	.....	6.0	.....	10.8
61	Length of these tile.....miles.....	75.7	.....	.....	.....	1.1	.....	4.8
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	2,000	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	5,594	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	9.0	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	1.5	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	0.5	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	1,500	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	.....	11,469	.....	.....	10,015	31,440	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	33.8	.....	.....	16.6	35.0	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	0.6	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	16.9	.....	.....	10.6	21.6	.....
72	Part protected by levees of an outside agency.....acres.....	.....	4,989	.....	.....	5,142	.....	.....

³ Includes Boone, Calhoun, Clay, Effingham, Hancock, Pope, Putnam, Richland, Stark, and Winnebago Counties in 1940; Bond, Boone, Calhoun, Clay, Effingham, Hancock, Jackson, McDonough, Pope, Putnam, Richland, Stark, and Winnebago Counties in 1930; and Bond, Boone, Calhoun, Clay, Hancock, Jasper, McDonough, Marion, Marshall, Pope, Putnam, Richland, and Winnebago Counties in 1920.

CENSUS OF DRAINAGE — ILLINOIS

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

Sangamon	Schuyler	Scott	Shelby	Tazewell	Union	Vermilion	Wabash	Wayne	White	Whiteside	Will	Woodford	Other counties ¹	
563,200	277,760	160,840	494,800	417,920	264,860	574,720	141,440	457,600	320,640	441,600	540,800	282,400	2,565,120	1
10	4	6	33	12	5	88	16	13	25	29	35	5	15	2
30,980	16,385	28,758	47,176	37,708	37,512	195,390	27,001	68,073	60,598	124,471	56,306	19,330	62,786	3
29,051	15,836	32,350	59,019	35,644	31,500	170,315	25,305	70,721	55,307	129,247	64,506	15,745	90,703	4
7,097	16,080	32,393	31,834	34,240	34,713	121,075	26,661	42,930	33,724	138,170	46,042	8,500	90,628	5
30,980	16,385	28,071	52,894	37,708	37,984	209,885	27,091	78,506	66,408	131,641	58,146	19,330	67,155	6
.....	.....	313	5,718	.....	472	14,495	90	10,433	5,810	7,170	1,840	.....	4,369	7
30,559	15,549	26,339	47,176	35,948	21,480	193,388	24,893	48,348	59,812	111,002	55,040	19,330	46,852	8
28,031	15,591	18,950	59,019	34,004	31,312	169,570	17,841	43,040	45,222	110,387	63,941	15,745	69,167	9
2,528	-42	7,989	-11,843	1,944	-9,832	23,818	7,052	5,308	14,590	615	-8,901	3,585	-22,315	10
9.0	-0.3	39.0	-20.1	5.7	-31.4	14.0	39.5	12.3	32.3	0.6	-13.9	22.8	-32.3	11
.....	.....	596	.....	1,576	8,120	2,002	186	6,600	.....	4,659	366	.....	6,569	12
220	210	1,450	.....	1,172	76	.....	4,610	13,838	7,725	6,945	565	.....	8,990	13
-220	-210	-854	.....	404	8,044	2,002	-4,424	-7,238	-7,725	-2,286	-199	.....	-2,421	14
-100.0	-100.0	-59.9	.....	34.5	(²)	.....	-95.0	-52.3	-100.0	-32.9	-35.2	.....	-26.9	15
421	836	1,823	.....	184	7,912	.....	1,922	13,125	786	8,810	900	.....	9,365	16
800	35	11,950	.....	468	112	745	2,954	13,843	2,360	11,915	.....	.....	12,516	17
-379	801	-10,127	.....	-284	7,800	-745	-932	-718	-1,574	-3,105	900	.....	-3,181	18
-47.4	(²)	-84.7	.....	-60.7	(²)	-100.0	-32.6	-5.2	-66.7	-26.0	.....	.....	-25.4	19
30,566	14,955	26,952	46,194	36,822	24,080	192,098	25,214	38,345	46,060	115,799	55,631	19,330	45,833	20
28,251	15,530	30,984	58,999	35,266	29,690	168,905	20,476	45,270	46,882	125,718	64,166	15,745	68,982	21
7,097	15,899	30,740	31,834	34,167	21,369	112,843	23,751	35,195	28,762	130,909	40,526	6,400	78,531	22
399	760	310	982	541	11,032	2,592	1,557	27,417	12,728	900	212	.....	6,090	23
1,400	251	216	20	342	1,810	1,410	2,495	18,802	3,625	650	240	.....	12,918	24
.....	79	301	.....	.....	13,124	3,996	2,750	6,288	4,225	391	.....	.....	7,966	25
15	670	1,496	.....	345	2,400	700	230	2,311	1,810	7,772	463	.....	10,863	26
1,400	55	1,150	.....	36	.....	.....	2,334	6,649	4,800	2,879	100	.....	8,803	27
.....	102	1,352	.....	73	220	4,236	160	1,447	737	6,870	5,516	2,100	4,131	28
30,980	16,385	28,570	47,176	37,118	24,310	191,059	26,695	39,701	45,563	123,491	56,276	19,323	58,729	29
29,051	15,836	32,350	59,019	35,644	31,500	170,315	25,305	70,521	55,307	129,247	64,506	15,745	90,703	30
1,929	548	-3,780	-11,843	1,474	-7,190	20,743	1,990	-30,820	-9,744	-5,756	-3,230	3,578	-31,974	31
6.6	3.5	-11.7	-20.1	4.1	-22.8	12.2	5.5	-43.7	-17.6	-4.4	-12.8	22.7	-35.2	32
30,566	14,939	26,331	46,194	32,812	20,980	190,683	24,560	33,776	44,863	112,791	52,967	19,262	41,889	33
26,148	15,338	29,850	52,371	32,022	28,610	142,243	16,501	30,830	39,752	109,661	58,124	14,173	56,905	34
4,418	-399	-3,319	-6,177	790	-7,630	46,440	8,059	2,946	5,111	3,130	-5,157	5,089	-15,016	35
16.9	-2.6	-11.2	-11.8	2.5	-26.7	34.0	48.8	9.6	12.8	2.8	-8.9	35.9	-26.4	36
.....	1,446	1,230	182	.....	252	3,874	1,428	11,712	500	8,816	1,372	.....	14,906	37
100	225	2,100	1,653	900	905	6,140	3,255	19,648	8,764	2,395	135	.....	16,048	38
-100	1,221	-870	-1,481	-900	-653	-2,266	-1,827	-7,936	-8,264	6,421	1,237	.....	-1,142	39
-100.0	542.7	-41.4	-89.0	-100.0	-72.2	-36.9	-56.1	-40.4	-94.3	268.1	916.3	.....	-7.1	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
671	.....	.....	25,148	21,466	732	33,610	20,595	58,351	55,538	48,112	18,919	6,011	15,881	45
5.0	.....	.....	35.1	41.6	2.5	78.2	51.4	101.8	92.3	79.5	38.1	8.3	27.4	46
.....	.....	.....	.....	.....	.....	.....	.....	3,000	3,430	.....	.....	.....	7,900	47
4,160	.....	369	.....	1,074	36,780	.....	.....	1,202	1,320	10,969	.....	.....	12,658	48
6.4	.....	3.3	.....	4.8	38.0	.....	.....	7.0	3.9	18.9	.....	.....	31.8	49
3.3	.....	1.2	.....	8.7	36.5	.....	.....	0.8	3.0	20.2	.....	.....	30.1	50
.....	.....	.....	.....	1,500	.....	.....	.....	.....	.....	.....	.....	.....	8,871	51
1,430	.....	.....	17,671	760	.....	40,740	760	.....	780	.....	14,946	6,896	.....	52
5.7	.....	.....	36.9	0.9	.....	123.4	1.8	.....	1.8	.....	34.1	5.7	.....	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
24,719	.....	.....	4,357	.....	.....	121,040	5,646	.....	.....	59,819	22,441	6,423	15,570	59
25.1	.....	.....	4.6	.....	.....	127.9	15.1	.....	.....	56.2	32.0	5.5	9.5	60
62.3	.....	.....	14.2	.....	.....	108.7	2.9	.....	.....	22.3	22.5	5.0	20.3	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	16,385	28,389	.....	14,408	.....	.....	.....	8,520	2,960	5,571	.....	.....	18,677	68
.....	29.0	57.5	.....	39.5	.....	.....	.....	29.5	0.1	7.7	.....	.....	31.3	69
.....	21.5	6.5	.....	2.4	.....	.....	.....	.....	.....	0.7	.....	.....	.....	70
.....	33.5	44.2	.....	36.5	.....	.....	.....	14.7	3.0	1.7	.....	.....	18.0	71
.....	.....	3,613	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72

¹Percent not shown when more than 1,000.

²Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — ILLINOIS

COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930,

ITEM (See definitions in introduction)		THE STATE	Adams	Alexander	Brown	Bureau	Carroll	Cass
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	1,961	4	6	3	15	3	16
Open ditches:								
2	Completed.....miles.....1940..	6,882.2	70.9	37.9	17.0	115.8	11.3	102.4
3	.....1930..	5,996.4	32.5	51.5	22.0	116.5	25.0	107.2
4	.....1920..	4,754.5	71.5	32.6	16.0	108.4	10.0	52.6
5	Additional length authorized.....miles.....1940..	4.0						
Tile drains:								
6	Completed.....miles.....1940..	4,246.6	20.9	1.1	10.0	18.7		23.8
7	.....1930..	3,825.6	24.0		10.0	20.9		7.5
8	.....1920..	3,507.1	2.5		33.3	16.5		2.1
9	Additional length authorized.....miles.....1940..	7.7						
Levees and dikes:								
10	Completed.....miles.....1940..	1,157.8	63.2	35.5	17.2		6.0	66.3
11	.....1930..	1,108.4	56.7	34.3	11.0	12.0		40.9
12	.....1920..	650.2	22.6	19.1	14.3		22.9	9.4
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..	23,206	1,750	100	430		165	1,025
15	.....1930..	18,658	1,750	100	290		485	850
16	.....1920..	18,225	1,450	50	225		150	475
17	Pump capacity.....gal. per min.....1940..	3,648,100	284,000	20,000	40,000		35,800	192,000
18	.....1930..	3,156,700	284,000	16,000	50,000		88,000	128,500
19	.....1920..	2,843,066	141,000	5,500	36,000		31,000	136,000
20	Land served by pumps.....acres.....1940..	375,437	36,515	6,395	7,821		3,400	15,902
21	.....1930..	331,448	36,924	6,351	8,900		7,500	18,100
22	.....1920..	291,816	38,476	200	7,750		2,800	13,480
23	Wells pumped for drainage.....number.....1940..							
24	.....1930..							
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	72,567,174	2,912,492	1,130,025	447,167	746,517	207,300	1,764,416
26	.....1930..	² 74,585,923	2,414,521	1,166,441	525,387	1,037,180	425,000	1,695,283
27	.....1920..	43,595,069	1,436,995	371,484	284,250	787,120	114,000	845,068
28	Estimated cost when completed.....dollars.....1940..	72,617,674	2,912,492	1,130,025	447,167	746,517	207,300	1,764,416
29	.....1930..	² 75,728,447	2,639,521	1,166,441	525,387	1,037,180	425,000	1,712,283
30	.....1920..	51,393,244	2,133,995	371,484	301,150	883,120	133,000	850,088
31	Average cost per acre when completed.....dollars.....1940..	14.26	72.32	39.86	57.18	12.16	45.08	37.79
32	.....1930..	² 15.05	62.37	41.08	58.38	18.68	45.70	36.45
33	.....1920..	13.15	37.54	19.68	38.17	13.63	28.36	24.21
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	14,869,919		63,400		129,500	3,075	293,797
35	Average amount per acre.....dollars..	7.95		19.02		5.48	7.12	19.11
36	Enterprises having open ditches and levees.....dollars..	8,229,162	102,267	327,882			4,225	256,888
37	Average amount per acre.....dollars..	22.02	27.23	22.53			5.50	20.86
38	Enterprises having tile only.....dollars..	6,702,152				13,000		
39	Average amount per acre.....dollars..	9.29				16.25		
40	Enterprises having tile and levees.....dollars..	55,000						
41	Average amount per acre.....dollars..	25.34						
42	Enterprises having open ditches and tile.....dollars..	16,098,181		25,000		604,017		
43	Average amount per acre.....dollars..	9.46		6.14		16.35		
44	Enterprises having ditches, tile, and levees.....dollars..	401,553						102,500
45	Average amount per acre.....dollars..	16.66						33.02
46	Enterprises operating pumping plants ³.....dollars..	26,261,707	2,810,215	713,743	447,187		200,000	1,111,231
47	Average amount per acre.....dollars..	66.06	76.96	111.61	57.18		58.82	69.88
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..	558,930	44,210	(⁴)	6,567		(⁴)	19,200
49	Enterprises reporting.....number..	63	3	1	3		1	4
50	Land in these enterprises.....acres..	373,881	36,515	(⁴)	7,821		(⁴)	15,902
51	Average cost per acre.....dollars..	1.49	1.21	(⁴)	0.84		(⁴)	1.21
52	By enterprises not operating pumping plants.....dollars..	490,414	(⁴)	2,130		19,920	(⁴)	3,047
53	Enterprises reporting.....number..	547	1	4		10	1	5
54	Land in these enterprises.....acres..	1,931,725	(⁴)	18,623		52,766	(⁴)	14,007
55	Average cost per acre.....dollars..	0.25	(⁴)	0.11		0.38	(⁴)	0.22
Federal aid in maintenance:								
56	Enterprises reporting.....number..	190	3	5	2	1		2
57	Land in these enterprises.....acres..	923,694	34,836	25,018	(⁴)	(⁴)		(⁴)
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	1,617,438	(⁴)		(⁴)	19,739	(⁴)	24,414
59	Enterprises reporting.....number..	415	2		1	7	2	10
60	Land in these enterprises.....acres..	1,837,053	(⁴)		(⁴)	37,344	(⁴)	30,999
61	Average amount collected per acre.....dollars..	0.88	(⁴)		(⁴)	0.53	(⁴)	0.79
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	143,747	(⁴)	(⁴)	(⁴)		(⁴)	10,373
63	Enterprises reporting.....number..	115	2	1	2		2	5
64	Land in these enterprises.....acres..	593,474	(⁴)	(⁴)	(⁴)		(⁴)	17,857
65	Portion delinquent in these enterprises.....percent..	24.2	(⁴)	(⁴)	(⁴)		(⁴)	58.1
66	Total indebtedness, Dec. 31, 1939.....dollars..	6,974,400	363,671	69,526	(⁴)		(⁴)	258,189
67	Enterprises reporting.....number..	158	3	3	2		1	8
68	Land in these enterprises.....acres..	860,834	34,936	13,801	(⁴)		(⁴)	26,672
69	Average indebtedness per acre.....dollars..	8.10	10.41	4.97	(⁴)		(⁴)	9.68
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	842,282		(⁴)	(⁴)			49,446
71	Enterprises reporting.....number..	53		2	2			5
72	Land in these enterprises.....acres..	232,081		(⁴)	(⁴)			19,072
73	Average arrearage per acre.....dollars..	3.90		(⁴)	(⁴)			2.59
74	Reduction of debt by refinancing, prior to 1940.....dollars..	4,302,649	(⁴)	(⁴)	(⁴)			614,949
75	Enterprises reporting.....number..	40	2	1	1			4
76	Land in these enterprises.....acres..	313,725	(⁴)	(⁴)	(⁴)			16,054
77	Average reduction per acre.....dollars..	13.71	(⁴)	(⁴)	(⁴)			38.30

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 1,695.

²Revised.

CENSUS OF DRAINAGE — ILLINOIS

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AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

Champaign	Christian	Clark	Clinton	Coles	Cook	Crawford	Cumberland	De Kalb	De Witt	Douglas	Du Page	Edgar	
274	81	3	4	71	21	7	9	26	31	85	7	42	1
455.1	206.1	7.5	26.9	88.3	89.0	32.8	12.1	136.5	60.6	209.5	4.6	107.5	2
351.2	118.0	2.0	23.2	89.0	79.7	27.8	21.7	69.3	25.3	153.9	24.2	108.5	3
408.7	112.8	6.3	29.5	24.9	65.4	23.8	11.7	72.9	10.4	127.1	13.2	44.9	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
457.7	350.4	.....	.....	174.4	46.6	8.5	2.6	58.8	128.9	319.8	23.5	116.2	6
367.9	262.2	21.5	.....	127.5	28.4	6.5	14.7	55.1	92.1	227.2	32.4	161.9	7
386.1	243.8	7.4	.....	36.5	44.4	13.5	2.7	45.8	44.9	197.4	28.6	92.5	8
3.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.4	.....	.....	9
.....	4.0	.....	15.6	.....	.....	10.0	.....	.....	.....	.....	.....	.....	10
.....	1.0	0.9	13.4	0.8	.....	11.0	.....	.....	6.5	.....	.....	.....	11
.....	3.5	0.8	11.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	.....	.....	200	.....	.....	100	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	180	.....	.....	125	.....	8	.....	.....	.....	.....	15
.....	.....	.....	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
.....	.....	.....	71,000	.....	.....	15,000	.....	.....	.....	.....	.....	.....	17
.....	.....	.....	32,000	.....	.....	22,000	.....	500	.....	.....	.....	.....	18
.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
.....	.....	.....	2,892	.....	.....	1,200	.....	.....	.....	.....	.....	.....	20
.....	.....	.....	3,000	.....	.....	4,000	.....	190	.....	.....	.....	.....	21
.....	.....	.....	600	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
2,727,395	1,030,322	17,300	177,956	806,294	1,206,535	401,977	43,406	530,643	461,163	1,506,217	55,422	607,034	25
3,242,767	685,070	42,000	346,325	897,378	1,119,965	532,261	78,696	400,867	456,458	1,225,553	216,766	1,141,192	26
2,057,536	601,798	57,562	158,894	332,512	366,169	139,909	45,161	385,667	240,839	732,899	120,192	439,310	27
2,731,395	1,030,322	17,300	177,956	806,294	1,206,535	401,977	43,406	530,643	461,163	1,506,717	55,422	607,034	28
3,268,767	843,192	42,000	346,325	897,378	1,139,965	532,261	78,696	419,867	456,458	1,225,553	216,766	1,141,192	29
2,151,932	601,798	57,562	158,894	371,410	366,169	139,909	45,161	385,667	240,839	732,899	188,192	439,310	30
5.96	7.78	3.80	20.40	8.65	21.36	19.19	5.80	7.61	5.52	10.81	6.03	4.85	31
7.37	5.71	6.37	38.29	8.02	29.76	27.44	6.92	7.88	5.33	5.93	12.21	8.54	32
6.49	5.46	10.77	19.14	5.66	9.76	7.95	6.27	8.22	6.65	4.70	12.53	6.92	33
1,002,339	14,430	17,300	.....	70,355	264,685	38,800	33,204	292,467	42,327	371,386	8,000	105,051	34
5.57	1.71	3.90	.....	4.25	13.32	14.76	5.52	7.81	4.78	11.91	1.78	2.27	35
.....	81,648	.....	64,947	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
.....	17.05	.....	11.53	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
631,181	257,007	.....	.....	221,726	50,393	.....	.....	5,600	161,536	438,160	46,151	155,392	38
5.74	8.35	.....	.....	9.21	17.09	.....	.....	5.49	8.26	8.09	10.28	7.57	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
1,097,875	677,037	.....	.....	514,153	891,457	178,052	10,202	232,576	257,300	697,169	1,271	346,591	42
6.53	7.65	.....	.....	9.77	26.48	12.91	6.94	7.43	4.67	12.90	5.77	5.93	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	113,109	.....	.....	185,125	.....	.....	.....	.....	.....	.....	45
.....	.....	.....	36.49	.....	.....	40.94	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	(⁴)	.....	.....	(⁴)	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	(⁴) 1	.....	.....	(⁴) 1	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	(⁴)	.....	.....	(⁴)	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	(⁴)	.....	.....	(⁴)	.....	.....	.....	.....	.....	.....	51
34,255	11,374	.....	1,540	2,489	12,164	(⁴)	(⁴)	2,971	3,770	7,734	210	2,510	52
55	22	.....	3	10	13	(⁴) 2	(⁴) 2	8	3	12	3	5	53
174,853	42,048	.....	5,623	15,077	43,481	(⁴)	(⁴)	33,624	11,940	18,073	3,424	21,125	54
0.20	0.27	.....	0.27	0.16	0.28	(⁴)	(⁴)	0.09	0.32	0.43	0.06	0.12	55
46	(⁴) 2	.....	.....	14	5	(⁴) 1	(⁴) 3	.....	.....	.....	8	.....	56
96,909	(⁴)	.....	.....	29,109	14,317	(⁴)	2,030	.....	.....	13,320	.....	.....	57
45,965	14,520	.....	3,400	(⁴)	26,093	6,155	(⁴)	2,771	9,020	17,063	(⁴)	9,321	58
27	7	.....	4	(⁴) 2	11	3	(⁴) 1	6	3	5	(⁴) 2	3	59
113,623	14,334	.....	8,723	(⁴)	43,512	6,252	(⁴)	22,169	13,460	9,553	(⁴)	12,642	60
0.40	1.01	.....	0.39	(⁴)	0.60	0.98	(⁴)	0.12	0.67	1.78	(⁴)	0.73	61
2,130	(⁴)	.....	(⁴)	.....	5,019	.....	.....	(⁴)	(⁴)	.....	.....	.....	62
4	(⁴) 1	.....	(⁴) 1	.....	11	.....	.....	(⁴) 1	(⁴) 1	.....	.....	.....	63
27,975	(⁴)	.....	(⁴)	.....	39,450	.....	.....	(⁴)	(⁴)	.....	.....	.....	64
7.6	(⁴)	.....	(⁴)	.....	12.7	.....	.....	(⁴)	(⁴)	.....	.....	.....	65
5,800	(⁴)	.....	.....	10,010	226,965	(⁴)	.....	.....	9,800	(⁴)	.....	(⁴)	66
9	(⁴) 1	.....	.....	5	6	(⁴) 1	.....	.....	3	(⁴) 1	.....	(⁴) 2	67
10,316	(⁴)	.....	.....	18,342	28,003	(⁴)	.....	.....	12,780	(⁴)	.....	(⁴)	68
0.56	(⁴)	.....	.....	0.55	8.11	(⁴)	.....	.....	0.77	(⁴)	.....	(⁴)	69
(⁴)	.....	.....	.....	.....	145,259	(⁴)	.....	.....	(⁴)	(⁴)	.....	.....	70
(⁴) 1	.....	.....	.....	.....	5	(⁴) 1	.....	.....	(⁴) 2	(⁴) 1	.....	.....	71
(⁴)	.....	.....	.....	.....	22,891	(⁴)	.....	.....	(⁴)	(⁴)	.....	.....	72
(⁴)	.....	.....	.....	.....	6.35	(⁴)	.....	.....	(⁴)	(⁴)	.....	.....	73
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	74
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	75
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	77

³Data in lines 46 and 47 are not included in lines 34 to 45.

⁴Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE — ILLINOIS

COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND

ITEM (See definitions in Introduction)		Edwards	Fayette	Ford	Fulton	Gallatin	Greene	Grundy
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	5	12	88	10	13	9	4
Open ditches:								
2	Completed.....miles.....1940..	13.4	75.6	239.6	63.2	67.2	120.9	10.4
3	.....1930..	10.3	65.7	145.0	51.8	42.4	107.9	9.0
4	.....1920..	18.9	50.9	117.7	42.7	32.5	54.5	4.3
5	Additional length authorized.....miles.....1940..							
Tile drains:								
6	Completed.....miles.....1940..		43.4	154.6	24.1	7.0	8.8	26.5
7	.....1930..		12.5	26.5	119.0	2.0	21.2	26.5
8	.....1920..		22.3	64.1	108.8	2.1	335.0	5.8
9	Additional length authorized.....miles.....1940..							
Levees and dikes:								
10	Completed.....miles.....1940..	3.8	27.0		45.6		70.5	
11	.....1930..	4.0	44.6		48.5		33.0	
12	.....1920..		19.0	5.0	35.3		57.4	
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..		75		1,675		4,016	
15	.....1930..		50		1,440		3,450	
16	.....1920..				1,175		3,140	
17	Pump capacity.....gal. per min.....1940..		7,000		202,750		508,700	
18	.....1930..		7,000		195,500		574,000	
19	.....1920..				204,500		424,000	
20	Land served by pumps.....acres.....1940..		600		25,540		37,807	
21	.....1930..		600		24,070		39,994	
22	.....1920..				22,885		35,723	
23	Wells pumped for drainage.....number.....1940..							
24	.....1930..							
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	91,320	313,761	1,460,551	1,972,456	280,820	2,332,228	245,754
26	.....1930..	63,191	519,316	796,359	2,048,500	266,243	2,625,717	204,832
27	.....1920..	63,542	525,994	780,272	1,178,450	92,503	1,059,926	122,444
28	Estimated cost when completed.....dollars.....1940..	91,320	313,761	1,460,551	1,972,456	280,820	2,332,228	245,754
29	.....1930..	63,191	519,316	796,359	2,138,500	266,243	2,625,717	204,832
30	.....1920..	63,542	525,994	780,272	1,601,950	92,503	1,087,926	198,612
31	Average cost per acre when completed.....dollars.....1940..	11.85	7.62	7.16	73.04	5.52	45.69	17.66
32	.....1930..	12.01	13.03	4.77	76.77	6.57	51.03	14.72
33	.....1920..	9.27	12.97	5.73	58.91	4.17	29.77	17.48
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	36,452	46,066	791,887		117,182	260,305	
35	Average amount per acre.....dollars..	5.73	5.02	6.69		4.69	20.44	
36	Enterprises having open ditches and levees.....dollars..	54,868	110,931					
37	Average amount per acre.....dollars..	42.86	6.45					
38	Enterprises having tile only.....dollars..			295,549				34,218
39	Average amount per acre.....dollars..			8.26				8.98
40	Enterprises having tile and levees.....dollars..							
41	Average amount per acre.....dollars..							
42	Enterprises having open ditches and tile.....dollars..		78,683	373,115	30,000	163,638		211,536
43	Average amount per acre.....dollars..		8.95	7.50	20.46	6.32		20.93
44	Enterprises having ditches, tile, and levees.....dollars..		41,081					
45	Average amount per acre.....dollars..		8.59					
46	Enterprises operating pumping plants ⁴.....dollars..		37,000		1,942,456		2,071,923	
47	Average amount per acre.....dollars..		30.25		76.06		54.09	
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..				41,797		42,242	
49	Enterprises reporting.....number.....				9		7	
50	Land in these enterprises.....acres.....				25,540		38,307	
51	Average cost per acre.....dollars.....				1.64		1.10	
52	By enterprises not operating pumping plants.....dollars..	852	4,000	7,180		6,150	(⁵)	
53	Enterprises reporting.....number.....	4	7	10		10	2	
54	Land in these enterprises.....acres.....	5,402	25,748	58,184		47,028	(⁵)	
55	Average cost per acre.....dollars.....	0.16	0.16	0.12		0.13	(⁵)	
Federal aid in maintenance:								
56	Enterprises reporting.....number.....		1	2			5	
57	Land in these enterprises.....acres.....		(⁵)	(⁵)			36,897	
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	1,392	3,838	19,577	58,914	7,787	46,785	(⁵)
59	Enterprises reporting.....number.....	4	6	9	9	7	6	1
60	Land in these enterprises.....acres.....	5,402	24,548	57,384	25,540	31,365	42,092	(⁵)
61	Average amount collected per acre.....dollars..	0.26	0.16	0.34	2.31	0.25	1.11	(⁵)
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	13,112	(⁵)
63	Enterprises reporting.....number.....	1	1	1	1	1	4	1
64	Land in these enterprises.....acres.....	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	31,515	(⁵)
65	Portion delinquent in these enterprises.....percent.....	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	41.6	(⁵)
66	Total indebtedness, Dec. 31, 1939.....dollars..	(⁵)	(⁵)		197,600	(⁵)	557,705	(⁵)
67	Enterprises reporting.....number.....	2	2		5	2	5	1
68	Land in these enterprises.....acres.....	(⁵)	(⁵)		12,766	(⁵)	36,897	(⁵)
69	Average indebtedness per acre.....dollars..	(⁵)	(⁵)		15.47	(⁵)	15.12	(⁵)
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	(⁵)			(⁵)		(⁵)	(⁵)
71	Enterprises reporting.....number.....	1			1		2	1
72	Land in these enterprises.....acres.....	(⁵)			(⁵)		(⁵)	(⁵)
73	Average arrearage per acre.....dollars..	(⁵)			(⁵)		(⁵)	(⁵)
74	Reduction of debt by refinancing, prior to 1940.....dollars..	(⁵)			584,170		243,040	
75	Enterprises reporting.....number.....	1			4		3	
76	Land in these enterprises.....acres.....	(⁵)			11,304		18,284	
77	Average reduction per acre.....dollars..	(⁵)			51.68		13.29	

¹Included in "Other counties."

²Pumping plant located in Crawford County.

³Pumping plant located in Greene County.

CENSUS OF DRAINAGE — ILLINOIS

1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

Hamilton	Henderson	Henry	Iroquois	Jackson	Jasper	Jersey	Johnson	Kane	Kankakee	Kendall	Lake	La Salle	
6	3	15	99	3	9	3	5	21	50	9	15	31	1
112.8	33.0	191.9	467.6	53.3	41.7	28.0	23.0	70.6	127.5	28.5	76.5	71.8	2
98.5	31.0	197.0	392.9	(¹)	24.5	31.2	21.6	120.6	116.6	21.5	72.4	41.7	3
65.8	35.0	155.8	337.4	53.0	(¹)	16.5	18.1	60.7	125.3	15.6	23.4	35.4	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
.....	.....	29.3	213.1	.....	0.8	1.5	.....	26.3	150.1	7.2	18.7	65.6	6
.....	.....	61.7	194.4	(¹)	2.0	0.5	.....	41.5	151.4	6.5	35.4	40.8	7
.....	31.0	42.4	172.5	.....	(¹)	0.6	.....	26.1	141.6	7.6	15.6	42.0	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	1.8	.....	.....	.....	9
.....	27.0	8.8	.....	.....	27.0	9.0	12.5	.....	.....	.....	.....	.....	10
.....	26.0	60.0	.....	(¹)	18.2	6.5	11.3	.....	.....	.....	.....	.....	11
.....	27.0	5.8	.....	.....	(¹)	2.8	5.0	.....	5.5	.....	.....	.....	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	925	.....	.....	.....	(²)	500	.....	.....	.....	.....	.....	.....	14
.....	900	.....	.....	(¹)	.....	800	.....	.....	.....	.....	.....	.....	15
.....	800	.....	.....	.....	(¹)	(³)	.....	.....	.....	.....	.....	.....	16
.....	141,000	.....	.....	.....	(²)	40,000	.....	.....	.....	.....	.....	.....	17
.....	141,000	.....	.....	(¹)	.....	140,000	.....	.....	.....	.....	.....	.....	18
.....	153,500	.....	.....	.....	(¹)	(³)	.....	.....	.....	.....	.....	.....	19
.....	19,057	.....	.....	.....	.....	286	7,541	.....	.....	.....	.....	.....	20
.....	17,460	.....	.....	(¹)	.....	.....	7,541	.....	.....	.....	.....	.....	21
.....	17,500	.....	.....	.....	(¹)	.....	9,540	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
807,747	850,783	834,201	3,152,400	403,416	286,455	278,739	103,997	319,675	718,537	114,839	813,928	323,054	25
922,930	749,350	1,466,826	3,111,533	(¹)	415,000	416,800	148,270	499,111	1,168,919	134,147	1,176,372	264,800	26
433,901	600,000	965,750	1,629,378	253,000	(¹)	344,166	107,448	291,671	932,234	80,392	140,650	294,936	27
807,747	850,783	834,201	3,152,400	403,416	286,455	278,739	103,997	319,675	721,537	114,839	813,928	323,054	28
922,930	749,350	1,466,826	3,116,533	(¹)	415,000	416,800	148,270	499,111	1,168,919	134,147	1,176,372	269,800	29
623,901	650,000	1,009,750	1,629,378	253,000	(¹)	344,166	107,448	291,671	932,234	80,392	140,650	312,436	30
13.90	44.64	8.32	8.68	21.15	18.37	24.58	7.32	6.31	5.63	11.92	32.52	5.11	31
17.17	39.52	12.08	9.05	(¹)	30.81	32.99	8.68	4.67	8.52	14.05	31.37	8.26	32
12.36	37.14	11.94	5.75	13.26	(¹)	27.73	6.76	6.00	7.44	10.84	9.69	7.46	33
807,747	.....	592,054	603,342	403,416	34,994	41,440	48,464	114,862	126,464	88,909	574,220	101,612	34
13.90	.....	8.17	5.67	21.15	8.39	20.72	6.29	4.48	10.74	30.67	4.33	35	
.....	.....	77,266	.....	.....	199,161	.....	55,533	.....	.....	.....	.....	.....	36
.....	.....	18.54	.....	.....	20.34	.....	8.54	.....	.....	.....	.....	.....	37
.....	.....	.....	175,162	.....	.....	.....	73,963	.....	178,200	22,180	224,708	123,471	38
.....	.....	.....	11.02	.....	.....	.....	14.35	.....	7.75	20.18	40.86	8.60	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	.....	164,881	2,373,696	.....	2,300	28,049	.....	130,830	416,873	3,750	15,000	97,971	41
.....	.....	6.98	9.85	.....	4.18	15.61	.....	6.59	8.31	14.42	18.63	3.85	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	850,783	.....	.....	.....	50,000	209,250	.....	.....	.....	.....	.....	.....	45
.....	44.64	.....	.....	.....	46.38	27.75	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	(⁵)	(⁵)	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	(⁵)	(⁵)	1	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	(⁵)	(⁵)	(⁵)	.....	.....	.....	.....	.....	50
7,420	.....	12,622	55,576	(⁵)	3,369	(⁵)	810	1,491	20,355	.....	4,937	6,991	51
3	.....	9	38	(⁵)	6	(⁵)	4	3	22	.....	8	3	52
54,825	.....	70,636	204,999	(⁵)	12,943	(⁵)	8,482	6,089	95,713	.....	15,411	9,627	53
0.14	.....	0.18	0.27	(⁵)	0.26	(⁵)	0.10	0.24	0.21	.....	0.32	0.73	54
(⁵)	.....	(⁵)	58,228	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	.....	(⁵)	(⁵)	55
(⁵)	.....	(⁵)	.....	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	.....	(⁵)	(⁵)	56
.....	.....	.....	.....	.....	(⁵)	(⁵)	(⁵)	(⁵)	(⁵)	.....	(⁵)	(⁵)	57
16,740	16,040	23,994	70,820	(⁵)	14,311	(⁵)	743	1,557	34,219	.....	23,200	(⁵)	58
4	3	10	30	(⁵)	7	(⁵)	5	3	20	.....	4	(⁵)	59
55,102	19,057	50,267	169,107	(⁵)	13,401	(⁵)	14,205	6,089	84,377	.....	11,266	(⁵)	60
0.30	0.84	0.48	0.42	(⁵)	1.07	(⁵)	0.05	0.26	0.40	.....	2.06	(⁵)	61
(⁵)	.....	.....	(⁵)	(⁵)	(⁵)	(⁵)	5,202	.....	.....	.....	911	(⁵)	62
(⁵)	.....	.....	(⁵)	(⁵)	(⁵)	(⁵)	5	.....	.....	.....	4	(⁵)	63
(⁵)	.....	.....	(⁵)	(⁵)	(⁵)	(⁵)	14,205	.....	.....	.....	11,266	(⁵)	64
.....	.....	.....	(⁵)	(⁵)	(⁵)	(⁵)	36.6	.....	.....	.....	8.1	(⁵)	65
229,320	.....	(⁵)	12,155	.....	61,100	(⁵)	(⁵)	.....	(⁵)	.....	76,000	.....	66
3	.....	(⁵)	5	.....	3	(⁵)	1	.....	(⁵)	.....	5	.....	67
52,582	.....	(⁵)	29,062	.....	9,011	(⁵)	(⁵)	.....	(⁵)	.....	11,871	.....	68
4.36	.....	(⁵)	0.42	.....	6.78	(⁵)	(⁵)	.....	(⁵)	.....	6.40	.....	69
.....	.....	(⁵)	(⁵)	.....	(⁵)	.....	(⁵)	.....	.....	.....	.....	.....	70
.....	.....	(⁵)	(⁵)	.....	(⁵)	.....	(⁵)	.....	.....	.....	29,000	.....	71
.....	.....	(⁵)	(⁵)	.....	(⁵)	.....	(⁵)	.....	.....	.....	3	.....	72
.....	.....	(⁵)	(⁵)	.....	(⁵)	.....	(⁵)	.....	.....	.....	4,671	.....	73
(⁵)	.....	(⁵)	.....	.....	(⁵)	.....	(⁵)	.....	.....	.....	6.21	.....	74
(⁵)	206,417	(⁵)	.....	.....	(⁵)	.....	.....	.....	.....	.....	.....	.....	75
(⁵)	3	(⁵)	.....	.....	(⁵)	.....	.....	.....	.....	.....	.....	.....	76
(⁵)	19,057	(⁵)	.....	.....	(⁵)	.....	.....	.....	.....	.....	.....	.....	77
(⁵)	10.83	(⁵)	.....	.....	(⁵)	.....	.....	.....	.....	.....	.....	.....	78

⁴Data in lines 46 and 47 are not included in lines 34 to 45.

⁵Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE — ILLINOIS

COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND

ITEM (See definitions in Introduction)		Lawrence	Lee	Livingston	Logan	McHenry	McLean	Macon
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	13	14	49	22	16	54	75
Open ditches:								
2	Completed.....miles.....1940..	109.9	130.1	72.2	72.7	39.9	123.9	60.1
3	.....1930..	104.9	113.9	57.3	75.4	30.3	85.3	40.0
4	.....1920..	85.3	130.4	24.2	25.8	39.6	87.2	43.0
5	Additional length authorized.....miles.....1940..	.....	.....	.....	3.5	.....	.....	0.5
Tile drains:								
6	Completed.....miles.....1940..	.....	23.3	174.4	29.7	87.1	142.1	242.7
7	.....1930..	0.5	26.4	129.9	22.5	77.0	76.1	132.7
8	.....1920..	.....	22.9	42.2	19.3	98.6	34.3	71.3
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:								
10	Completed.....miles.....1940..	6.5	19.0	.....	0.5	.....	.....	12.7
11	.....1930..	7.5	.....	.....	1.0	.....	.....	11.2
12	.....1920..	.....	7.0	.....	.....	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Pumping plants:								
14	Engine capacity.....horsepower.....1940..	240	.....	.....	.....	.....	.....	.....
15	.....1930..	240	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	40,000	.....	.....	.....	.....	.....	.....
18	.....1930..	40,000	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	6,370	.....	.....	.....	.....	.....	.....
21	.....1930..	6,370	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	460,712	1,407,972	913,987	941,367	404,121	1,317,252	1,194,243
26	.....1930..	451,022	1,564,983	932,587	908,367	314,095	748,291	724,905
27	.....1920..	304,734	1,284,563	312,304	193,905	479,570	573,761	238,151
28	Estimated cost when completed.....dollars.....1940..	460,712	1,407,972	913,987	971,367	404,121	1,317,252	1,195,243
29	.....1930..	451,022	1,564,983	932,587	968,367	314,095	748,291	731,405
30	.....1920..	304,734	1,339,563	426,762	193,905	530,070	633,994	238,151
31	Average cost per acre when completed.....dollars.....1940..	6.46	15.86	9.22	15.85	10.83	8.60	10.36
32	.....1930..	6.09	25.16	9.72	18.40	10.34	5.69	7.91
33	.....1920..	4.95	15.67	9.01	8.80	10.97	5.43	4.58
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	334,644	188,632	96,900	477,674	30,983	83,825	150,523
35	Average amount per acre.....dollars..	5.16	9.33	5.25	16.20	6.10	4.01	9.86
36	Enterprises having open ditches and levees.....dollars..	.....	195,000	.....	280,693	.....	.....	137,517
37	Average amount per acre.....dollars..	.....	19.57	.....	25.75	.....	.....	20.70
38	Enterprises having tile only.....dollars..	.....	13,500	565,197	80,000	83,032	514,114	753,828
39	Average amount per acre.....dollars..	.....	27.84	11.45	10.47	11.21	8.83	11.12
40	Enterprises having tile and levees.....dollars..	.....	55,000	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	25.34	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	.....	955,840	251,890	133,000	290,106	719,313	135,375
43	Average amount per acre.....dollars..	.....	17.09	8.05	10.03	11.68	9.72	5.84
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	18,000
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	7.35
46	Enterprises operating pumping plants ⁷.....dollars..	126,068	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	19.54	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..	(⁸)	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	1	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	(⁸)	.....	.....	.....	.....	.....	.....
51	Average cost per acre ⁸.....dollars.....	(⁸)	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	3,633	6,625	2,900	10,604	(⁸)	(⁸)	3,266
53	Enterprises reporting.....number.....	10	4	4	5	.....	1	19
54	Land in these enterprises.....acres.....	52,884	47,319	8,680	14,760	(⁸)	(⁸)	31,812
55	Average cost per acre.....dollars..	0.07	0.14	0.33	0.72	(⁸)	(⁸)	0.10
Federal aid in maintenance:								
56	Enterprises reporting.....number.....	.....	.....	3	.....	.....	2	.....
57	Land in these enterprises.....acres.....	.....	.....	7,090	.....	.....	(⁸)	.....
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	2,645	13,074	(⁸)	9,964	.....	(⁸)	10,656
59	Enterprises reporting.....number.....	7	3	1	5	.....	2	6
60	Land in these enterprises.....acres.....	39,914	38,159	(⁸)	15,060	.....	(⁸)	10,185
61	Average amount collected per acre.....dollars..	0.07	0.34	(⁸)	0.66	.....	(⁸)	1.05
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	.....	6,145	(⁸)	.....	.....	.....	(⁸)
63	Enterprises reporting.....number.....	.....	3	2	.....	.....	.....	1
64	Land in these enterprises.....acres.....	.....	44,805	(⁸)	.....	.....	.....	(⁸)
65	Portion delinquent in these enterprises.....percent..	.....	13.7	(⁸)	.....	.....	.....	(⁸)
66	Total indebtedness, Dec. 31, 1939.....dollars..	(⁸)	(⁸)	.....	(⁸)	.....	.....	(⁸)
67	Enterprises reporting.....number.....	2	2	.....	1	.....	.....	2
68	Land in these enterprises.....acres.....	(⁸)	(⁸)	.....	(⁸)	.....	.....	(⁸)
69	Average indebtedness per acre.....dollars..	(⁸)	(⁸)	.....	(⁸)	.....	.....	(⁸)
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	(⁸)	(⁸)	.....	(⁸)	.....	.....	.....
71	Enterprises reporting.....number.....	1	1	.....	1	.....	.....	.....
72	Land in these enterprises.....acres.....	(⁸)	(⁸)	.....	(⁸)	.....	.....	.....
73	Average arrearage per acre.....dollars..	(⁸)	(⁸)	.....	(⁸)	.....	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	(⁸)	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	1	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	(⁸)	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	(⁸)	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."
²Pumping plant located in St. Clair County.
³Part tributary to pumps in St. Clair County.
⁴Revised.

CENSUS OF DRAINAGE — ILLINOIS

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1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

Macoupin	Madison	Marshall	Mason	Massac	Menard	Mercer	Monroe	Montgomery	Morgan	Moultrie	Ogle	Peoria	
15	8	4	14	4	4	3	10	48	10	42	5	3	1
35.1	53.6	6.8	233.9	47.5	30.7	24.2	76.1	114.0	33.6	46.0	22.8	8.0	2
37.9	30.8	5.2	194.6	49.0	41.8	31.0	122.7	69.3	63.0	32.0	15.0	3	3
3.2	22.3	(¹)	154.9	54.6	27.5	24.0	45.9	62.1	14.8	22.7	18.3	9.5	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
43.6	.....	2.9	4.5	.....	.....	0.5	.....	206.7	4.9	41.1	11.2	6.0	6
27.2	.....	3.6	5.3	.....	.....	1.0	.....	161.7	5.5	59.4	8.5	2.7	7
15.4	.....	(¹)	5.3	.....	2.5	.....	.....	144.4	2.4	32.8	7.8	45.9	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
.....	44.3	.....	22.5	2.0	20.6	21.0	77.9	.....	9.0	.....	8.0	12.6	10
34.0	50.9	.....	9.0	7.7	28.0	21.0	19.0	3.0	.....	.....	.....	14.0	11
2.7	2.3	(¹)	12.2	7.7	17.5	15.4	26.3	.....	20.6	.....	.....	9.3	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	200	.....	.....	.....	125	1,000	65	.....	350	.....	.....	500	14
.....	200	.....	.....	.....	50	1,000	.....	.....	550	.....	.....	575	15
.....	(²)	(¹)	60	.....	50	1,150	.....	.....	325	.....	.....	515	16
.....	24,000	.....	.....	.....	15,000	200,000	6,000	.....	46,000	.....	.....	69,550	17
.....	66,000	.....	.....	.....	10,000	200,000	.....	.....	105,000	.....	.....	88,000	18
.....	(²)	(¹)	16,000	.....	8,400	225,000	.....	.....	54,000	.....	.....	62,666	19
.....	³ 33,710	.....	.....	.....	2,814	19,473	2,000	.....	1,651	.....	.....	6,005	20
.....	3,800	.....	.....	.....	2,288	20,834	.....	.....	5,450	.....	.....	6,216	21
.....	20,000	(¹)	1,320	.....	2,000	20,230	.....	.....	2,482	.....	.....	4,400	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
90,778	2,744,841	93,858	1,665,116	329,595	193,587	755,392	705,065	725,635	411,683	466,102	110,770	401,322	25
⁴ 177,986	2,812,694	100,802	1,554,131	721,600	396,212	691,000	315,000	659,604	605,936	410,644	131,520	484,935	26
64,483	2,048,500	(¹)	1,153,190	609,600	176,500	558,600	738,446	383,853	156,932	159,901	113,900	246,760	27
90,778	2,744,841	93,858	1,665,116	329,595	193,587	755,392	705,065	725,635	411,683	466,102	110,770	401,322	28
⁴ 180,486	2,812,694	100,802	1,554,131	721,600	396,212	891,000	315,000	712,004	605,936	410,644	131,520	484,935	29
64,483	3,048,500	(¹)	1,353,190	621,600	176,500	975,400	738,446	386,965	156,932	159,901	141,900	246,760	30
7.53	55.78	15.38	15.25	8.94	15.74	31.43	10.95	11.29	28.25	6.38	8.11	64.36	31
⁴ 13.80	⁵ 61.68	15.79	13.62	21.47	36.79	37.38	9.20	10.64	33.14	5.74	8.36	75.23	32
8.51	⁶ 108.41	(¹)	11.41	21.58	10.51	43.70	29.70	7.98	15.67	7.90	11.07	40.45	33
14,299	174,749	47,483	1,412,727	152,595	.....	8,500	201,580	54,655	141,323	189,731	27,180	2,000	34
16.16	20.31	16.36	14.65	4.67	.....	5.06	10.02	7.76	29.64	5.06	5.33	8.70	35
.....	586,834	.....	201,528	177,000	131,587	.....	395,205	.....	85,500	.....	.....	.....	36
.....	85.11	.....	19.12	42.36	13.88	.....	11.26	.....	21.06	.....	.....	.....	37
16,402	.....	10,210	.....	.....	.....	.....	.....	55,917	8,862	204,203	.....	.....	38
6.34	.....	7.42	.....	.....	.....	.....	.....	12.43	20.75	7.44	.....	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
60,077	.....	36,165	50,861	.....	.....	9,000	.....	615,063	.....	72,168	24,300	.....	42
6.99	.....	19.83	23.12	.....	.....	3.12	.....	11.67	.....	8.85	6.00	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	111,196	.....	59,290	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	30.31	.....	13.14	.....	45
.....	1,983,258	.....	.....	62,000	737,892	108,280	.....	.....	64,802	.....	.....	399,322	46
.....	58.83	.....	.....	22.03	37.89	11.78	.....	.....	39.25	.....	.....	66.50	47
.....	(⁸)	.....	.....	.....	(⁸)	(⁸)	(⁸)	.....	(⁸)	.....	.....	(⁸)	48
.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	(⁸)	.....	.....	.....	(⁸)	(⁸)	(⁸)	.....	(⁸)	.....	.....	(⁸)	50
.....	(⁸)	.....	.....	.....	(⁸)	(⁸)	(⁸)	.....	(⁸)	.....	.....	(⁸)	51
480	6,321	(⁸)	(⁸)	6,810	(⁸)	.....	13,252	17,819	8,815	1,539	(⁸)	.....	52
5	6	.....	.....	4	.....	.....	9	41	4	11	.....	.....	53
4,015	15,497	(⁸)	(⁸)	36,847	(⁸)	.....	55,221	48,736	10,366	29,103	(⁸)	.....	54
0.12	0.41	(⁸)	(⁸)	0.18	(⁸)	.....	0.24	0.36	0.85	0.05	(⁸)	.....	55
(⁸)	4	.....	.....	.....	(⁸)	.....	.....	.....	.....	.....	.....	.....	56
.....	38,630	(⁸)	77,248	.....	(⁸)	(⁸)	27,192	(⁸)	(⁸)	.....	.....	(⁸)	57
(⁸)	147,308	.....	(⁸)	6,734	5,781	(⁸)	8,552	1,296	13,942	.....	(⁸)	(⁸)	58
(⁸)	7	.....	.....	4	3	(⁸)	5	4	5	.....	(⁸)	(⁸)	59
(⁸)	48,215	.....	(⁸)	36,847	6,684	(⁸)	43,966	3,815	9,977	.....	(⁸)	(⁸)	60
(⁸)	3.06	.....	(⁸)	0.18	0.86	(⁸)	0.19	0.34	1.40	.....	(⁸)	(⁸)	61
(⁸)	(⁸)	.....	.....	12,314	.....	(⁸)	(⁸)	(⁸)	(⁸)	.....	(⁸)	.....	62
(⁸)	2	.....	.....	3	.....	(⁸)	2	(⁸)	(⁸)	.....	(⁸)	.....	63
(⁸)	(⁸)	.....	.....	35,913	.....	(⁸)	(⁸)	(⁸)	(⁸)	.....	(⁸)	.....	64
(⁸)	(⁸)	.....	.....	34.3	.....	(⁸)	(⁸)	(⁸)	(⁸)	.....	(⁸)	.....	65
(⁸)	(⁸)	.....	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	(⁸)	66
(⁸)	2	.....	(⁸)	.....	(⁸)	(⁸)	2	.....	(⁸)	.....	(⁸)	(⁸)	67
(⁸)	(⁸)	.....	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	(⁸)	68
(⁸)	(⁸)	.....	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	(⁸)	69
(⁸)	1	.....	.....	.....	.....	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	.....	70
(⁸)	.....	.....	.....	.....	.....	(⁸)	2	.....	(⁸)	.....	(⁸)	.....	71
(⁸)	.....	.....	.....	.....	.....	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	.....	72
(⁸)	.....	.....	.....	.....	.....	(⁸)	.....	(⁸)	(⁸)	.....	(⁸)	.....	73
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(⁸)	74
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(⁸)	75
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(⁸)	76
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(⁸)	77

¹ Includes agricultural land in sanitary districts.
² Includes cost for benefits other than agricultural.
³ Data in lines 46 and 47 are not included in lines 34 to 45.
⁴ Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE—ILLINOIS

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	Piatt	Pike	Pulaski	Randolph	Rock Island	St. Clair	Saline
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	80	13	8	5	6	8	14
Open ditches:							
2 Completed.....miles.....1940..	205.1	171.1	51.6	17.5	48.0	56.2	113.6
3	1930..	99.1	122.5	17.9	35.6	46.6	100.2
4	1920..	117.2	43.0	26.6	12.6	33.4	109.3
5 Additional length authorized.....miles.....1940..							
Tile drains:							
6 Completed.....miles.....1940..	179.6		1.5		1.7		4.8
7	1930..	149.3	0.5	1.5			0.8
8	1920..	142.6	34.3		2.0	1.8	
9 Additional length authorized.....miles.....1940..							
Levees and dikes:							
10 Completed.....miles.....1940..		130.8	0.5	23.5	10.6	31.4	
11	1930..	3.0	167.0	0.8	22.6	13.5	29.9
12	1920..		59.2	2.8	17.7	10.2	1.5
13 Additional length authorized.....miles.....1940..							
Pumping plants:							
14 Engine capacity.....horsepower.....1940..		1,450			550	3,465	
15	1930..	1,050			550		
16	1920..	450			495	3,900	
17 Pump capacity.....gal. per min.....1940..		106,000			120,400	760,500	
18	1930..	190,000			151,000		
19	1920..	97,000			75,000	675,000	
20 Land served by pumps.....acres.....1940..		11,469			10,015	31,440	
21	1930..	10,200			12,700		
22	1920..	5,350			9,168	10,000	
23 Wells pumped for drainage.....number.....1940..							
24	1930..						
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	1,550,372	3,876,255	286,671	261,782	615,016	6,175,998	412,078
26	1930..	1,182,065	3,737,310	312,598	242,100	733,900	5,503,973
27	1920..	865,364	1,532,727	218,395	283,554	411,500	2,701,572
28 Estimated cost when completed.....dollars.....1940..	1,550,372	3,876,255	286,671	261,782	615,016	6,175,998	412,078
29	1930..	1,182,065	3,737,310	312,598	242,100	733,900	5,503,973
30	1920..	865,364	1,549,627	218,595	293,554	526,700	6,201,572
31 Average cost per acre when completed.....dollars.....1940..	8.83	33.99	7.32	14.98	28.74	¹ 123.73	5.28
32	1930..	7.31	34.04	8.41	16.92	² 99.57	5.90
33	1920..	7.07	22.90	11.33	15.49	⁴ 112.26	6.13
Invested in and required for completion, 1940:							
34 Enterprises having open ditches only.....dollars..	412,941		217,165	4,685	175,500	138,398	356,078
35 Average amount per acre.....dollars..	6.10		6.47	12.66	23.48	11.98	5.04
36 Enterprises having open ditches and levees.....dollars..		3,208,212		257,097		37,600	
37 Average amount per acre.....dollars..		31.28		15.03		5.42	
38 Enterprises having tile only.....dollars..	262,706						
39 Average amount per acre.....dollars..	7.03						
40 Enterprises having tile and levees.....dollars..							
41 Average amount per acre.....dollars..							
42 Enterprises having open ditches and tile.....dollars..	874,725				125,000		56,000
43 Average amount per acre.....dollars..	12.42				31.94		7.57
44 Enterprises having ditches, tile, and levees.....dollars..			69,486				
45 Average amount per acre.....dollars..			12.42				
46 Enterprises operating pumping plants ³.....dollars..		668,043			314,516	6,000,000	
47 Average amount per acre.....dollars..		58.24			31.40	⁴ 190.84	
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48 By enterprises operating pumping plants.....dollars..		(?)			(?)	(?)	
49 Enterprises reporting.....number..		2			2	1	
50 Land in these enterprises.....acres..		(?)			(?)	(?)	
51 Average cost per acre.....dollars..		(?)			(?)	(?)	
52 By enterprises not operating pumping plants.....dollars..	5,687	33,005	4,025	2,796		1,502	310
53 Enterprises reporting.....number..	3	10	6	4		3	3
54 Land in these enterprises.....acres..	25,876	102,378	29,442	14,950		9,719	5,920
55 Average cost per acre.....dollars..	0.22	0.32	0.14	0.19		0.15	0.05
Federal aid in maintenance:							
56 Enterprises reporting.....number..	3	5	1	1	1	2	9
57 Land in these enterprises.....acres..	3,356	77,208	(?)	(?)	(?)	(?)	43,190
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..	11,603	66,204	3,134		(?)	400,947	(?)
59 Enterprises reporting.....number..	9	11	4		2	3	2
60 Land in these enterprises.....acres..	28,992	103,799	25,855		(?)	34,889	(?)
61 Average amount collected per acre.....dollars..	0.40	0.64	0.12		(?)	11.49	(?)
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	(?)	(?)	17,112		(?)		(?)
63 Enterprises reporting.....number..	2	2	4		1		1
64 Land in these enterprises.....acres..	(?)	(?)	25,855		(?)		(?)
65 Portion delinquent in these enterprises.....percent..	(?)	(?)	66.2		(?)		(?)
66 Total indebtedness, Dec. 31, 1939.....dollars..	(?)	354,554	11,597		157,324	(?)	(?)
67 Enterprises reporting.....number..	1	6	3		3	1	2
68 Land in these enterprises.....acres..	(?)	80,598	9,181		10,387	(?)	(?)
69 Average indebtedness per acre.....dollars..	(?)	4.40	1.26		(?)	(?)	(?)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(?)		10,913		(?)		
71 Enterprises reporting.....number..	1		3		2		
72 Land in these enterprises.....acres..	(?)		9,181		(?)		
73 Average arrearage per acre.....dollars..	(?)		1.19		(?)		
74 Reduction of debt by refinancing, prior to 1940.....dollars..	(?)						
75 Enterprises reporting.....number..	2						
76 Land in these enterprises.....acres..	(?)						
77 Average reduction per acre.....dollars..	(?)						

¹ Includes Boone, Calhoun, Clay, Effingham, Hancock, Pope, Putnam, Richland, Stark, and Winnebago Counties in 1940; Bond, Boone, Calhoun, Clay, Effingham, Hancock, Jackson, McDonough, Pope, Putnam, Richland, Stark, and Winnebago Counties in 1930; and Bond, Boone, Calhoun, Clay, Hancock, Jasper, McDonough, Marion, Marshall, Pope, Putnam, Richland, and Winnebago Counties in 1920.
² Pumping plant located in Rock Island County.
³ Pumping plant located in Alexander County.

CENSUS OF DRAINAGE — ILLINOIS

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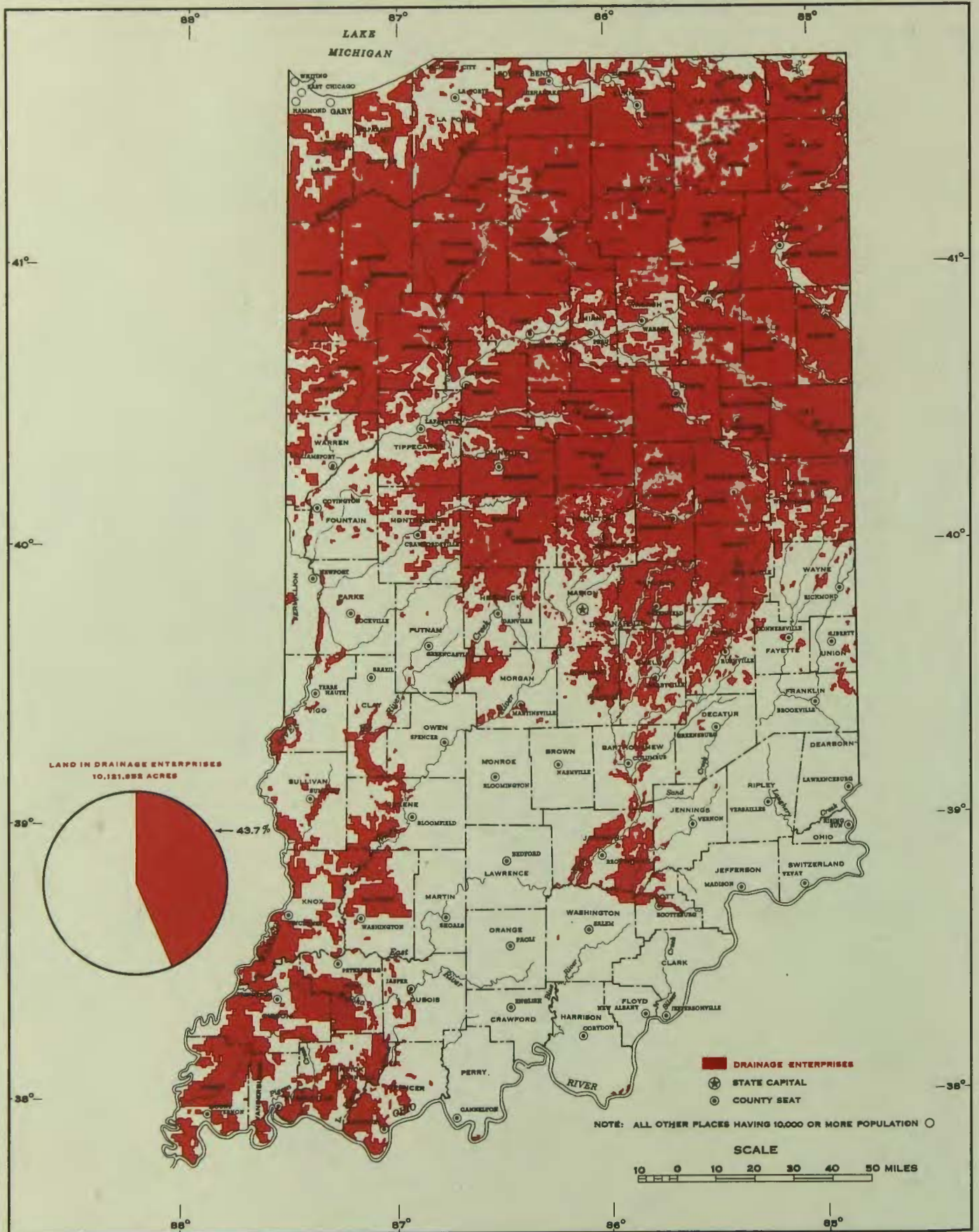
1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

Sangamon	Schuyler	Scott	Shelby	Tazewell	Union	Vermilion	Wabash	Wayne	White	Whiteside	Will	Woodford	Other counties ¹	
10	4	6	33	12	5	88	16	13	25	29	35	5	15	1
36.5	29.0	60.8	39.7	85.9	40.5	206.1	66.5	138.3	96.2	162.3	70.1	13.8	100.0	2
33.5	25.0	73.0	59.7	91.2	31.3	125.1	59.8	131.3	90.7	221.8	74.6	9.6	172.9	3
.....	30.3	44.2	17.1	83.0	49.1	104.7	83.1	89.7	65.3	236.8	58.1	13.2	111.7	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
68.0	21.5	6.5	51.1	3.3	.....	232.1	4.7	.....	1.8	23.0	56.6	10.7	20.3	6
31.1	5.0	4.9	39.5	128.9	.....	322.5	0.6	0.1	1.8	32.0	66.7	9.2	88.5	7
6.3	18.0	202.9	71.7	15.2	.....	182.2	6.7	.....	1.8	4.9	43.4	.....	12.7	8
.....	.....	.....	.....	.....	.....	2.5	.....	.....	.....	.....	.....	.....	.....	9
3.3	33.5	45.4	.....	45.2	36.5	.....	.....	15.5	6.0	21.9	.....	.....	48.1	10
2.0	30.0	41.0	.....	24.3	28.9	.....	.....	1.9	0.2	8.1	.....	.....	45.4	11
.....	26.6	50.2	.....	22.9	28.7	.....	.....	.....	.....	31.0	.....	2.0	18.5	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	825	1,270	.....	1,095	.....	.....	.....	200	110	(²)	.....	.....	800	14
.....	925	1,120	.....	1,010	.....	.....	.....	200	.....	.....	.....	.....	770	15
.....	850	980	.....	1,715	(³)	.....	.....	.....	.....	(²)	.....	.....	220	16
.....	113,250	247,000	.....	182,950	.....	.....	.....	28,200	10,000	(²)	.....	.....	122,000	17
.....	118,000	224,000	.....	162,000	.....	.....	.....	16,000	.....	.....	.....	.....	108,200	18
.....	114,500	137,000	.....	201,000	(³)	.....	.....	.....	.....	(²)	.....	.....	36,000	19
.....	16,385	25,813	.....	13,128	.....	.....	.....	3,000	2,960	5,571	.....	.....	18,677	20
.....	15,836	30,016	.....	14,242	.....	.....	.....	9,041	.....	.....	.....	.....	19,825	21
.....	16,380	27,352	.....	13,861	500	.....	.....	.....	.....	4,319	.....	.....	5,500	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
234,802	899,678	1,341,638	218,427	1,321,540	644,555	1,967,486	190,308	1,037,761	495,126	857,491	495,102	142,631	1,725,867	25
499,577	926,731	902,668	333,255	2,073,802	563,772	1,854,563	133,287	843,185	561,367	1,060,911	460,179	128,608	2,755,604	26
8,100	658,794	893,545	114,187	1,016,463	497,850	973,498	286,945	282,959	233,402	883,204	334,849	147,750	1,611,901	27
234,802	899,678	1,341,638	218,427	1,321,540	644,555	1,978,486	190,308	1,037,761	495,126	857,491	495,102	142,631	1,725,867	28
552,577	926,731	902,668	333,255	2,073,802	563,772	1,899,165	133,287	891,185	571,367	1,080,911	460,179	128,608	2,755,604	29
8,100	678,980	893,545	114,187	1,023,963	522,550	1,011,498	286,945	282,959	240,644	993,704	388,681	171,000	1,669,101	30
7.58	54.91	46.65	4.63	35.05	17.18	10.12	7.05	15.24	8.17	6.89	8.79	7.38	27.49	31
19.02	58.52	27.90	5.65	58.18	17.90	11.15	5.27	12.60	10.33	8.36	7.13	8.18	34.12	32
1.14	42.23	27.58	3.59	29.91	15.05	8.35	11.14	6.59	7.14	7.19	8.44	20.12	17.37	33
6,505	.....	.....	33,716	109,161	6,400	258,601	148,745	655,072	439,194	329,290	132,461	33,000	83,450	34
9.69	.....	.....	1.34	5.08	8.74	7.69	7.22	11.23	7.91	6.84	7.00	5.49	5.25	35
61,386	.....	16,093	.....	26,316	638,155	.....	.....	17,689	13,932	94,949	.....	.....	331,153	36
14.76	.....	43.61	.....	24.50	17.35	.....	.....	14.72	10.55	8.66	.....	.....	26.16	37
16,851	.....	.....	105,722	7,036	.....	690,796	2,300	.....	5,333	.....	140,885	57,637	.....	38
11.78	.....	.....	5.98	9.26	.....	16.96	3.03	.....	6.84	.....	9.43	8.36	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
150,060	.....	.....	78,985	.....	.....	1,029,089	39,263	.....	.....	341,294	221,756	51,994	153,635	42
6.07	.....	.....	18.13	.....	.....	8.50	6.95	.....	.....	5.70	9.88	8.09	9.87	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	899,678	1,325,545	.....	1,179,027	.....	.....	.....	365,000	36,667	91,958	.....	.....	1,157,629	45
.....	54.91	46.69	.....	81.83	.....	.....	.....	42.84	12.39	16.51	.....	.....	61.98	47
.....	10,558	20,148	.....	34,488	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	48
.....	4	5	.....	3	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	49
.....	16,385	28,389	.....	14,408	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	50
.....	0.64	0.71	.....	2.39	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	51
2,524	.....	(⁷)	1,754	1,066	2,010	41,396	5,899	(⁷)	358	8,310	6,680	2,052	33,931	52
4	.....	1	12	3	3	35	10	1	3	9	3	5	9	53
26,218	.....	(⁷)	22,396	6,146	17,872	76,990	19,950	(⁷)	3,190	24,154	10,150	19,330	23,265	54
0.10	.....	(⁷)	0.08	0.18	0.11	0.54	0.30	(⁷)	0.11	0.34	0.66	0.11	1.46	55
(⁷)	.....	5	.....	.....	4	3	2	(⁷)	2	(⁷)	1	.....	(⁷)	56
.....	28,445	(⁷)	.....	37,040	.....	3,039	(⁷)	(⁷)	(⁷)	(⁷)	.....	(⁷)	(⁷)	57
(⁷)	14,094	42,672	.....	68,458	294	39,711	2,919	21,417	4,771	22,444	12,879	(⁷)	17,677	58
(⁷)	4	4	.....	9	3	29	8	5	5	13	8	1	5	59
(⁷)	16,385	20,445	.....	35,710	15,472	65,515	17,470	41,148	23,312	34,082	17,770	(⁷)	21,130	60
.....	0.86	2.09	.....	1.92	0.02	0.61	0.17	0.52	0.20	0.66	0.72	(⁷)	0.84	61
.....	(⁷)	5,093	.....	(⁷)	.....	(⁷)	890	7,355	(⁷)	1,534	.....	.....	3,987	62
.....	(⁷)	3	.....	(⁷)	2	.....	5	3	2	6	.....	.....	3	63
.....	(⁷)	20,076	.....	(⁷)	.....	(⁷)	12,074	13,634	(⁷)	14,443	.....	.....	17,090	64
.....	(⁷)	25.1	.....	(⁷)	.....	(⁷)	7.4	53.9	(⁷)	10.6	.....	.....	23.3	65
(⁷)	(⁷)	156,954	(⁷)	401,674	(⁷)	2,000	7,300	252,097	42,970	9,390	.....	(⁷)	166,042	66
(⁷)	(⁷)	4	.....	5	1	3	4	5	3	5	.....	1	3	67
(⁷)	(⁷)	24,945	(⁷)	17,390	(⁷)	6,400	8,074	41,148	19,032	11,259	.....	(⁷)	24,178	68
(⁷)	(⁷)	6.29	(⁷)	23.10	(⁷)	0.31	0.90	6.13	2.26	0.83	.....	(⁷)	6.87	69
(⁷)	(⁷)	(⁷)	.....	(⁷)	.....	.....	(⁷)	16,750	(⁷)	.....	.....	(⁷)	(⁷)	70
(⁷)	(⁷)	(⁷)	.....	(⁷)	.....	.....	(⁷)	3	1	.....	.....	(⁷)	(⁷)	71
(⁷)	(⁷)	(⁷)	.....	(⁷)	.....	.....	(⁷)	13,634	(⁷)	.....	.....	(⁷)	(⁷)	72
.....	(⁷)	(⁷)	.....	(⁷)	.....	.....	(⁷)	1.23	(⁷)	.....	.....	(⁷)	(⁷)	73
.....	(⁷)	(⁷)	.....	(⁷)	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	74
.....	(⁷)	(⁷)	.....	(⁷)	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	75
.....	(⁷)	(⁷)	.....	(⁷)	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	76
.....	(⁷)	(⁷)	.....	(⁷)	.....	.....	.....	(⁷)	(⁷)	(⁷)	.....	.....	(⁷)	77

⁴ Includes cost for benefits other than agricultural.
⁵ Includes agricultural land in sanitary districts.
⁶ Data in lines 46 and 47 are not included in lines 34 to 45.
⁷ Where there are less than 3 enterprises reporting, data are included only in State totals.

INDIANA

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — INDIANA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (—)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	23,153,920	23,068,800	23,068,800				
Land in drainage enterprises.....acres.....	10,121,952	10,214,014	9,087,183	-92,062	-0.9	1,126,831	12.4
Improved.....acres.....	8,738,887	9,361,457	7,605,565	-622,570	-6.6	1,755,892	23.1
Unimproved:							
Timber and cut-over.....acres.....	1,000,328	681,869	942,378	319,059	46.8	-260,509	-27.6
Other.....acres.....	362,137	170,688	539,240	211,449	123.9	-368,552	-68.3
Drainage sufficient for normal crop.....acres.....	9,424,503	9,303,527	(1)	120,976	1.3		
Partly drained, for partial crop.....acres.....	534,496	688,218	(1)	-153,722	-22.3		
Unfit to raise any crop for lack of drainage.....acres.....	162,953	222,269	2 366,320	-59,316	-26.7	-161,051	-42.5
In occupied farms.....acres.....	9,703,805	10,150,221	(1)	-446,416	-4.4		
In planted crops.....acres.....	7,512,766	8,454,498	(1)	-941,732	-11.1		
Idle.....acres.....	1,396,258	486,660	(1)	909,598	186.9		
Available for settlement.....acres.....		4,359	(1)	-4,359	-100.0		
Open ditches, completed.....miles.....	22,008.1	20,786.8	17,470.7	1,221.3	5.9	3,316.1	19.0
Tile drains, completed.....miles.....	10,754.7	10,438.7	8,227.6	316.0	3.0	2,211.1	26.9
Drainage pumping plants, capacity.....horsepower.....	515	166	625	349	210.2	-459	-73.4
.....gal. per min.....	47,333	48,000	55,348	-667	-1.4	-7,348	-13.3
Capital invested in enterprises.....dollars.....	47,540,385	54,110,854	31,147,682	-6,570,469	-12.1	22,963,172	73.7
Average per acre.....dollars.....	4.70	5.30	3.43	-0.60	-11.3	1.87	54.5

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
	Acres	Acres	Acres	Acres		Acres	Acres	Acres	Acres
All enterprises.....	19,972,525	23,049,787	15,015,221	10,121,952	5,000 to 9,999 acres.....	2,362,676	2,727,803	1,718,075	1,356,726
Less than 100 acres.....	234,818	120,776	255,985	69,853	10,000 to 19,999 acres.....	2,070,077	5,088,605	2,917,817	1,271,114
100 to 199 acres.....	461,361	307,243		164,890	20,000 to 49,999 acres.....	1,966,222		1,032,904	631,619
200 to 499 acres.....	2,147,384	1,729,422	1,218,792	890,161	50,000 to 99,999 acres.....	1,022,024	1,876,090		
500 to 999 acres.....	2,806,651	2,896,966	2,038,534	1,306,503	100,000 to 199,999 acres.....	711,417		755,799	196,349
1,000 to 1,999 acres.....	2,969,206	7,256,727	5,017,315	1,467,052	200,000 to 499,999 acres.....		1,044,155		
2,000 to 4,999 acres.....	3,220,689			1,749,278	500,000 acres and over.....				

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	10,121,952	100.0	47,540,385	100.0
Drainage districts.....	17,644	0.2	322,274	0.7
County drains.....	10,103,308	99.8	47,119,446	99.1
Individually owned projects.....	1,000	(1)	98,665	0.2

¹Less than one-tenth of 1 percent.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	10,121,952	100.0	10,214,014	100.0	9,087,183	100.0	47,540,385	100.0	54,110,854	100.0	31,147,682	100.0
Gravity drainage only by—												
Open ditches.....	6,668,905	65.9	6,084,055	59.6	9,078,072	99.9	25,559,874	53.8	29,309,214	54.2	30,964,618	99.4
Tile drains.....	1,405,700	13.9	2,088,780	20.4			11,465,952	24.1	10,938,127	20.2		
Open ditches and tile drains..	2,031,326	20.1	2,036,740	19.9			10,317,787	21.7	13,751,986	25.4		
All drained by pumping by—												
Open ditches.....	3,706	(2)	1,133	(2)	311	(2)	110,515	0.2	20,000	(2)	6,289	(2)
Tile drains.....				(2)		(2)	(2)	(2)		(2)		
Open ditches and tile drains..	206	(2)					5,619	(2)				
Part only by pumping by—												
Open ditches.....			3,306	(2)	8,800	0.1			91,527	0.2	176,775	0.6
Tile drains.....				(2)			(2)	(2)					(2)
Open ditches and tile drains..	12,109	0.1					80,638	0.2				
Total area served by pumps.....	5,412	(2)	2,763	(2)	5,611	0.1						

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

²Less than one-tenth of 1 percent.

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY			Land served	
		Number	Engine or motor			Pump
			Hp.	Percent			G. p. m.
All pumping enterprises.....	1940..	4	515	100.0	47,333	5,412
	1930..	4	166	100.0	48,000	2,763
	1920..	4	625	100.0	55,348	5,611
Steam.....	1940..	.....	.....	.....	.....	.....
	1930..	2	50	30.1	16,000	1,133
	1920..	4	625	100.0	55,348	5,611
Internal combustion.....	1940..	4	515	100.0	47,333	5,412
	1930..	1	100	60.3	30,000	1,500
	1920..	.....	.....	.....	.....	.....
Electric and internal combustion.....	1940..	.....	.....	.....	.....	.....
	1930..	1	16	9.6	2,000	130
	1920..	.....	.....	.....	.....	.....

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity	Land served	
		Capacity				
		G. p. m.	Percent			
All pumping enterprises.....	1940..	5	47,333	100.0	515	5,412
	1930..	7	48,000	100.0	166	2,763
Centrifugal.....	1940..	5	47,333	100.0	515	5,412
	1930..	6	42,000	87.5	141	2,163
Rotary.....	1940..	.....	.....	.....	.....	.....
	1930..	1	6,000	12.5	25	600

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	10,121,952	100.0	10,214,014	100.0	47,540,385	100.0	54,110,854	100.0	62,207	99,686
Enterprises in arrears.....	451,083	4.4	287,956	2.8	1,673,689	3.5	1,160,540	2.1	55,125	79,180
With some delinquent land.....	252,815	2.5	215,935	2.1	897,769	1.9	876,860	1.6	55,125	79,180
With no delinquent land.....	188,177	1.8	8,941	0.1	731,507	1.5	35,054	0.1	.....	.....
With no report on delinquency.....	10,091	0.1	62,080	0.6	44,413	0.1	248,626	0.4	.....	.....
Enterprises not in arrears.....	9,613,219	95.0	9,926,058	97.2	45,506,257	95.7	52,950,314	97.0	7,082	20,518
With some delinquent land.....	49,717	0.5	92,877	0.9	306,366	0.6	744,461	1.4	7,082	20,518
With no delinquent land.....	9,541,569	94.3	9,721,890	95.2	45,044,913	94.8	51,228,460	94.7	.....	.....
With no report on delinquency.....	21,933	0.2	111,291	1.1	154,978	0.3	977,393	1.8	.....	.....
Enterprises not reporting on arrearage.....	57,650	0.6	.....	.....	360,439	0.8	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no delinquent land.....	10,170	0.1	.....	.....	75,781	0.2	.....	.....	.....	.....
With no report on delinquency.....	17,480	0.5	.....	.....	284,658	0.6	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	10,121,952	47,540,385	429,245	131,634	9,752	62,207	133,868
Enterprises in debt.....	689,172	2,868,834	429,245	131,634	1,252	58,271	93,769
In arrears, amount of arrearage stated.....	451,083	1,673,689	139,496	131,634	.....	55,125	15,643
Collecting drainage taxes in 1939.....	160,603	416,702	48,009	41,337	.....	38,906	15,643
No collections reported.....	290,480	1,256,987	91,487	90,297	.....	16,219	.....
Not in arrears.....	238,089	1,195,145	289,749	.....	1,252	3,146	78,126
Collecting drainage taxes in 1939.....	111,850	807,030	148,761	.....	.....	644	78,126
No collections reported.....	126,239	388,115	140,988	.....	1,252	2,502	.....
Enterprises not in debt.....	9,292,361	44,123,211	.....	.....	.....	3,936	36,365
Collecting drainage taxes in 1939.....	90,623	320,786	.....	.....	.....	1,082	36,365
No collections reported.....	9,201,738	43,802,425	.....	.....	.....	2,854	.....
Enterprises not reporting as to debt.....	140,399	548,340	.....	.....	8,500	.....	3,714
Collecting drainage taxes in 1939.....	3,146	78,000	.....	.....	.....	.....	3,714
No collections reported.....	137,253	470,340	.....	.....	8,500	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	10,121,952	100.0	47,540,365	100.0
Improvement of land already in farms.....	10,101,620	99.8	47,293,533	99.5
Reclamation of swamp land not previously in farms.....	19,032	0.2	211,613	0.4
Protection against overflow.....	1,300	(1)	35,239	0.1

¹ Less than one-tenth of 1 percent.

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	10,121,952	100.0	19,972,525	9,850,573	47,540,385	100.0
Before 1870.....	9,834	0.1	58,437	48,603	89,319	0.2
1870-1879.....	156,357	1.5	740,358	584,001	1,029,105	2.2
1880-1889.....	867,979	8.6	2,934,332	2,066,353	4,925,307	10.4
1890-1899.....	1,071,678	10.6	3,058,228	1,986,550	5,343,802	11.2
1900-1904.....	1,174,122	11.6	2,629,190	1,455,068	5,068,723	10.7
1905-1909.....	1,104,013	10.9	2,292,817	1,188,804	5,005,929	10.5
1910-1914.....	1,094,314	10.8	1,998,404	904,090	5,935,818	12.5
1915-1919.....	1,386,554	13.7	2,041,428	654,874	7,004,117	14.7
1920-1924.....	987,964	9.8	1,399,584	411,620	5,078,133	10.7
1925-1929.....	1,389,543	13.7	1,796,466	406,923	5,573,838	11.7
1930-1934.....	568,447	5.6	686,187	117,740	1,847,169	3.9
1935-1939.....	311,147	3.1	337,094	25,947	639,125	1.3

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement		
								Acres	Percent				Acres	Percent	Acres	Percent
All enterprises..	10,121,952	9,424,503	93.1	534,496	162,953	8,738,687	86.3	1,000,928	382,137	9,703,805	95.9	7,512,766	1,396,258	252
Before 1870.....	9,834	9,489	96.5	345	.....	9,067	92.2	393	374	9,454	96.1	8,579	705	.....
1870-1879.....	156,357	145,553	93.1	9,367	1,437	133,107	85.1	16,864	6,386	150,021	95.9	114,334	18,474	.....
1880-1889.....	867,979	823,020	94.8	36,436	8,523	754,568	86.9	85,047	28,364	845,959	97.5	662,352	127,274	.....
1890-1899.....	1,071,678	1,002,778	93.6	49,794	19,106	933,453	87.1	100,195	38,030	1,050,663	98.0	765,574	145,326	252
1900-1904.....	1,174,122	1,067,525	90.9	89,033	17,564	996,048	84.8	133,388	44,686	1,151,828	98.1	806,359	180,599	.....
1905-1909.....	1,104,013	1,016,574	92.1	69,273	18,166	920,886	83.4	128,423	54,704	1,024,214	92.8	822,622	149,624	.....
1910-1914.....	1,094,314	1,018,380	93.1	53,892	22,042	963,266	88.0	92,096	38,952	1,012,467	92.5	827,448	149,992	.....
1915-1919.....	1,386,554	1,305,937	94.2	59,865	20,752	1,172,334	84.6	168,948	45,272	1,304,782	94.1	964,012	217,015	.....
1920-1924.....	987,964	928,887	94.0	42,540	16,537	872,595	88.3	85,452	29,917	978,281	99.0	791,603	138,552	.....
1925-1929.....	1,389,543	1,270,283	91.4	95,161	24,099	1,203,415	86.6	122,693	63,435	1,310,555	94.3	1,015,264	188,487	.....
1930-1934.....	568,447	543,151	95.5	19,401	5,895	505,093	88.8	43,871	19,483	557,875	98.1	455,836	48,895	.....
1935-1939.....	311,147	292,926	94.1	9,389	8,832	275,055	88.4	23,558	12,534	307,706	96.9	248,783	31,334	.....

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	10,121,952	10,097,138	173,999	9,923,139	45,638	(1)	0.26
Gravity drainage only.....	10,105,931	10,097,138	173,999	9,923,139	45,638	(1)	0.26
Open ditches only.....	6,608,890	6,594,617	34,965	6,559,652	10,444	(2)	0.30
Open ditches and levees.....	60,015	75,838	16,250	59,588	9,290	0.12	0.57
Tile drains only.....	1,404,959	1,400,691	26,440	1,374,251	6,707	(1)	0.25
Tile drains and levees.....	741	741	.....	741	.....	.....	.....
Open ditches and tile drains.....	2,019,282	2,013,207	96,344	1,916,863	19,197	0.01	0.20
Open ditches, tile drains, and levees.....	12,044	12,044	.....	12,044	.....	.....	.....
Pumping for all or part of drainage.....	16,021	(2)	(2)	(2)	(2)	(2)	(2)

¹ Less than 1/2 cent per acre.

² Data for 2 pumping enterprises reporting cost incurred for operation and maintenance have been included in data shown for gravity enterprises providing open ditches and levees.

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	10,121,952	100.0	47,540,385	100.0
Method:				
By district forces.....	225,154	2.2	871,631	1.8
By contract.....	5,872,966	58.0	27,632,435	58.1
Work apportioned to landowners.....	3,184,591	31.5	14,527,347	30.6
"None," or not reporting.....	899,241	8.3	4,508,972	9.5
Whether systematic:				
Reporting "yes".....	4,458,162	44.0	21,553,127	45.3
Reporting "no".....	5,633,592	55.7	25,821,766	54.3
Not reporting.....	30,198	0.3	165,492	0.4

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	10,121,952	28,195	0.3
Capital invested.....dollars..	47,540,385	193,044	0.4
Drainage works:			
Open ditches.....miles....	22,008.1	52.4	0.2
Tile drains.....miles....	10,754.7	70.4	0.6
Levees.....miles....	139.0	6.9	5.0

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	469,589	2,157,780	648.6	144.7	33.2
Work Projects Administration.....	162,981	903,686	148.1	13.1	9.5
Civilian Conservation Corps.....	269,517	1,101,556	459.4	130.6	.....
Corps of Engineers, U.S.A.....	15,408	72,713	14.9	18.6
W.P.A. and C.C.C.....	1,480	14,612	3.7
Other kind or combination.....	20,203	65,213	22.5	1.0	5.1

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Adams	Allen	Bartholo- mew	Benton	Blackford	Boone	Carroll	
LAND AREA									
1	Approximate land area.....acres....1940..	23,153,920	220,800	429,440	257,280	251,750	106,880	273,280	221,440
2	Drainage enterprises.....number....1940..	19,271	404	348	25	165	82	264	220
3	Land in enterprises.....acres....1940..	10,121,952	165,895	375,951	24,255	181,304	100,430	218,843	180,280
4	.....1930..	10,214,014	205,736	349,342	20,413	155,913	98,259	220,176	174,889
5	.....1920..	9,087,183	212,644	391,540	19,007	103,574	91,731	252,887	153,494
6	Area of all enterprises, overlapping included.....acres....1940..	19,372,525	243,406	1,045,111	34,765	329,429	180,692	493,599	472,415
7	Amount of overlapping.....acres....1940..	9,850,573	77,511	569,160	10,510	147,825	80,262	274,856	292,135
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	9,424,503	157,178	352,680	24,255	179,962	99,180	215,896	164,811
9	.....1930..	9,303,527	205,728	289,419	19,001	153,290	96,124	202,958	158,133
10	Increase or decrease (-), 1930-1940.....acres.....	120,976	-48,550	63,261	5,254	26,672	3,056	12,938	-3,322
11	.....percent.....	1.3	-23.6	21.8	27.6	17.4	3.2	6.4	-2.0
12	Land undrained, unfit for any crop.....acres....1940..	182,953	.....	.....	.....	20	.....	314	.....
13	.....1930..	222,269	.....	4,096	194	562	626	4,134	2,855
14	Increase or decrease (-), 1930-1940.....acres.....	-59,316	.....	-4,096	-194	-542	-626	-3,820	-2,855
15	.....percent.....	-26.7	.....	-100.0	-100.0	-96.4	-100.0	-92.4	-100.0
16	Land partly drained, for partial crop.....acres....1940..	534,496	8,717	23,271	.....	1,622	1,250	2,633	15,469
17	.....1930..	688,218	8	55,827	1,218	2,061	1,509	13,084	3,901
18	Increase or decrease (-), 1930-1940.....acres.....	-153,722	8,709	-32,556	-1,218	-439	-259	-10,451	11,568
19	.....percent.....	-22.3	(²)	-58.3	-100.0	-21.3	-17.2	-79.9	296.5
20	Improved land.....acres....1940..	8,738,887	149,539	277,752	24,255	178,841	90,391	203,956	148,357
21	.....1930..	9,361,457	205,170	302,555	19,919	153,145	85,798	202,479	168,064
22	.....1920..	7,605,555	172,400	281,617	14,012	84,313	79,464	220,686	147,037
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	1,000,928	8,551	78,020	.....	2,662	10,012	14,811	23,699
24	.....1930..	681,869	425	38,557	196	2,228	12,008	16,393	6,570
25	.....1920..	942,378	32,801	31,169	2,133	9,867	11,283	31,598	16,457
26	Other unimproved land.....acres....1940..	382,137	7,805	20,179	.....	101	27	76	8,224
27	.....1930..	170,688	140	8,230	298	540	453	1,304	255
28	.....1920..	539,240	7,443	78,554	2,862	9,394	984	603	.....
29	Land in occupied farms.....acres....1940..	9,703,805	161,307	335,500	24,255	181,804	86,700	215,703	180,063
30	.....1930..	10,150,221	205,736	349,187	20,283	155,913	98,259	220,136	174,678
31	Increase or decrease (-), 1930-1940.....acres.....	-446,416	-44,429	-13,687	3,972	25,691	-11,559	-4,433	5,385
32	.....percent.....	-4.4	-21.6	-3.9	19.6	16.5	-11.8	-2.0	3.1
33	Land in planted crops ⁴.....acres....1940..	7,512,766	104,828	260,013	23,925	163,707	70,273	203,407	137,188
34	.....1930..	8,454,498	184,268	298,754	18,007	139,908	82,973	200,584	153,646
35	Increase or decrease (-), 1930-1940.....acres.....	-941,732	-79,440	-38,741	5,918	23,799	-12,700	2,823	-16,458
36	.....percent.....	-11.1	-43.1	-13.0	32.9	17.0	-15.3	1.4	-10.7
37	Land idle.....acres....1940..	1,396,258	41,094	33,715	330	3,181	21,260	13,599	41,187
38	.....1930..	486,660	-3	3,127	616	741	2,413	2,292	4,968
39	Increase or decrease (-), 1930-1940.....acres.....	909,598	41,091	30,588	-286	2,440	18,847	11,307	36,219
40	.....percent.....	185.9	(²)	978.2	-46.4	329.3	781.1	493.3	729.0
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	4,359	.....	.....	.....	.....	.....	10	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-4,359	.....	.....	.....	.....	.....	-10	.....
44	.....percent.....	-100.0	.....	.....	.....	.....	.....	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	6,608,890	115,785	313,666	21,555	102,795	84,185	81,141	73,676
46	Length of these ditches.....miles.....	17,908.0	428.5	1,498.4	80.9	189.8	198.3	410.5	418.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	60,015	.....	1,383	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	117.2	.....	0.1	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	106.9	.....	1.2	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	1,404,959	22,208	34,747	800	59,994	9,023	67,571	83,447
53	Length of these tile.....miles.....	7,576.3	103.1	284.0	7.2	147.2	88.0	271.5	323.7
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	741	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	0.1	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	0.1	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	2,019,282	27,902	26,155	1,900	18,815	7,222	70,131	23,157
60	Length of these open ditches.....miles.....	3,928.3	71.6	77.5	2.0	25.9	20.5	151.6	56.1
61	Length of these tile.....miles.....	3,097.2	45.6	45.3	3.0	32.6	15.2	67.0	42.7
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	12,044	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	29.3	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	18.0	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	8.4	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	16,021	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	25.3	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	63.1	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	23.6	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 8,893.

²Percent not shown when more than 1,000.

³Office estimate; the reported figures exceed the acreage in all farms as reported by the Census of Agriculture.

⁴It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.

⁵Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—INDIANA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Cass	Clay	Clinton	Davless	Decatur	De Kalb	Delaware	Dubois	Elkhart
LAND AREA										
1	Approximate land area.....acres....1940..	255,600	232,960	260,480	277,120	236,800	233,600	256,000	277,120	299,520
2	Drainage enterprises.....number....1940..	388	14	123	29	5	216	111	17	361
3	Land in enterprises.....acres....1940..	173,983	39,266	213,302	97,774	2,891	211,550	210,725	14,630	207,804
4	.....1930..	192,346	47,892	210,915	115,140	(¹)	220,132	200,272	17,800	200,365
5	.....1920..	218,421	59,050	87,339	40,276	(¹)	215,859	248,886	8,389	280,817
6	Area of all enterprises; overlapping included.....acres....1940..	273,875	68,930	533,294	135,596	2,891	625,165	537,461	14,790	242,029
7	Amount of overlapping.....acres....1940..	99,892	29,664	319,992	37,822	.....	413,615	346,736	160	34,225
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	140,514	36,168	208,907	97,774	2,571	189,185	204,699	14,514	159,847
9	.....1930..	186,133	46,186	190,510	110,430	(¹)	210,837	199,209	14,503	168,583
10	Increase or decrease (-), 1930-1940.....acres.....	-47,619	-8,018	18,397	-12,656	.....	-21,652	5,490	11	-8,736
11	.....percent.....	-25.3	-17.4	9.6	-11.5	.....	-10.3	2.8	0.1	-5.2
12	Land undrained, unfit for any crop.....acres....1940..	43	1,098	.....	.....	100	6,677	2,003	.....	23,768
13	.....1930..	67	.....	1,411	4,710	(¹)	3,550	774	861	9,274
14	Increase or decrease (-), 1930-1940.....acres.....	-24	1,098	-1,411	-4,710	.....	3,127	1,229	-861	14,494
15	.....percent.....	-35.8	.....	-100.0	-100.0	.....	88.1	158.8	-100.0	156.3
16	Land partly drained, for partial crop.....acres....1940..	33,426	.....	4,395	.....	220	15,688	4,023	116	24,189
17	.....1930..	4,146	1,706	18,994	.....	(¹)	5,745	269	2,436	22,508
18	Increase or decrease (-), 1930-1940.....acres.....	29,280	-1,706	-14,599	.....	.....	9,943	3,734	-2,320	1,681
19	.....percent.....	706.2	-100.0	-76.9	.....	.....	173.1	(²)	-95.2	7.5
20	Improved land.....acres....1940..	139,642	32,531	188,280	92,123	2,891	183,605	189,503	14,460	159,809
21	.....1930..	182,399	47,247	202,619	106,780	(¹)	198,305	182,459	13,619	183,512
22	.....1920..	196,581	49,497	77,982	40,142	(¹)	141,782	³ 196,985	7,823	³ 217,623
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	32,743	5,823	14,743	5,651	.....	17,592	21,222	170	24,217
24	.....1930..	9,579	455	7,988	7,160	(¹)	19,900	17,151	3,270	8,662
25	.....1920..	21,840	8,623	4,963	134	(¹)	18,625	51,615	566	41,676
26	Other unimproved land.....acres....1940..	1,598	912	10,279	.....	.....	10,353	.....	.....	23,778
27	.....1930..	368	190	308	1,200	(¹)	1,927	662	911	8,191
28	.....1920..	.....	930	4,394	.....	(¹)	55,452	296	.....	21,548
29	Land in occupied farms.....acres....1940..	172,601	39,266	183,602	97,774	2,891	211,510	210,725	14,630	207,804
30	.....1930..	192,246	47,047	210,721	115,140	(¹)	220,132	200,258	17,800	199,745
31	Increase or decrease (-), 1930-1940.....acres.....	-19,645	-7,781	-27,119	-17,366	.....	-8,622	10,467	-3,170	8,045
32	.....percent.....	-10.2	-16.5	-12.9	-15.1	.....	-3.9	5.2	-17.8	4.0
33	Land in planted crops ⁴.....acres....1940..	124,740	25,592	159,629	89,922	2,599	162,118	167,768	13,111	159,755
34	.....1930..	175,818	37,595	191,780	98,440	(¹)	187,490	167,185	12,653	167,482
35	Increase or decrease (-), 1930-1940.....acres.....	-51,078	-12,003	-32,151	-8,518	.....	-25,372	583	458	-7,727
36	.....percent.....	-29.0	-31.9	-16.8	-8.6	.....	-13.5	0.3	3.6	-4.6
37	Land idle.....acres....1940..	22,548	13,637	12,134	7,852	292	48,561	32,038	1,388	48,048
38	.....1930..	101	5,159	451	8,275	(¹)	7,905	1,962	3,520	12,051
39	Increase or decrease (-), 1930-1940.....acres.....	22,447	8,478	11,683	-423	.....	40,756	30,076	-2,132	35,937
40	.....percent.....	(²)	164.3	(²)	-5.1	.....	522.2	(²)	-60.6	298.7
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	1,170	.....	.....	.....	(¹)	.....	945	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-1,170	.....	.....	.....	.....	.....	-945	.....	.....
44	.....percent.....	-100.0	.....	.....	.....	.....	.....	-100.0	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	78,421	33,665	117,504	82,594	2,292	144,585	109,564	9,839	164,488
46	Length of these ditches.....miles.....	279.5	41.6	325.6	119.2	5.3	499.8	330.1	23.9	292.1
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	560	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	18.7	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	5.1	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	43,547	.....	42,010	680	.....	22,179	28,670	.....	31,816
53	Length of these tile.....miles.....	197.5	.....	369.4	2.8	.....	305.1	170.5	.....	80.8
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	32,015	1,952	53,788	14,500	599	44,786	72,491	.....	11,500
60	Length of these open ditches.....miles.....	113.1	23.7	114.9	12.6	0.7	110.1	145.9	.....	18.6
61	Length of these tile.....miles.....	84.1	5.7	102.3	13.9	0.3	95.3	80.5	.....	10.0
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	4,791	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	16.0	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	0.5	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	0.1	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	.....	(⁶)	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	(⁶)	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	(⁶)	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."
²Percent not shown when more than 1,000.
³Office estimate; the reported figures exceed the acreage in all farms as reported by the Census of Agriculture.
⁴It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.
⁵Data in lines 68 to 72 are not included in lines 45 to 67.
⁶Included only in State totals.

CENSUS OF DRAINAGE—INDIANA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Fayette	Fountain	Franklin	Fulton	Gibson	Grant	Greene	Hamilton	
LAND AREA									
1	Approximate land area.....acres....1940..	137,600	254,080	252,160	234,860	319,360	269,440	351,360	257,920
2	Drainage enterprises.....number....1940..	9	24	11	94	64	158	28	232
3	Land in enterprises.....acres....1940..	9,248	22,670	7,538	206,428	168,649	235,970	63,569	168,026
4	.....1930..	7,376	15,860	7,259	136,902	226,315	208,210	61,706	142,439
5	.....1920..	6,185	11,213	7,180	221,911	140,403	221,636	51,077	128,591
6	Area of all enterprises, overlapping included.....acres....1940..	10,394	23,987	7,538	400,360	261,045	541,191	154,968	258,099
7	Amount of overlapping.....acres....1940..	1,146	1,317	.....	193,932	92,396	305,221	91,399	90,073
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	8,729	22,010	7,538	205,074	166,404	226,582	54,231	167,576
9	.....1930..	7,336	15,407	7,259	120,304	183,139	203,929	52,638	139,219
10	Increase or decrease (-), 1930-1940.....acres.....	1,393	6,603	279	84,770	-26,735	22,653	1,593	28,357
11	.....percent.....	19.0	42.6	3.8	70.5	-13.8	11.1	3.0	20.4
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	.....	1,283	665	8	9,338	450
13	.....1930..	10	.....	.....	3,374	8,753	2,058	2,238	1,376
14	Increase or decrease (-), 1930-1940.....acres.....	-10	.....	.....	-2,091	-8,088	-2,050	7,100	-926
15	.....percent.....	-100.0	.....	.....	-62.0	-92.4	-99.6	317.2	-67.3
16	Land partly drained, for partial crop.....acres....1940..	519	660	.....	71	1,580	9,380	.....	.....
17	.....1930..	30	453	.....	13,224	24,423	2,223	6,830	1,844
18	Increase or decrease (-), 1930-1940.....acres.....	489	207	.....	-13,153	-22,843	7,157	-6,830	-1,844
19	.....percent.....	(¹)	45.7	.....	-99.5	-93.5	322.0	-100.0	-100.0
20	Improved land.....acres....1940..	9,248	22,429	7,418	191,560	165,283	200,625	53,725	167,566
21	.....1930..	7,257	15,710	7,169	123,578	197,709	194,730	58,445	135,885
22	.....1920..	4,785	8,659	6,466	186,287	182,915	193,747	44,960	124,560
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	.....	241	60	14,765	2,511	35,294	9,844	138
24	.....1930..	119	150	90	6,877	18,859	10,881	1,785	4,647
25	.....1920..	990	1,371	569	15,482	3,979	21,643	5,380	4,031
26	Other unimproved land.....acres....1940..	.....	.....	60	103	855	51	.....	322
27	.....1930..	.....	.....	.....	6,447	9,747	2,599	1,476	1,907
28	.....1920..	410	1,183	145	20,142	3,509	6,246	737	.....
29	Land in occupied farms.....acres....1940..	9,248	22,524	7,538	201,700	168,649	213,400	63,569	166,026
30	.....1930..	7,376	15,760	7,259	131,333	226,315	206,667	61,706	142,184
31	Increase or decrease (-), 1930-1940.....acres.....	1,872	6,764	279	70,367	-57,666	6,733	1,863	25,842
32	.....percent.....	25.4	42.9	3.8	53.6	-25.5	3.2	3.0	18.2
33	Land in planted crops ².....acres....1940..	8,569	20,265	6,632	161,800	154,397	120,691	43,242	167,566
34	.....1930..	6,565	14,185	6,476	96,153	158,223	189,910	53,152	122,411
35	Increase or decrease (-), 1930-1940.....acres.....	2,004	6,080	156	65,647	-3,826	-68,219	-9,910	45,155
36	.....percent.....	30.5	42.9	2.4	68.3	-2.4	-36.4	-18.6	36.9
37	Land idle.....acres....1940..	679	.....	896	3,495	15,252	80,075	20,297	460
38	.....1930..	.....	.....	.....	13,632	14,834	2,037	2,053	1,070
39	Increase or decrease (-), 1930-1940.....acres.....	679	.....	896	-10,137	418	78,038	18,244	-610
40	.....percent.....	.....	.....	.....	-74.4	2.8	(¹)	888.6	-57.0
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	100	.....	.....	.....	.....	.....	68
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-100	.....	.....	.....	.....	.....	-68
44	.....percent.....	.....	-100.0	.....	.....	.....	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	4,588	3,506	.....	138,678	165,897	106,222	56,220	76,871
46	Length of these ditches.....miles.....	5.6	9.1	.....	178.1	268.4	402.1	211.0	133.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	6,871	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	8.5	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	13.5	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	3,610	7,704	3,029	12,291	830	52,773	200	22,668
53	Length of these tile.....miles.....	8.9	20.3	5.8	184.6	0.8	146.3	0.6	80.0
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,050	10,538	4,509	55,459	1,922	76,975	276	68,487
60	Length of these open ditches.....miles.....	0.2	4.6	1.2	198.9	7.5	174.0	2.4	106.9
61	Length of these tile.....miles.....	1.7	15.0	15.2	152.5	2.0	115.7	0.2	119.7
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	922	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	0.1	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	4.0	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	0.2	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

²It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Hancock	Hendricks	Henry	Howard	Huntington	Jackson	Jasper	Jay	Jennings
LAND AREA										
1	Approximate land area.....acres....1940..	195,200	266,880	256,000	187,520	249,600	333,440	359,680	247,040	211,280
2	Drainage enterprises.....number....1940..	180	77	93	178	265	71	163	247	6
3	Land in enterprises.....acres....1940..	128,568	78,897	213,418	157,266	190,816	119,980	326,901	237,110	4,002
4	.....1930..	118,957	98,650	194,108	132,873	172,531	91,387	368,644	237,194	3,315
5	.....1920..	141,119	106,094	129,478	154,655	210,132	46,281	126,649	179,712	4,000
6	Area of all enterprises, overlapping included.....acres....1940..	147,511	201,618	397,256	226,726	395,630	158,505	690,728	559,312	4,002
7	Amount of overlapping.....acres....1940..	18,943	122,721	183,838	69,460	204,814	38,525	363,827	322,202	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	128,277	78,887	213,418	152,493	190,667	119,980	326,609	222,773	4,002
9	.....1930..	117,904	95,034	170,182	132,797	162,944	52,429	255,299	233,852	2,915
10	Increase or decrease (-), 1930-1940.....acres.....	10,373	-16,147	43,236	19,696	27,723	67,551	71,310	-11,079	1,087
11	.....percent.....	8.8	-17.0	25.4	14.8	17.0	128.8	27.9	-4.7	37.3
12	Land undrained, unfit for any crop.....acres....1940..	130	10	.....	.....	.....	.....	14	.....	.....
13	.....1930..	719	351	9,803	.....	5,299	8,424	30,120	639	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-589	-341	-9,803	.....	-5,299	-8,424	-30,106	-639	.....
15	.....percent.....	-81.9	-97.2	-100.0	.....	-100.0	-100.0	-99.9	-100.0	.....
16	Land partly drained, for partial crop.....acres....1940..	161	.....	.....	4,773	149	.....	278	14,337	.....
17	.....1930..	334	3,265	14,123	76	4,588	30,534	83,225	2,703	400
18	Increase or decrease (-), 1930-1940.....acres.....	-173	-3,265	-11,123	4,697	-1,439	-30,534	-82,947	11,634	-400
19	.....percent.....	-51.8	-100.0	-100.0	(¹)	-36.8	-100.0	-99.7	430.4	-100.0
20	Improved land.....acres....1940..	116,754	69,546	192,102	125,845	159,623	112,884	257,552	201,676	4,002
21	.....1930..	113,714	95,012	170,146	132,695	150,040	64,638	312,513	222,743	2,885
22	.....1920..	133,409	91,116	119,326	139,468	137,851	39,332	105,472	161,252	3,080
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	11,779	4,584	21,316	14,081	28,754	6,654	69,335	35,196	.....
24	.....1930..	5,107	3,556	23,837	178	19,325	21,765	42,405	14,414	430
25	.....1920..	7,710	14,978	10,152	15,169	51,379	4,637	20,558	13,090	800
26	Other unimproved land.....acres....1940..	35	4,767	.....	17,340	2,139	442	14	238	.....
27	.....1930..	136	82	125	.....	3,466	4,984	13,396	37	.....
28	.....1920..	.....	.....	.....	18	20,902	2,312	619	5,370	120
29	Land in occupied farms.....acres....1940..	127,510	73,774	211,443	157,262	190,814	117,971	275,800	220,800	4,002
30	.....1930..	118,749	98,650	193,908	132,873	172,801	89,171	354,616	236,844	3,315
31	Increase or decrease (-), 1930-1940.....acres.....	8,761	-24,876	17,535	24,389	18,013	28,800	-78,816	-16,044	687
32	.....percent.....	7.4	-25.2	9.0	18.4	10.4	32.3	-22.2	-6.8	20.7
33	Land in planted crops ².....acres....1940..	115,616	59,064	156,400	95,305	142,081	100,300	211,800	158,700	3,119
34	.....1930..	108,173	87,524	160,434	114,805	135,524	35,230	302,155	172,898	2,360
35	Increase or decrease (-), 1930-1940.....acres.....	7,443	-28,460	-4,034	-19,500	6,557	65,070	-90,355	-14,198	759
36	.....percent.....	6.9	-32.5	-2.5	-17.0	4.8	184.7	-29.9	-8.2	32.2
37	Land idle.....acres....1940..	11,262	15,336	15	60,426	17,046	19,487	69,737	27,342	.....
38	.....1930..	376	1,782	17,427	168	23,100	17,905	5,198	1,488	825
39	Increase or decrease (-), 1930-1940.....acres.....	10,886	13,554	-17,412	60,258	-6,054	1,582	84,539	25,854	-825
40	.....percent.....	(¹)	760.6	-99.9	(¹)	-26.2	8.8	(¹)	(¹)	-100.0
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	925	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-925	.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	-100.0	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	26,848	32,505	117,180	58,286	60,556	119,495	298,889	191,865	3,994
46	Length of these ditches.....miles.....	66.4	168.1	161.8	152.5	308.0	251.0	459.7	323.4	10.2
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	25,647	9,357	20,089	25,117	53,212	.....	13,272	23,495	.....
53	Length of these tile.....miles.....	105.5	46.1	100.3	106.6	213.3	.....	176.7	154.4	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	76,073	37,035	76,149	73,863	77,048	485	14,740	21,750	8
60	Length of these open ditches.....miles.....	129.4	73.8	149.7	102.0	160.6	1.9	51.1	60.6	0.1
61	Length of these tile.....miles.....	82.3	34.6	189.0	114.2	110.2	1.1	32.8	43.7	0.2
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

²It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.

CENSUS OF DRAINAGE — INDIANA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Johnson	Knox	Kosciusko	Lagrange	Lake	La Porte	Madison	Marion
LAND AREA									
1	Approximate land area.....acres....1940..	201,600	330,880	344,320	242,560	328,960	389,120	289,920	257,280
2	Drainage enterprises.....number....1940..	84	46	200	113	42	59	190	88
3	Land in enterprises.....acres....1940..	65,085	158,847	319,639	157,082	167,019	182,119	215,788	45,046
4	.....1930..	82,746	186,120	314,790	133,104	144,373	241,000	307,392	34,909
5	.....1920..	33,544	112,496	308,708	192,212	112,008	180,843	226,650	40,309
6	Area of all enterprises, overlapping included.....acres....1940..	79,975	176,491	690,904	270,102	296,635	272,151	561,212	66,107
7	Amount of overlapping.....acres....1940..	14,890	17,644	371,235	113,020	129,016	90,032	345,424	21,051
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	65,085	158,847	259,071	144,550	137,270	178,140	205,408	45,046
9	.....1930..	82,746	186,120	308,924	118,400	137,904	195,323	206,100	34,758
10	Increase or decrease (-), 1930-1940.....acres.....	-17,661	-27,273	-49,853	26,150	-634	-17,183	-692	10,288
11	.....percent.....	-21.3	-14.6	-16.1	22.1	-0.4	-8.8	-0.3	29.6
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	29,914	411	21,823	1,387	1,545	.....
13	.....1930..	.....	.....	3,509	3,220	609	18,792	731	.....
14	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	26,405	-2,809	21,214	-17,405	814	.....
15	.....percent.....	.....	.....	752.5	-87.2	(¹)	-92.6	111.4	.....
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	30,684	12,121	8,526	2,592	8,835	.....
17	.....1930..	.....	.....	2,357	11,484	5,860	26,885	561	151
18	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	28,327	637	2,666	-24,293	8,274	-151
19	.....percent.....	.....	.....	(¹)	5.5	45.5	-90.4	(¹)	-100.0
20	Improved land.....acres....1940..	64,829	158,647	257,653	130,304	147,726	159,029	184,977	44,681
21	.....1930..	82,254	186,120	298,994	131,702	143,469	219,508	196,103	34,062
22	.....1920..	31,709	95,299	² 229,035	141,370	82,614	162,759	210,573	39,439
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	256	150	31,593	12,376	7,471	21,638	819	365
24	.....1930..	202	.....	12,371	960	219	17,288	11,187	847
25	.....1920..	1,835	7,500	47,687	27,991	867	4,192	16,087	870
26	Other unimproved land.....acres....1940..	.....	50	30,223	14,402	12,422	1,452	29,992	.....
27	.....1930..	290	.....	3,425	442	685	4,204	102	.....
28	.....1920..	.....	9,697	31,986	22,851	25,527	13,892	.....	.....
29	Land in occupied farms.....acres....1940..	65,085	158,847	298,500	149,098	166,809	181,360	215,188	45,026
30	.....1930..	82,746	186,120	314,790	133,097	144,373	236,580	207,392	34,909
31	Increase or decrease (-), 1930-1940.....acres.....	-17,661	-27,273	-16,290	16,001	22,436	-55,220	7,796	10,117
32	.....percent.....	-21.3	-14.6	-5.2	12.0	15.5	-23.3	3.8	29.0
33	Land in planted crops ³.....acres....1940..	63,710	144,447	232,500	113,470	144,484	156,493	180,600	35,600
34	.....1930..	73,895	171,540	273,768	119,144	130,722	195,547	160,737	31,398
35	Increase or decrease (-), 1930-1940.....acres.....	-10,185	-27,093	-41,268	-5,674	13,762	-39,054	19,863	4,202
36	.....percent.....	-13.8	-15.8	-15.1	-4.8	10.5	-20.0	12.4	13.4
37	Land idle.....acres....1940..	725	14,200	61,692	29,089	19,213	7,725	967	265
38	.....1930..	625	.....	29,852	605	2,613	28,211	1,322	1,221
39	Increase or decrease (-), 1930-1940.....acres.....	100	14,200	40,840	28,484	16,600	-20,486	-355	-956
40	.....percent.....	16.0	.....	195.8	(¹)	635.3	-72.6	-26.8	-78.3
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	39,467	132,740	144,123	124,360	121,349	174,473	89,325	30,998
46	Length of these ditches.....miles.....	109.4	343.1	245.4	245.0	197.3	369.0	407.9	129.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	18,992	.....	.....	5,000	.....	.....	2,130
49	Length of these ditches.....miles.....	.....	18.5	.....	.....	7.0	.....	.....	8.1
50	Length of these levees.....miles.....	.....	17.4	.....	.....	7.0	.....	.....	10.8
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	18,644	1,790	56,585	12,696	8,037	2,618	28,967	3,258
53	Length of these tile.....miles.....	46.3	10.5	251.9	109.9	19.9	7.9	220.1	10.8
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	6,974	5,325	118,961	20,026	33,233	5,028	97,496	8,660
60	Length of these open ditches.....miles.....	11.8	21.8	202.0	24.9	40.7	5.3	104.2	11.0
61	Length of these tile.....miles.....	10.4	6.7	163.1	24.6	21.6	3.1	126.7	9.8
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

²Office estimate; the reported figures exceed the acreage in all farms as reported by the Census of Agriculture.

³It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.

CENSUS OF DRAINAGE - INDIANA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Marshall	Miami	Montgomery	Morgan	Newton	Noble	Owen	Parke	Pike
LAND AREA										
1	Approximate land area.....acres.....1940..	284,169	243,200	324,489	259,840	264,320	262,400	250,240	288,640	214,400
2	Drainage enterprises.....number.....1940..	382	192	146	18	114	135	5	9	10
3	Land in enterprises.....acres.....1940..	237,335	144,298	99,387	33,762	229,982	186,249	4,374	12,022	89,394
4	.....1930..	264,204	140,043	117,566	48,002	233,219	158,091	5,183	8,280	138,469
5	.....1920..	256,037	201,728	77,573	29,147	172,687	198,866	6,540	12,399	32,152
6	Area of all enterprises, overlapping included.....acres.....1940..	305,077	306,169	155,074	48,967	469,737	468,048	6,649	19,003	110,805
7	Amount of overlapping.....acres.....1940..	67,742	151,870	55,687	15,205	240,055	281,799	2,275	6,981	21,411
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	229,531	110,979	99,307	20,563	143,554	170,483	4,374	11,035	87,551
9	.....1930..	248,312	137,623	116,014	45,729	138,715	149,173	5,043	8,060	138,469
10	Increase or decrease (-), 1930-1940.....acres.....	-18,781	-26,644	-16,707	-25,166	4,839	21,310	-669	2,955	-50,918
11	.....percent.....	-7.6	-19.4	-14.4	-55.0	3.5	14.3	-13.3	36.6	-36.8
12	Land undrained, unfit for any crop.....acres.....1940..	2,116	4,961	80	50	5,270	10,622	.....	500	1,803
13	.....1930..	2,162	123	161	1,390	13,057	4,776	95	50	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-46	4,838	-81	-1,340	-7,787	5,846	-95	450	1,803
15	.....percent.....	-2.1	(¹)	-50.3	-96.4	-59.6	122.1	-100.0	900.0	.....
16	Land partly drained, for partial crop.....acres.....1940..	5,688	28,358	.....	13,149	80,858	5,144	.....	487	40
17	.....1930..	13,730	2,297	1,391	883	81,438	4,142	45	150	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-8,042	26,061	-1,391	12,266	-1,580	1,002	-45	337	40
19	.....percent.....	-58.6	(¹)	-100.0	(¹)	-0.7	24.2	-100.0	224.7	.....
20	Improved land.....acres.....1940..	210,071	104,152	90,387	23,470	186,769	144,726	4,374	10,406	75,889
21	.....1930..	249,331	119,360	116,307	44,884	211,363	134,695	3,810	8,230	124,339
22	.....1920..	² 200,796	182,089	59,491	24,773	146,033	151,554	5,532	10,539	31,298
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	24,898	20,090	8,785	10,222	19,632	18,100	.....	1,169	3,393
24	.....1930..	12,338	20,683	719	1,412	14,828	14,057	1,116	.....	5,392
25	.....1920..	36,770	19,532	8,230	2,921	13,118	23,759	882	1,860	854
26	Other unimproved land.....acres.....1940..	2,366	20,056	215	70	23,281	23,423	.....	447	10,112
27	.....1930..	2,535	.....	540	1,706	7,019	9,339	257	50	8,738
28	.....1920..	18,471	107	9,852	1,453	13,536	23,553	126	.....	.....
29	Land in occupied farms.....acres.....1940..	234,808	144,298	99,387	33,762	203,700	181,691	4,374	12,022	85,500
30	.....1930..	264,201	140,043	117,293	47,905	217,831	158,051	5,183	8,280	138,469
31	Increase or decrease (-), 1930-1940.....acres.....	-29,393	4,255	-17,906	-14,143	-14,131	23,840	-809	3,742	-52,969
32	.....percent.....	-11.1	3.0	-15.2	-29.5	-6.5	15.0	-15.6	45.2	-38.2
33	Land in planted crops ³.....acres.....1940..	166,700	69,117	90,236	23,130	125,900	122,713	3,850	10,227	65,800
34	.....1930..	215,759	97,229	105,202	33,967	202,225	128,614	2,910	7,120	117,545
35	Increase or decrease (-), 1930-1940.....acres.....	-49,059	-28,112	-14,966	-10,847	-76,325	-5,901	940	3,107	-51,745
36	.....percent.....	-22.7	-28.9	-14.2	-31.9	-37.7	-4.6	32.3	43.6	-44.0
37	Land idle.....acres.....1940..	10,872	2,841	9,054	10,072	87,331	27,439	524	1,795	19,442
38	.....1930..	5,505	22,476	426	6,627	16,453	2,047	1,068	748	11,839
39	Increase or decrease (-), 1930-1940.....acres.....	5,367	-19,635	8,628	3,445	70,878	25,392	-544	1,047	7,603
40	.....percent.....	97.5	-87.4	(¹)	52.0	430.8	(¹)	-50.9	140.0	64.2
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	151,640	96,552	28,914	31,052	212,617	104,033	4,374	3,962	88,213
46	Length of these ditches.....miles.....	359.8	405.3	83.7	71.9	365.9	289.9	12.3	10.6	57.6
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	7,100	496
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	19.9	0.3
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	20.3	0.3
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	49,463	46,779	38,533	240	14,905	12,092	.....	.....	.....
53	Length of these tile.....miles.....	185.8	182.6	126.5	1.0	113.5	329.9	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	36,232	967	31,940	2,470	2,160	70,124	.....	.....	685
60	Length of these open ditches.....miles.....	56.2	7.1	65.0	5.4	12.4	139.8	.....	.....	3.2
61	Length of these tile.....miles.....	34.9	4.5	51.4	1.4	11.8	90.4	.....	.....	0.2
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	960	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	1.2	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	0.3	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	1.5	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

²Office estimate; the reported figures exceed the acreage in all farms as reported by the Census of Agriculture.

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CENSUS OF DRAINAGE - INDIANA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Porter	Posey	Pulaski	Putnam	Randolph	Rush	St. Joseph	Scott	
LAND AREA									
1	Approximate land area.....acres....1940..	272,000	264,960	277,120	313,600	292,480	261,760	298,880	123,520
2	Drainage enterprises.....number...1940..	48	55	199	9	155	181	47	6
3	Land in enterprises.....acres....1940..	156,638	161,800	262,882	10,342	207,947	105,363	199,293	16,847
4	.....1930..	148,880	176,605	228,333	11,236	187,725	103,074	224,034	15,677
5	.....1920..	149,323	146,970	195,754	5,225	59,618	101,373	198,571	11,895
6	Area of all enterprises, overlapping included.....acres....1940..	383,017	179,814	549,815	13,662	372,466	140,532	455,238	16,847
7	Amount of overlapping.....acres....1940..	216,379	18,014	286,933	3,320	164,519	35,149	255,945	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	150,745	161,800	231,093	9,161	207,947	99,097	198,938	16,822
9	.....1930..	134,509	150,392	212,405	9,956	187,162	95,132	183,087	12,336
10	Increase or decrease (-), 1930-1940.....acres.....	16,236	11,408	18,688	-795	20,785	3,965	15,851	4,486
11	.....percent.....	12.1	7.6	8.8	-8.0	11.1	4.2	8.6	36.4
12	Land undrained, unfit for any crop.....acres....1940..	2,472	.....	3,153	438	.....	628	47	25
13	.....1930..	5,300	6,598	662	48	160	2,167	12,867	1,279
14	Increase or decrease (-), 1930-1940.....acres.....	-2,828	-6,598	2,491	390	-160	-1,539	-12,820	-1,254
15	.....percent.....	-53.4	-100.0	376.3	812.5	-100.0	-71.0	-99.6	-98.0
16	Land partly drained, for partial crop.....acres....1940..	13,421	.....	28,636	743	.....	5,658	308	.....
17	.....1930..	9,071	19,615	15,269	1,232	403	5,775	28,080	2,062
18	Increase or decrease (-), 1930-1940.....acres.....	4,350	-19,615	13,370	-489	-403	-117	-27,772	-2,062
19	.....percent.....	48.0	-100.0	87.6	-39.7	-100.0	-2.0	-98.9	-100.0
20	Improved land.....acres....1940..	158,466	155,869	179,396	9,897	169,951	97,769	178,280	16,807
21	.....1930..	133,802	159,289	209,105	10,756	176,673	96,229	196,611	9,895
22	.....1920..	121,331	145,117	121,510	4,198	53,659	87,969	170,763	10,707
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	7,311	5,931	65,584	445	37,996	7,045	18,766	40
24	.....1930..	12,032	10,929	15,914	480	10,954	6,599	13,478	5,516
25	.....1920..	25,584	1,711	11,313	1,027	3,626	13,404	11,912	594
26	Other unimproved land.....acres....1940..	861	.....	17,902	.....	.....	569	2,247	.....
27	.....1930..	3,046	6,387	3,314	.....	98	246	13,945	266
28	.....1920..	2,408	142	2,931	.....	2,333	.....	15,696	594
29	Land in occupied farms.....acres....1940..	165,746	161,800	233,400	10,342	207,899	98,263	199,122	16,847
30	.....1930..	147,304	176,315	228,113	11,236	187,725	103,057	222,747	15,677
31	Increase or decrease (-), 1930-1940.....acres.....	18,442	-14,515	5,287	-894	20,174	-4,794	-23,625	1,170
32	.....percent.....	12.5	-8.2	2.3	-8.0	10.7	-4.6	-10.6	7.5
33	Land in planted crops ¹.....acres....1940..	113,672	154,082	147,300	8,416	118,992	89,000	177,759	10,421
34	.....1930..	113,572	128,910	207,239	9,150	144,461	94,503	176,224	8,100
35	Increase or decrease (-), 1930-1940.....acres.....	100	25,172	-59,939	-734	-25,469	-5,503	1,535	2,321
36	.....percent.....	0.1	19.5	-28.9	-8.0	-17.6	-5.8	0.9	28.6
37	Land idle.....acres....1940..	48,349	7,718	16,386	909	884	382	19,337	6,426
38	.....1930..	17,025	5,895	11,829	1,000	279	1,852	27,997	6,521
39	Increase or decrease (-), 1930-1940.....acres.....	31,324	1,833	4,557	-91	605	-1,470	-8,660	-95
40	.....percent.....	184.0	31.1	38.5	-9.1	216.8	-79.4	-30.9	-1.4
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	434	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	-434	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	-100.0	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	117,448	160,980	205,637	3,540	86,953	46,500	187,544	16,847
46	Length of these ditches.....miles.....	273.8	213.0	607.6	4.9	184.5	165.7	422.2	38.3
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	7,060	.....	25,796	3,256	27,440	40,887	920	.....
53	Length of these tile.....miles.....	85.6	.....	149.1	8.5	153.1	140.8	50.0	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	741	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	0.1	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	0.1	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	42,130	820	31,449	3,546	90,523	15,996	10,829	.....
60	Length of these open ditches.....miles.....	72.4	1.8	89.4	6.8	119.4	29.5	38.0	.....
61	Length of these tile.....miles.....	23.3	0.2	33.6	1.8	229.4	41.6	21.5	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	2,280	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	10.1	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	8.3	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	0.3	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.

CENSUS OF DRAINAGE - INDIANA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Shelby	Spencer	Starke	Stauben	Sullivan	Tipp- carooe	Tipton	Union	Vander- burg
LAND AREA									
1 Approximate land area.....acres.....1940..	261,700	253,440	199,040	198,400	292,480	320,640	137,040	107,520	151,240
2 Drainage enterprises.....number.....1940..	143	78	160	409	19	137	74	12	45
3 Land in enterprises.....acres.....1940..	86,145	64,994	184,280	150,541	39,726	121,861	162,994	4,557	57,443
4 1930..	84,863	68,200	193,767	133,635	44,663	112,047	162,700	8,459	67,735
5 1920..	80,508	88,143	181,208	133,743	22,958	91,795	153,109	4,640	63,014
6 Area of all enterprises, overlapping included.....acres.....1940..	83,579	74,037	259,038	354,919	78,143	176,720	487,905	4,597	61,044
7 Amount of overlapping.....acres.....1940..	434	9,043	74,758	204,378	38,417	54,859	324,021	40	4,201
CONDITION AND USE OF LAND									
8 Land with drainage sufficient for normal crop.....acres.....1940..	86,053	42,242	175,317	135,487	39,395	121,661	154,965	4,464	53,634
9 1930..	72,982	39,702	166,583	129,709	38,236	100,836	162,571	7,547	55,636
10 Increase or decrease (-), 1930-1940.....acres.....	13,071	2,540	8,734	5,778	1,159	20,825	-7,606	-3,083	-2,002
11 percent.....	17.9	6.4	5.2	4.4	3.0	20.6	-4.7	-40.8	-3.6
12 Land undrained, unfit for any crop.....acres.....1940..	.....	9,753	3,120	.....	331	200	.....	3	2,800
13 1930..	4,295	6,483	2,758	1,898	300	1,404	109	7	2,681
14 Increase or decrease (-), 1930-1940.....acres.....	-4,295	3,270	362	-1,898	31	-1,204	-109	-4	119
15 percent.....	-100.0	50.4	13.1	-100.0	10.3	-85.8	-100.0	-57.1	4.4
16 Land partly drained, for partial crop.....acres.....1940..	92	12,999	5,843	15,054	.....	.....	8,019	90	1,009
17 1930..	7,586	22,024	24,426	2,028	6,127	9,807	20	905	9,418
18 Increase or decrease (-), 1930-1940.....acres.....	-7,494	-9,025	-18,583	13,023	-6,127	-9,807	7,999	-815	-8,409
19 percent.....	-98.8	-41.0	-76.1	642.3	-100.0	-100.0	(¹)	-90.0	-89.3
20 Improved land.....acres.....1940..	78,702	58,499	155,447	91,772	36,672	120,855	143,476	4,440	52,306
21 1930..	80,323	53,281	158,389	120,353	38,568	106,776	153,774	8,157	57,792
22 1920..	75,636	85,109	119,310	86,495	21,091	78,522	140,851	3,748	48,680
Unimproved land:									
23 Woodland and cut-over land.....acres.....1940..	6,762	3,238	25,006	43,723	2,879	691	8,333	117	2,300
24 1930..	4,540	8,779	30,617	9,377	3,968	5,146	8,776	202	3,285
25 1920..	4,872	3,034	53,252	15,106	1,867	8,098	14,227	562	3,779
26 Other unimproved land.....acres.....1940..	681	3,257	3,827	15,046	175	315	8,175	.....	2,537
27 1930..	.....	6,149	4,761	3,905	2,127	125	150	100	3,658
28 1920..	.....	.....	8,646	32,142	.....	5,175	31	330	555
29 Land in occupied farms.....acres.....1940..	78,823	58,499	152,200	127,962	39,726	121,861	151,300	4,545	47,943
30 1930..	84,483	67,040	186,012	133,628	44,863	112,047	162,569	8,459	64,633
31 Increase or decrease (-), 1930-1940.....acres.....	-5,660	-8,541	-33,812	-5,666	-5,137	9,814	-11,269	-3,914	-16,690
32 percent.....	-6.7	-12.7	-18.2	-4.2	-11.4	8.8	-9.9	-46.3	-25.8
33 Land in planted crops ².....acres.....1940..	63,191	42,242	109,000	62,567	34,918	118,197	104,754	4,207	38,297
34 1930..	75,492	51,259	125,619	118,414	32,162	100,479	144,475	6,856	42,522
35 Increase or decrease (-), 1930-1940.....acres.....	-12,301	-9,017	-16,619	-55,847	2,756	17,718	-39,721	-2,649	-4,225
36 percent.....	-16.3	-17.6	-13.2	-47.2	8.6	17.6	-27.5	-38.6	-9.9
37 Land idle.....acres.....1940..	15,465	22,752	17,701	30,101	4,714	3,298	41,757	135	155
38 1930..	2,475	5,746	61,867	3,404	2,865	2,887	7,709	.....	6,413
39 Increase or decrease (-), 1930-1940.....acres.....	12,990	17,006	-44,166	26,697	1,848	411	34,048	135	-6,258
40 percent.....	524.8	296.0	-71.4	784.3	64.5	14.2	441.7	.....	-97.6
41 Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 1930..	.....	.....	140	.....	.....	.....	.....	.....	567
43 Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-140	.....	.....	.....	.....	.....	-567
44 percent.....	.....	.....	-100.0	.....	.....	.....	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940									
45 Land drained by open ditches only.....acres.....	53,582	60,188	176,744	109,313	22,440	14,375	72,653	.....	56,011
46 Length of these ditches.....miles.....	179.0	176.5	550.1	347.7	61.0	42.3	390.4	.....	95.8
47 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	2,176	.....	.....	.....	.....
49 Length of these ditches.....miles.....	.....	.....	.....	.....	9.5	.....	.....	.....	.....
50 Length of these levees.....miles.....	.....	.....	.....	.....	9.3	.....	.....	.....	.....
51 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52 Land drained by tile only.....acres.....	22,994	1,126	2,795	30,408	414	43,061	5,385	3,026	.....
53 Length of these tile.....miles.....	52.7	5.0	11.9	154.8	1.1	188.2	186.8	11.4	.....
54 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55 Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59 Land drained by open ditches and tile.....acres.....	9,569	3,680	4,741	10,820	1,675	64,425	84,946	1,531	1,432
60 Length of these open ditches.....miles.....	21.7	10.2	10.1	13.9	4.7	89.7	143.1	0.9	4.5
61 Length of these tile.....miles.....	10.6	5.5	1.8	13.9	12.6	181.2	39.5	8.1	2.0
62 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63 Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	706	.....	.....	.....	.....
64 Length of these open ditches.....miles.....	.....	.....	.....	.....	1.3	.....	.....	.....	.....
65 Length of these tile.....miles.....	.....	.....	.....	.....	1.0	.....	.....	.....	.....
66 Length of these levees.....miles.....	.....	.....	.....	.....	0.4	.....	.....	.....	.....
67 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68 Land in enterprises operating pumping plants ⁴.....acres.....	.....	.....	.....	.....	(⁵)	.....	.....	.....	.....
69 Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	(⁵)	.....	.....	.....	.....
70 Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	(⁵)	.....	.....	.....	.....
71 Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	(⁵)	.....	.....	.....	.....
72 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

²Office estimate; the reported figures exceed the acreage in all farms as reported by the Census of Agriculture.

³It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.

⁴Data in lines 68 to 72 are not included in lines 45 to 67.

⁵Included only in State totals.

CENSUS OF DRAINAGE — INDIANA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

	ITEM (See definitions in Introduction)	Vermillion	Vigo	Wabash	Warren	Warrick	Washington	Wayne	Wells	White	Whitley	Other counties ¹
LAND AREA												
1	Approximate land area.....acres.....1940..	168,320	265,600	269,140	235,520	250,210	330,240	259,200	235,520	318,080	215,040	608,000
2	Drainage enterprises.....number.....1940..	5	14	153	57	78	5	20	194	270	122	5
3	Land in enterprises.....acres.....1940..	5,397	29,583	130,964	51,141	111,320	12,195	20,301	203,966	248,282	197,012	2,131
4	.....1930..	9,120	42,196	160,530	52,819	114,322	11,420	12,386	211,415	308,493	200,971	7,612
5	.....1920..	6,548	50,835	150,986	48,174	95,501	11,121	9,065	166,377	239,020	172,685	3,945
6	Area of all enterprises, overlapping included.....acres.....1940..	7,658	61,827	212,848	54,786	136,836	14,387	23,270	725,146	436,504	606,636	2,131
7	Amount of overlapping.....acres.....1940..	2,261	32,244	81,884	3,645	25,516	2,192	2,969	521,180	198,222	409,624	.....
CONDITION AND USE OF LAND												
8	Land with drainage sufficient for normal crop.....acres.....1940..	5,397	29,143	118,040	51,141	95,028	12,195	20,017	202,617	191,025	193,017	1,877
9	.....1930..	9,100	40,237	143,077	51,189	98,769	5,500	10,935	207,481	308,453	180,240	6,701
10	Increase or decrease (-), 1930-1940.....acres.....	-3,703	-11,094	-25,037	-48	-3,741	6,695	9,082	-4,864	-117,428	12,777	-4,824
11	.....percent.....	-40.7	-27.6	-17.5	-0.1	-3.8	121.7	83.0	-2.3	-38.1	7.1	-72.0
12	Land undrained, unfit for any crop.....acres.....1940..	.....	440	318	.....	353	.....	.....	12,382	72	15	.....
13	.....1930..	.....	625	1,388	48	1,711	3,920	119	1,327	5,851	311	.....
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-185	-1,070	-48	-1,359	-3,920	-119	-1,327	12,382	-5,779	-296
15	.....percent.....	.....	-29.6	-92.8	-100.0	-79.4	-100.0	-100.0	-100.0	.....	-98.8	-95.2
16	Land partly drained, for partial crop.....acres.....1940..	.....	.....	12,606	.....	15,939	.....	294	1,349	44,875	3,923	239
17	.....1930..	.....	20	1,334	13,065	1,582	13,842	2,000	1,332	2,607	30	600
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-20	-1,334	-459	-1,582	2,097	-2,000	-1,048	-1,258	44,845	-10,957
19	.....percent.....	.....	-100.0	-100.0	-3.5	-100.0	15.1	-100.0	-78.7	-48.2	(?)	-60.2
20	Improved land.....acres.....1940..	4,909	26,947	98,761	43,541	110,426	10,316	17,993	196,560	213,859	169,777	2,131
21	.....1930..	9,120	41,972	145,393	50,475	107,575	5,500	11,364	194,917	278,671	175,845	7,052
22	.....1920..	5,292	48,019	115,590	35,927	81,860	10,009	7,705	139,130	222,496	145,687	3,422
Unimproved land:												
23	Woodland and cut-over land.....acres.....1940..	488	1,379	14,640	7,600	549	1,879	2,249	7,346	11,502	21,404	.....
24	.....1930..	.....	124	14,981	1,312	4,952	2,000	1,022	15,997	29,708	19,345	239
25	.....1920..	1,256	2,816	14,609	4,932	2,246	556	453	26,786	14,938	8,175	420
26	Other unimproved land.....acres.....1940..	.....	1,257	17,563	.....	345	.....	59	60	22,921	5,831	.....
27	.....1930..	.....	100	156	1,032	1,795	3,920	.....	501	104	5,781	311
28	.....1920..	.....	.....	20,687	7,315	1,395	556	907	461	586	17,823	103
29	Land in occupied farms.....acres.....1940..	5,397	29,583	113,080	51,141	111,006	12,195	20,179	203,966	248,147	191,282	2,131
30	.....1930..	9,120	42,196	160,530	52,819	114,262	11,420	12,386	210,443	308,493	200,971	7,612
31	Increase or decrease (-), 1930-1940.....acres.....	-3,723	-12,613	-47,450	-1,678	-3,256	775	7,793	-6,477	-60,336	-9,689	-5,481
32	.....percent.....	-40.8	-29.9	-29.6	-3.2	-2.8	6.8	62.9	-3.1	-19.6	-4.8	-72.0
33	Land in planted crops ².....acres.....1940..	4,575	25,304	78,024	43,276	93,840	10,316	15,550	157,900	204,631	137,413	1,833
34	.....1930..	8,300	31,241	144,189	45,727	86,532	3,500	6,910	158,056	271,029	162,973	6,521
35	Increase or decrease (-), 1930-1940.....acres.....	-3,725	-5,937	-66,165	-2,451	7,308	6,816	8,640	-156	-66,398	-25,560	-4,688
36	.....percent.....	-44.9	-19.0	-45.9	-5.4	8.4	194.7	125.0	-0.1	-24.5	-15.7	-71.9
37	Land idle.....acres.....1940..	722	3,974	24,363	7,600	16,524	1,879	4,442	129	40,502	53,559	180
38	.....1930..	.....	7,010	375	780	13,316	7,700	.....	11,593	230	1,573	311
39	Increase or decrease (-), 1930-1940.....acres.....	722	-3,036	23,988	6,820	-3,208	-5,821	4,442	-11,464	40,272	51,986	-131
40	.....percent.....	.....	-43.3	(?)	874.4	-24.1	-75.6	.....	-98.9	(?)	(?)	-42.1
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940												
45	Land drained by open ditches only.....acres.....	1,576	10,744	85,141	20,474	111,320	12,195	10,457	123,635	152,455	110,460	2,131
46	Length of these ditches.....miles.....	3.1	47.6	184.9	34.8	187.6	16.3	31.3	794.6	674.3	218.0	9.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	15,307	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	26.6	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	22.0	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	31,341	19,104	.....	.....	921	41,864	58,844	23,724	.....
53	Length of these tile.....miles.....	.....	.....	127.1	47.1	.....	.....	2.5	316.0	255.0	311.8	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	3,821	540	14,482	11,563	.....	.....	8,923	38,467	36,983	62,828	.....
60	Length of these open ditches.....miles.....	10.8	3.1	9.9	11.7	.....	.....	9.5	49.0	134.2	163.5	.....
61	Length of these tile.....miles.....	3.4	0.8	15.8	10.6	.....	.....	10.0	40.0	63.2	92.6	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	2,375	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	0.6	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	3.9	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	5.9	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	(?)	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	(?)	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	(?)	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	(?)	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Includes Harrison, Ohio, and Perry Counties in 1940; Decatur, Harrison, Martin, Monroe, Ohio, and Perry Counties in 1930; and Decatur, Martin, Monroe, Ohio, and Perry Counties in 1920.

² Percent not shown when more than 1,000.

³ It seems evident that in some counties the reported acreage planted corresponds to land available for crops rather than to land used for crops as reported by the Census of Agriculture.

⁴ Data in lines 68 to 72 are not included in lines 45 to 67.

⁵ Included only in State totals.

CENSUS OF DRAINAGE - INDIANA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAIN-TENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)		THE STATE	Adams	Allen	Bartholomew	Benton	Blackford	Boone	Carroll	Cass
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	19,271	404	348	25	165	82	264	220	388
Open ditches:										
2	Completed.....miles.....1940..	22,098.1	590.1	1,576.0	82.9	214.7	218.8	562.1	474.5	392.6
3	.....1930..	20,785.3	542.7	1,061.3	56.1	121.8	200.2	457.3	391.4	485.4
4	.....1920..	17,470.7	761.3	1,045.2	64.8	89.0	212.2	368.5	258.1	532.9
5	Additional length authorized.....miles.....1940..	10.9	.....	.....	2.7	.....	.....	0.5	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	10,754.7	148.7	329.3	10.2	179.8	103.2	338.5	366.4	281.6
7	.....1930..	10,438.7	325.0	371.2	9.9	135.9	97.1	172.6	310.1	272.3
8	.....1920..	8,227.6	242.2	264.8	15.3	94.6	102.6	245.7	262.2	258.4
9	Additional length authorized.....miles.....1940..	13.6	.....	.....	.....	.....	.....	9.7	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	139.0	.....	1.2	.....	.....	.....	.....	.....	.....
11	.....1930..	131.9	.....	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	165.8	.....	.....	2.5	.....	.....	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	515	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	166	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	625	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	47,333	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	48,000	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	55,348	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	5,412	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	2,763	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	5,611	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	47,540,385	431,050	2,103,766	62,965	1,377,113	452,718	1,112,174	962,486	1,015,666
26	.....1930..	54,110,854	1,073,002	2,461,352	47,801	807,096	627,882	757,088	962,009	1,044,571
27	.....1920..	31,147,682	943,698	1,306,669	72,042	308,431	461,823	482,953	530,336	960,800
28	Estimated cost when completed.....dollars.....1940..	47,581,041	431,050	2,102,766	71,965	1,377,113	452,718	1,135,556	962,486	1,015,666
29	.....1930..	54,203,346	1,073,002	2,461,352	47,801	807,096	627,882	757,088	983,756	1,044,571
30	.....1920..	31,943,858	943,698	1,324,245	72,042	308,431	465,578	482,953	543,424	960,800
31	Average cost per acre when completed.....dollars.....1940..	4.70	2.40	5.59	2.97	7.58	4.51	5.19	5.34	5.84
32	.....1930..	5.31	5.22	7.05	2.34	5.18	6.39	3.44	5.63	5.43
33	.....1920..	3.52	4.44	3.38	3.79	2.98	5.08	1.91	3.32	4.40
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars.....	24,742,312	267,135	1,456,571	63,221	705,626	264,208	427,101	354,006	391,398
35	Average amount per acre.....dollars.....	3.74	2.31	4.64	2.93	6.86	3.14	5.26	4.80	4.99
36	Enterprises having open ditches and levees.....dollars.....	826,967	.....	4,268	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars.....	13.78	.....	3.09	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars.....	11,485,767	94,013	470,431	7,809	475,646	153,671	373,217	493,115	303,020
39	Average amount per acre.....dollars.....	8.18	4.23	13.54	9.76	7.93	17.03	5.52	5.91	6.96
40	Enterprises having tile and levees.....dollars.....	581	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars.....	0.78	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars.....	10,219,199	69,902	171,496	935	195,841	34,839	335,238	115,365	321,243
43	Average amount per acre.....dollars.....	5.06	2.50	6.56	0.49	10.41	4.82	4.78	4.93	6.18
44	Enterprises having ditches, tile, and levees.....dollars.....	109,443	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars.....	9.09	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants ².....dollars.....	196,772	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars.....	12.28	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars.....	(³)	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	2	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	(³)	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars.....	(³)	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars.....	³ 45,638	.....	.....	.....	.....	.....	3,336	.....	450
53	Enterprises reporting.....number.....	232	.....	.....	.....	.....	.....	90	.....	3
54	Land in these enterprises.....acres.....	³ 173,999	.....	.....	.....	.....	.....	45,393	.....	1,500
55	Average cost per acre.....dollars.....	³ 0.26	.....	.....	.....	.....	.....	0.07	.....	0.30
Federal aid in maintenance:										
56	Enterprises reporting.....number.....	341	.....	.....	.....	.....	.....	.....	7	.....
57	Land in these enterprises.....acres.....	469,589	.....	.....	.....	.....	.....	.....	4,252	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars.....	133,868	.....	.....	.....	.....	.....	3,820	.....	(⁴)
59	Enterprises reporting.....number.....	176	.....	.....	.....	.....	.....	15	.....	1
60	Land in these enterprises.....acres.....	369,036	.....	.....	.....	.....	.....	30,357	.....	(⁴)
61	Average amount collected per acre.....dollars.....	0.36	.....	.....	.....	.....	.....	0.12	.....	(⁴)
62	Area delinquent in drainage taxes, Dec. 31, 1939 ⁵.....acres.....	62,207	.....	.....	.....	5,140	.....	.....	.....	.....
63	Enterprises reporting.....number.....	115	.....	.....	.....	8	.....	.....	.....	.....
64	Land in these enterprises.....acres.....	318,300	.....	.....	.....	15,300	.....	.....	.....	.....
65	Portion delinquent in these enterprises.....percent.....	19.5	.....	.....	.....	33.6	.....	.....	.....	.....
66	Total indebtedness, Dec. 31, 1939.....dollars.....	429,245	.....	.....	7,000	31,127	.....	3,263	.....	933
67	Enterprises reporting.....number.....	266	.....	.....	4	12	.....	12	.....	4
68	Land in these enterprises.....acres.....	689,172	.....	.....	6,750	23,160	.....	12,323	.....	560
69	Average indebtedness per acre.....dollars.....	0.62	.....	.....	1.04	1.34	.....	0.26	.....	1.67
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	131,634	.....	.....	.....	15,257	.....	.....	.....	.....
71	Enterprises reporting.....number.....	101	.....	.....	.....	3	.....	.....	.....	.....
72	Land in these enterprises.....acres.....	451,053	.....	.....	.....	13,620	.....	.....	.....	.....
73	Average arrearage per acre.....dollars.....	0.29	.....	.....	.....	1.12	.....	.....	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars.....	⁶ 9,752	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	2	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	⁶ 5,990	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars.....	⁶ 1.63	.....	.....	.....	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 8,893. ²Data in lines 40 and 47 are not included in lines 34 to 45. ³Cost of operation and maintenance for 2 enterprises operating pumping plants included with those for enterprises not operating pumping plants. ⁴Where there are less than 3 enterprises reporting, data are included only in State totals. ⁵In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises. ⁶Not distributed by counties.

CENSUS OF DRAINAGE — INDIANA

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COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Clay	Clinton	Davies	Decatur	De Kalb	Delaware	Dubois	Elkhart
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	14	123	29	5	216	111	17	361
Open ditches:								
2 Completed.....miles.....1940..	95.1	440.5	131.8	6.0	609.9	476.0	39.9	310.7
3	1930..	555.8	96.1	(1)	572.6	349.9	42.5	406.1
4	1920..	89.2	44.2	64.5	(1)	798.1	320.1	546.0
5 Additional length authorized.....miles.....1940..								
6 Tile drains:								
7 Completed.....miles.....1940..	5.7	471.7	16.7	0.3	400.4	251.0	0.5	90.8
8	1930..	5.7	310.1	20.3	(1)	445.4	328.6	75.7
9	1920..	4.4	104.1	1.0	(1)	369.4	228.1	84.6
10 Additional length authorized.....miles.....1940..		0.6						
11 Levees and dikes:								
12 Completed.....miles.....1940..	15.4						0.1	
13	1930..	10.8			(1)	0.3	2.3	
14	1920..	10.9			(1)		0.3	
15 Additional length authorized.....miles.....1940..								
16 Pumping plants:								
17 Engine capacity.....horsepower.....1940..	370							
18	1930..				(1)			
19	1920..	200			(1)			
20 Pump capacity.....gal. per min. 1940..	24,000							
21	1930..				(1)			
22	1920..	12,000			(1)			
23 Land served by pumps.....acres.....1940..	3,089							
24	1930..				(1)			
25	1920..	1,200			(1)			
26 Wells pumped for drainage.....number.....1940..								
27	1930..				(1)			
CAPITAL INVESTED								
28 Capital invested to January 1.....dollars.....1940..	391,737	1,410,794	262,943	6,044	1,422,462	952,782	96,737	329,042
29	1930..	347,368	1,395,692	255,593	(1)	1,697,279	984,640	93,973
30	1920..	380,223	224,420	104,304	(1)	841,020	422,035	60,697
31 Estimated cost when completed.....dollars.....1940..	391,737	1,411,370	252,943	6,044	1,422,462	952,782	96,737	329,042
32	1930..	347,368	1,396,592	261,729	(1)	1,697,279	984,640	93,973
33	1920..	391,223	224,420	104,304	(1)	879,466	422,035	60,697
34 Average cost per acre when completed.....dollars.....1940..	9.98	6.62	2.69	2.09	6.72	4.52	6.61	1.58
35	1930..	7.25	6.62	2.27	(1)	7.71	4.92	2.31
36	1920..	6.53	2.57	2.59	(1)	4.07	1.70	1.86
37 Invested in and required for completion, 1940:								
38 Enterprises having open ditches only.....dollars..	253,874	513,153	234,927	5,126	630,861	369,239	48,737	248,583
39 Average amount per acre.....dollars..	7.54	4.37	2.84	2.24	4.36	3.37	4.95	1.51
40 Enterprises having open ditches and levees.....dollars..	23,381							
41 Average amount per acre.....dollars..	41.75							
42 Enterprises having tile only.....dollars..		572,449	953		509,913	239,035		58,974
43 Average amount per acre.....dollars..		13.63	1.40		22.99	8.34		1.85
44 Enterprises having tile and levees.....dollars..								
45 Average amount per acre.....dollars..								
46 Enterprises having open ditches and tile.....dollars..	21,361	325,768	27,063	918	281,688	344,508		21,435
47 Average amount per acre.....dollars..	10.94	6.06	1.37	1.53	6.29	4.75		1.87
48 Enterprises having ditches, tile, and levees.....dollars..							48,000	
49 Average amount per acre.....dollars..							10.02	
50 Enterprises operating pumping plants ².....dollars..	(3)							
51 Average amount per acre.....dollars..	(3)							
MAINTENANCE AND OPERATION								
52 Cost of maintenance and operation in 1939:								
53 By enterprises operating pumping plants.....dollars..	(4)							
54 Enterprises reporting.....number..	1							
55 Land in these enterprises.....acres..	(4)							
56 Average cost per acre.....dollars..	(4)							
57 By enterprises not operating pumping plants.....dollars..		(3)	(3)					
58 Enterprises reporting.....number..		1	2					
59 Land in these enterprises.....acres..		(3)	(3)					
60 Average cost per acre.....dollars..		(3)	(3)					
61 Federal aid in maintenance:								
62 Enterprises reporting.....number..	1	7						
63 Land in these enterprises.....acres..	(3)	5,540			(3)			
FINANCIAL CONDITION								
64 Drainage taxes collected in 1939.....dollars..		(3)				6,550		
65 Enterprises reporting.....number..		2				5		
66 Land in these enterprises.....acres..		(3)				2,540		
67 Average amount collected per acre.....dollars..		(3)				2.58		
68 Area delinquent in drainage taxes, Dec. 31, 1939 ⁵.....acres..						2,028		
69 Enterprises reporting.....number..						15		
70 Land in these enterprises.....acres..						69,264		
71 Portion delinquent in these enterprises.....percent..						2.9		
72 Total indebtedness, Dec. 31, 1939.....dollars..	(3)	(3)				4,438		
73 Enterprises reporting.....number..	2	2				15		
74 Land in these enterprises.....acres..	(3)	(3)				69,264		
75 Average indebtedness per acre.....dollars..	(3)	(3)				0.06		
76 Indebtedness in arrears, Dec. 31, 1939.....dollars..						4,438		
77 Enterprises reporting.....number..						15		
78 Land in these enterprises.....acres..						69,264		
79 Average arrearage per acre.....dollars..						0.06		
80 Reduction of debt by refinancing, prior to 1940.....dollars..								
81 Enterprises reporting.....number..								
82 Land in these enterprises.....acres..								
83 Average reduction per acre.....dollars..								

¹ Included in "Other counties." ² Data in lines 46 and 47 are not included in lines 34 to 45. ³ Where there are less than 3 enterprises reporting, data are included only in State totals. ⁴ Data included with those for Green County to avoid disclosures with respect to individual enterprises. ⁵ In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE - INDIANA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Fayette	Fountain	Franklin	Fulton	Gibson	Grant	Greene	Hamilton	Hancock
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	9	24	11	94	64	158	26	232	180
Open ditches:										
2	Completed.....miles.....1940..	5.8	13.8	1.2	377.0	275.9	576.1	221.9	240.3	195.8
3	.....1930..	6.0	6.0	0.1	361.8	297.7	535.9	109.5	211.5	176.9
4	.....1920..	9.7	.....	.....	323.2	284.2	497.4	101.0	100.6	142.0
5	Additional length authorized.....miles.....1940..	0.1	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	10.6	39.3	21.0	337.1	2.8	262.0	0.3	199.7	187.8
7	.....1930..	13.4	41.3	26.5	203.4	3.6	312.2	.....	210.1	125.4
8	.....1920..	15.2	22.7	22.1	182.4	6.5	242.9	57.0	213.5	122.6
9	Additional length authorized.....miles.....1940..	0.3	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	0.2	.....	.....	.....	.....	13.5	.....	.....
11	.....1930..	.....	.....	.....	.....	5.9	.....	.....	.....	.....
12	.....1920..	.....	.....	.....	.....	.....	.....	11.6	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	18	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	400	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	2,000	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	43,000	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	130	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	3,300	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	38,466	143,975	52,366	1,158,523	789,559	671,238	571,626	516,793	479,984
26	.....1930..	29,847	122,236	39,860	515,213	1,266,963	831,122	452,325	503,349	350,978
27	.....1920..	23,484	97,839	49,333	364,509	576,984	710,207	411,491	272,700	264,887
28	Estimated cost when completed.....dollars.....1940..	38,466	144,175	52,366	1,158,523	789,559	671,238	571,626	516,793	479,984
29	.....1930..	29,847	122,236	39,860	515,213	1,266,963	831,122	452,325	509,349	350,978
30	.....1920..	23,484	97,839	49,333	364,509	576,984	731,674	441,491	272,971	272,631
31	Average cost per acre when completed.....dollars.....1940..	4.16	6.36	6.95	5.61	4.68	2.84	8.99	3.08	3.73
32	.....1930..	4.05	7.71	5.49	3.76	5.60	3.99	7.33	3.58	2.95
33	.....1920..	3.80	8.73	6.87	1.64	3.03	3.30	8.64	2.12	1.93
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	10,156	25,321	.....	265,116	774,135	186,665	485,621	142,667	55,126
35	Average amount per acre.....dollars..	2.21	7.22	.....	1.91	4.57	1.76	8.64	1.86	2.05
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	83,017	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	12.08	.....	.....
38	Enterprises having tile only.....dollars..	16,507	49,507	14,347	302,569	1,584	222,298	440	101,747	165,687
39	Average amount per acre.....dollars..	4.57	6.43	4.74	24.62	1.91	4.21	2.20	4.49	6.46
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	11,803	58,990	36,019	590,838	13,840	262,275	2,548	272,379	259,171
43	Average amount per acre.....dollars..	11.24	5.60	8.43	10.65	7.20	3.41	9.16	3.96	3.41
44	Enterprises having ditches, tile, and levees.....dollars..	.....	10,357	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	11.23	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	¹ 1,976	.....	9,251
53	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	8	.....	75
54	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	¹ 18,089	.....	66,318
55	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	¹ 0.11	.....	0.14
Federal aid in maintenance:										
56	Enterprises reporting.....number.....	.....	.....	.....	2	1	.....	.....	.....	7
57	Land in these enterprises.....acres.....	.....	.....	.....	(²)	(²)	(²)	.....	.....	9,795
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	.....	.....	.....	15,440	.....	.....	.....	.....	5,896
59	Enterprises reporting.....number.....	.....	.....	.....	5	.....	.....	.....	.....	5
60	Land in these enterprises.....acres.....	.....	.....	.....	10,810	.....	.....	.....	.....	5,848
61	Average amount collected per acre.....dollars..	.....	.....	.....	1.43	.....	.....	.....	.....	1.01
62	Area delinquent in drainage taxes, Dec. 31, 1939 ³.....acres....	.....	.....	.....	(²)	.....	.....	5,534	.....	.....
63	Enterprises reporting.....number.....	.....	.....	.....	1	.....	.....	7	.....	.....
64	Land in these enterprises.....acres.....	.....	.....	.....	(²)	.....	.....	25,727	.....	.....
65	Portion delinquent in these enterprises.....percent.....	.....	.....	.....	(²)	.....	.....	21.5	.....	.....
66	Total indebtedness, Dec. 31, 1939.....dollars..	.....	5,285	.....	20,910	(²)	.....	5,832	(²)	9,801
67	Enterprises reporting.....number.....	.....	9	.....	5	1	.....	5	1	5
68	Land in these enterprises.....acres.....	.....	8,148	.....	10,810	(²)	.....	8,503	(²)	5,848
69	Average indebtedness per acre.....dollars..	.....	0.65	.....	1.93	(²)	.....	0.68	(²)	1.68
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	(²)	.....	5,115	.....	.....
71	Enterprises reporting.....number.....	.....	.....	.....	.....	1	.....	3	.....	.....
72	Land in these enterprises.....acres.....	.....	.....	.....	.....	(²)	.....	7,163	.....	.....
73	Average arrearage per acre.....dollars..	.....	.....	.....	.....	(²)	.....	0.71	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Data for enterprises in Clay and Sullivan Counties included with those for Greene County to avoid disclosures with respect to individual enterprises.

²Where there are less than 3 enterprises reporting, data are included only in State totals.

³In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE — INDIANA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Hendricks	Henry	Howard	Huntington	Jackson	Jasper	Jay	Jennings
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	77	93	178	265	71	163	247	5
2 Open ditches:								
3 Completed.....miles.....1940..	241.9	311.5	254.5	468.6	252.9	510.8	384.0	10.3
4	1930..	285.9	260.8	348.9	102.1	562.0	452.2	8.2
5	1920..	191.3	98.0	277.9	335.4	35.6	434.5	6.9
6 Additional length authorized.....miles.....1940..								
7 Tile drains:								
8 Completed.....miles.....1940..	80.7	289.3	221.0	323.5	1.1	209.5	198.1	0.2
9	1930..	98.4	222.6	255.5	0.2	256.7	210.9	
10	1920..	67.5	150.4	209.4	216.1	226.8	175.2	
11 Levees and dikes:								
12 Completed.....miles.....1940..								
13	1930..					11.1		
14	1920..					9.9		
15 Additional length authorized.....miles.....1940..								
16 Pumping plants:								
17 Engine capacity.....horsepower.....1940..								
18	1930..							
19	1920..							
20 Pump capacity.....gal. per min., 1940..								
21	1930..							
22	1920..							
23 Land served by pumps.....acres.....1940..								
24	1930..							
25	1920..							
26 Wells pumped for drainage.....number.....1940..								
27	1930..							
CAPITAL INVESTED								
28 Capital invested to January 1.....dollars.....1940..	420,023	995,362	758,734	689,304	352,103	1,249,076	858,256	13,434
29	1930..	366,483	764,632	915,926	883,818	280,000	2,301,250	1,186,132
30	1920..	205,894	349,243	473,761	498,145	141,271	1,306,633	940,130
31 Estimated cost when completed.....dollars.....1940..	420,023	995,362	758,734	689,304	352,103	1,249,076	858,256	13,434
32	1930..	366,483	764,632	915,926	883,818	280,000	2,309,342	1,186,132
33	1920..	212,894	355,443	515,217	625,794	141,271	1,346,359	940,294
34 Average cost per acre when completed.....dollars.....1940..	5.32	4.67	4.82	3.61	2.93	3.62	3.62	3.36
35	1930..	3.71	3.94	6.89	5.11	3.06	6.26	5.00
36	1920..	2.01	2.75	3.33	2.98	3.05	10.63	5.23
37 Invested in and required for completion, 1940:								
38 Enterprises having open ditches only.....dollars..	192,716	251,236	252,488	206,914	350,546	915,486	539,576	13,104
39 Average amount per acre.....dollars..	5.93	2.14	4.33	3.42	2.93	3.06	2.81	3.28
40 Enterprises having open ditches and levees.....dollars..								
41 Average amount per acre.....dollars..								
42 Enterprises having tile only.....dollars..	70,357	227,608	205,051	261,092		211,009	203,803	
43 Average amount per acre.....dollars..	7.52	11.33	8.16	4.91		15.90	8.67	
44 Enterprises having tile and levees.....dollars..								
45 Average amount per acre.....dollars..								
46 Enterprises having open ditches and tile.....dollars..	156,950	517,518	301,195	221,298	1,557	122,581	114,877	330
47 Average amount per acre.....dollars..	4.24	6.80	4.08	2.87	3.21	8.32	5.28	41.25
48 Enterprises having ditches, tile, and levees.....dollars..								
49 Average amount per acre.....dollars..								
50 Enterprises operating pumping plants.....dollars..								
51 Average amount per acre.....dollars..								
MAINTENANCE AND OPERATION								
52 Cost of maintenance and operation in 1939:								
53 By enterprises operating pumping plants.....dollars..								
54 Enterprises reporting.....number.....								
55 Land in these enterprises.....acres.....								
56 Average cost per acre.....dollars..								
57 By enterprises not operating pumping plants.....dollars..				480				
58 Enterprises reporting.....number.....				7				
59 Land in these enterprises.....acres.....				2,835				
60 Average cost per acre.....dollars..				0.17				
61 Federal aid in maintenance:								
62 Enterprises reporting.....number.....	1	2				1	27	
63 Land in these enterprises.....acres.....	(1)	(1)				(1)	8,980	
FINANCIAL CONDITION								
64 Drainage taxes collected in 1939.....dollars..	7,511					2,853		
65 Enterprises reporting.....number.....	11					12		
66 Land in these enterprises.....acres.....	24,795					46,730		
67 Average amount collected per acre.....dollars..	0.30					0.06		
68 Area delinquent in drainage taxes, Dec. 31, 1939 ².....acres....	715							
69 Enterprises reporting.....number.....	7							
70 Land in these enterprises.....acres.....	5,942							
71 Portion delinquent in these enterprises.....percent..	12.0							
72 Total indebtedness, Dec. 31, 1939.....dollars..	9,136					8,355		
73 Enterprises reporting.....number.....	15					12		
74 Land in these enterprises.....acres.....	25,327					46,730		
75 Average indebtedness per acre.....dollars..	0.36					0.18		
76 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(1)							
77 Enterprises reporting.....number.....	1							
78 Land in these enterprises.....acres.....	(1)							
79 Average arrearage per acre.....dollars..	(1)							
80 Reduction of debt by refinancing, prior to 1940.....dollars..								
81 Enterprises reporting.....number.....								
82 Land in these enterprises.....acres.....								
83 Average reduction per acre.....dollars..								

¹ Where there are less than 3 enterprises reporting, data are included only in State totals.

² In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE — INDIANA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAIN-TENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Johnson	Knox	Kosciusko	Lagrange	Lake	La Porte	Madison	Marion	Marshall
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	84	46	200	113	42	59	190	88	382
Open ditches:										
2	Completed.....miles.....1940..	121.2	383.4	447.4	269.9	245.0	374.3	512.1	148.5	416.0
3	.....1930..	124.5	300.2	566.0	343.6	418.5	558.3	67.9	620.0	
4	.....1920..	50.0	207.7	577.8	317.2	261.0	312.1	427.6	77.0	571.3
5	Additional length authorized.....miles.....1940..			7.6						
Tile drains:										
6	Completed.....miles.....1940..	56.7	17.2	415.0	134.5	41.5	11.0	346.8	20.6	220.7
7	.....1930..	50.8	13.3	445.8	157.9	33.6	27.5	305.3	3.4	201.0
8	.....1920..	20.7	9.4	388.0	119.8	21.6	89.2	290.6	7.8	217.2
9	Additional length authorized.....miles.....1940..									
Levees and dikes:										
10	Completed.....miles.....1940..		17.4			7.0			10.8	
11	.....1930..		1.0			11.4	3.0		1.5	
12	.....1920..		5.5			12.9			2.8	
13	Additional length authorized.....miles.....1940..									
Pumping plants:										
14	Engine capacity.....horsepower.....1940..									
15	.....1930..		25							
16	.....1920..									
17	Pump capacity.....gal. per min.....1940..									
18	.....1930..		8,000							
19	.....1920..									
20	Land served by pumps.....acres.....1940..									
21	.....1930..		600							
22	.....1920..									
23	Wells pumped for drainage.....number.....1940..									
24	.....1930..									
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	137,642	915,729	931,296	483,951	943,656	1,185,026	1,452,682	169,197	611,771
26	.....1930..	141,430	992,587	1,122,332	612,999	1,020,742	1,382,887	895,246	88,049	1,261,317
27	.....1920..	42,843	549,729	1,054,797	416,242	513,174	768,462	722,012	95,615	793,383
28	Estimated cost when completed.....dollars.....1940..	137,642	915,729	933,783	483,951	943,656	1,185,026	1,452,682	169,197	611,771
29	.....1930..	141,430	992,587	1,122,332	612,999	1,020,742	1,384,787	895,246	88,049	1,261,317
30	.....1920..	42,843	549,729	1,054,797	427,132	527,837	770,362	730,276	97,719	803,208
31	Average cost per acre when completed.....dollars.....1940..	2.11	5.76	2.92	3.08	5.63	6.51	6.73	3.76	2.58
32	.....1930..	1.71	5.33	3.57	4.61	7.07	5.75	4.32	2.52	4.77
33	.....1920..	1.28	4.89	3.42	2.22	4.71	4.26	3.22	2.42	3.14
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	61,820	717,520	244,695	283,461	656,007	1,073,402	550,529	91,691	285,019
35	Average amount per acre.....dollars..	1.56	5.40	1.70	2.12	5.40	6.15	6.16	2.96	1.88
36	Enterprises having open ditches and levees.....dollars..		113,763			20,000			28,915	
37	Average amount per acre.....dollars..		5.99			4.00			13.58	
38	Enterprises having tile only.....dollars..	46,344	16,846	286,741	127,530	40,022	92,657	371,421	20,684	224,906
39	Average amount per acre.....dollars..	2.48	9.41	5.07	10.04	4.98	35.39	12.82	6.35	4.55
40	Enterprises having tile and levees.....dollars..									
41	Average amount per acre.....dollars..									
42	Enterprises having open ditches and tile.....dollars..	29,478	67,600	402,344	92,960	227,627	16,967	530,732	27,907	101,846
43	Average amount per acre.....dollars..	4.23	12.69	3.38	4.64	6.85	3.77	5.44	3.22	2.81
44	Enterprises having ditches, tile, and levees.....dollars..									
45	Average amount per acre.....dollars..									
46	Enterprises operating pumping plants.....dollars..									
47	Average amount per acre.....dollars..									
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..									
49	Enterprises reporting.....number..									
50	Land in these enterprises.....acres..									
51	Average cost per acre.....dollars..									
52	By enterprises not operating pumping plants.....dollars..								(¹)	
53	Enterprises reporting.....number..								(¹)	1
54	Land in these enterprises.....acres..								(¹)	
55	Average cost per acre.....dollars..								(¹)	
Federal aid in maintenance:										
56	Enterprises reporting.....number..		1			1	2	13	5	4
57	Land in these enterprises.....acres..	(¹)				(¹)	(¹)	8,584	2,442	4,469
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..			13,656		(¹)		3,440	(¹)	1,873
59	Enterprises reporting.....number..			6		2		19	2	5
60	Land in these enterprises.....acres..			31,000		(¹)		30,411	(¹)	4,224
61	Average amount collected per acre.....dollars..			0.44		(¹)		0.11	(¹)	0.44
62	Area delinquent in drainage taxes, Dec. 31, 1939 ².....acres..							2,727	1,088	718
63	Enterprises reporting.....number..							18	5	5
64	Land in these enterprises.....acres..							49,388	3,127	3,832
65	Portion delinquent in these enterprises.....percent..							5.5	34.8	18.7
66	Total indebtedness, Dec. 31, 1939.....dollars..		(¹)	7,908		2,071		22,443	(¹)	2,436
67	Enterprises reporting.....number..		1	7		5		30	2	5
68	Land in these enterprises.....acres..		(¹)	20,118		19,601		57,967	(¹)	3,832
69	Average indebtedness per acre.....dollars..		(¹)	0.39		0.10		0.39	(¹)	0.64
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..			(¹)		(¹)		3,162		1,792
71	Enterprises reporting.....number..			1		2		20		4
72	Land in these enterprises.....acres..			(¹)		(¹)		52,842		3,778
73	Average arrearage per acre.....dollars..			(¹)		(¹)		0.08		0.47
74	Reduction of debt by refinancing, prior to 1940.....dollars..									
75	Enterprises reporting.....number..									
76	Land in these enterprises.....acres..									
77	Average reduction per acre.....dollars..									

¹ Where there are less than 3 enterprises reporting, data are included only in State totals.

² In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE—INDIANA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

	ITEM (See definitions in Introduction)	Miami	Montgomery	Morgan	Newton	Noble	Owen	Parke	Pike
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	192	146	18	114	135	5	9	10
2	Open ditches:								
3	Completed.....miles.....1940..	412.4	148.7	77.3	378.3	429.7	12.3	31.7	61.1
4	.....1930..	243.4	113.9	97.2	343.4	437.7	16.3	20.2	75.8
5	.....1920..	248.6	67.0	49.2	244.1	459.5	11.0	13.0	56.4
6	Additional length authorized.....miles.....1940..								
7	Tile drains:								
8	Completed.....miles.....1940..	187.1	177.9	2.4	125.3	420.3		0.3	0.2
9	.....1930..	156.3	158.9	1.7	160.6	401.2			0.1
10	.....1920..	167.8	98.0	1.3	78.0	317.4		1.0	0.2
11	Additional length authorized.....miles.....1940..								
12	Levees and dikes:								
13	Completed.....miles.....1940..							21.8	0.3
14	.....1930..			2.3				5.3	0.1
15	.....1920..				1.9			21.0	
16	Additional length authorized.....miles.....1940..								
17	Pumping plants:								
18	Engine capacity.....horsepower.....1940..								
19	.....1930..								
20	.....1920..								
21	Pump capacity.....gal. per min.....1940..								
22	.....1930..								
23	.....1920..								
24	Land served by pumps.....acres.....1940..								
25	.....1930..								
26	.....1920..								
27	Wells pumped for drainage.....number.....1940..								
28	.....1930..								
CAPITAL INVESTED									
29	Capital invested to January 1.....dollars.....1940..	817,308	478,304	268,836	895,889	1,131,804	40,989	216,417	390,347
30	.....1930..	635,026	428,081	317,375	1,250,594	1,221,057	62,414	159,117	1,009,472
31	.....1920..	497,034	183,569	70,813	630,390	788,295	60,514	53,425	133,763
32	Estimated cost when completed.....dollars.....1940..	817,308	478,304	268,836	895,889	1,131,804	40,989	216,417	390,347
33	.....1930..	635,026	428,081	317,375	1,250,594	1,221,057	62,414	159,117	1,009,472
34	.....1920..	497,034	210,245	70,813	631,742	788,434	60,514	53,425	133,763
35	Average cost per acre when completed.....dollars.....1940..	5.66	4.81	7.96	3.90	6.08	9.37	18.00	4.37
36	.....1930..	4.53	3.64	6.61	5.36	7.72	12.04	19.22	7.29
37	.....1920..	2.46	2.71	2.43	3.66	3.96	9.25	4.31	4.16
38	Invested in and required for completion, 1940:								
39	Enterprises having open ditches only.....dollars..	485,369	93,524	259,609	674,805	305,653	40,989	14,378	386,454
40	Average amount per acre.....dollars..	5.03	3.23	8.36	3.17	2.94	9.37	3.63	4.38
41	Enterprises having open ditches and levees.....dollars..							196,030	1,250
42	Average amount per acre.....dollars..							27.61	2.52
43	Enterprises having tile only.....dollars..	317,120	237,598	1,300	200,285	439,415			
44	Average amount per acre.....dollars..	6.78	6.17	5.42	13.44	36.34			
45	Enterprises having tile and levees.....dollars..								
46	Average amount per acre.....dollars..								
47	Enterprises having open ditches and tile.....dollars..	14,819	147,182	7,927	20,799	386,736			2,643
48	Average amount per acre.....dollars..	15.32	4.61	3.21	9.63	5.52			3.86
49	Enterprises having ditches, tile, and levees.....dollars..							6,009	
50	Average amount per acre.....dollars..							6.26	
51	Enterprises operating pumping plants.....dollars..								
52	Average amount per acre.....dollars..								
MAINTENANCE AND OPERATION									
53	Cost of maintenance and operation in 1939:								
54	By enterprises operating pumping plants.....dollars..								
55	Enterprises reporting.....number.....								
56	Land in these enterprises.....acres.....								
57	Average cost per acre.....dollars.....								
58	By enterprises not operating pumping plants.....dollars..		261	(¹)				(¹)	
59	Enterprises reporting.....number.....		10	1					2
60	Land in these enterprises.....acres.....		4,074	(¹)				(¹)	
61	Average cost per acre.....dollars.....		0.06	(¹)				(¹)	
62	Federal aid in maintenance:								
63	Enterprises reporting.....number.....			8	4	8		9	
64	Land in these enterprises.....acres.....			26,378	18,713	525		8,574	
FINANCIAL CONDITION									
65	Drainage taxes collected in 1939.....dollars..	(¹)	(¹)		15,322	4,514		16,039	
66	Enterprises reporting.....number.....	1	1		25	12		3	
67	Land in these enterprises.....acres.....	(¹)	(¹)		52,760	4,966		4,599	
68	Average amount collected per acre.....dollars..	(¹)	(¹)		0.29	0.91		3.49	
69	Area delinquent in drainage taxes, Dec. 31, 1939 ².....acres..			314	8,009			(¹)	
70	Enterprises reporting.....number.....			3	26			1	
71	Land in these enterprises.....acres.....			4,324	52,720			(¹)	
72	Portion delinquent in these enterprises.....percent..			7.3	15.2			(¹)	
73	Total indebtedness, Dec. 31, 1939.....dollars..	(¹)		4,246	56,556	29,077		(¹)	(¹)
74	Enterprises reporting.....number.....	1		3	33	22		1	1
75	Land in these enterprises.....acres.....	(¹)		4,324	72,333	34,456		(¹)	(¹)
76	Average indebtedness per acre.....dollars..	(¹)		0.98	0.78	0.84		(¹)	(¹)
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..			(¹)	31,958	(¹)			(¹)
78	Enterprises reporting.....number.....			1	27	2			1
79	Land in these enterprises.....acres.....			(¹)	53,020	(¹)			(¹)
80	Average arrearage per acre.....dollars..			(¹)	0.60	(¹)			(¹)
81	Reduction of debt by refinancing, prior to 1940.....dollars..								
82	Enterprises reporting.....number.....								
83	Land in these enterprises.....acres.....								
84	Average reduction per acre.....dollars..								

¹ Where there are less than 3 enterprises reporting, data are included only in State totals.

² In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE—INDIANA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Porter	Posey	Pulaski	Putnam	Randolph	Rush	St. Joseph	Scott	Shelby
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	48	55	199	9	155	181	47	0	143
Open ditches:										
2	Completed.....miles.....1940..	346.2	214.8	697.0	11.7	314.0	195.2	460.2	38.3	200.7
3	.....1930..	269.3	245.2	362.9	11.3	245.2	187.0	455.7	29.0	194.0
4	.....1920..	228.9	133.5	154.7	47.1	17.8	135.8	442.0	19.0	182.6
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	0.2	.....	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	108.9	0.2	182.7	10.3	390.9	182.4	71.5	.....	63.3
7	.....1930..	82.3	0.4	04.0	9.7	304.3	167.2	06.9	.....	32.3
8	.....1920..	81.7	0.3	65.2	7.7	75.9	145.0	66.7	.....	60.6
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	.....	.....	.....	0.4	.....	.....	.....	.....
11	.....1930..	10.2	8.5	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	16.4	12.0	.....	.....	.....	.....	.....	.....	0.1
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	1,072,939	543,127	1,017,527	64,512	808,709	412,247	874,358	75,561	159,332
26	.....1930..	1,044,270	537,765	1,262,788	60,856	730,033	411,277	751,488	99,698	149,639
27	.....1920..	572,204	210,000	482,276	24,965	139,112	462,811	498,766	78,689	142,927
28	Estimated cost when completed.....dollars.....1940..	1,072,939	543,127	1,017,527	64,512	808,969	412,247	874,358	75,561	159,332
29	.....1930..	1,044,270	537,765	1,300,168	60,856	730,033	416,697	751,488	99,698	149,639
30	.....1920..	582,404	210,000	489,650	24,965	142,965	462,811	498,766	78,689	142,927
31	Average cost per acre when completed.....dollars.....1940..	6.44	3.36	3.87	6.24	3.89	3.91	4.39	4.48	1.85
32	.....1930..	7.01	3.05	5.69	5.42	3.89	4.04	3.35	6.36	1.76
33	.....1920..	3.90	1.43	3.61	4.78	2.40	4.57	2.51	6.62	1.78
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	711,318	540,657	719,274	10,364	165,826	110,246	688,603	75,561	83,896
35	Average amount per acre.....dollars..	6.06	3.36	3.50	2.93	1.91	2.27	3.67	4.48	1.56
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars..	129,370	.....	147,147	14,741	203,523	216,902	71,659	.....	56,946
39	Average amount per acre.....dollars..	18.32	.....	5.70	4.53	7.42	5.30	77.80	.....	2.48
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	581	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	0.78	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	232,251	2,470	151,106	39,407	422,056	85,099	114,096	.....	18,490
43	Average amount per acre.....dollars..	5.51	3.01	4.80	11.11	4.66	5.32	10.54	.....	1.93
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	10,983	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	7.42	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	.....	.....	4,237	.....	.....	2,561	.....	.....	(¹)
53	Enterprises reporting.....number.....	.....	.....	14	.....	.....	4	.....	.....	.....
54	Land in these enterprises.....acres.....	.....	.....	2,220	.....	.....	2,303	.....	.....	(¹)
55	Average cost per acre.....dollars..	.....	.....	1.91	.....	.....	1.11	.....	.....	(¹)
Federal aid in maintenance:										
56	Enterprises reporting.....number.....	169	1	29	.....	1	.....	10	.....	.....
57	Land in these enterprises.....acres.....	90,980	(¹)	87,293	.....	(¹)	.....	18,515	.....	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	(¹)	.....	1,990	.....	6,825	784	2,281	.....	.....
59	Enterprises reporting.....number.....	2	.....	4	.....	11	3	4	.....	.....
60	Land in these enterprises.....acres.....	(¹)	.....	3,490	.....	31,137	3,752	18,978	.....	.....
61	Average amount collected per acre.....dollars..	(¹)	.....	0.57	.....	0.22	0.21	0.12	.....	.....
62	Area delinquent in drainage taxes, Dec. 31, 1939 ².....acres.....	620	.....	786	.....	.....	.....	31,354	.....	(¹)
63	Enterprises reporting.....number.....	4	.....	5	.....	.....	.....	5	.....	1
64	Land in these enterprises.....acres.....	14,520	.....	2,660	.....	.....	.....	18,978	.....	(¹)
65	Portion delinquent in these enterprises.....percent..	4.3	.....	29.5	.....	.....	.....	105.2	.....	(¹)
66	Total indebtedness, Dec. 31, 1939.....dollars..	6,034	.....	2,466	.....	12,052	2,049	10,460	(¹)	(¹)
67	Enterprises reporting.....number.....	6	.....	6	.....	5	4	6	1	1
68	Land in these enterprises.....acres.....	16,300	.....	3,060	.....	11,747	3,867	18,978	(¹)	(¹)
69	Average indebtedness per acre.....dollars..	0.37	.....	0.80	.....	1.02	0.53	0.55	(¹)	(¹)
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	(¹)	.....	(¹)	.....	.....	.....	10,460	(¹)	(¹)
71	Enterprises reporting.....number.....	2	.....	2	.....	.....	.....	6	1	1
72	Land in these enterprises.....acres.....	(¹)	.....	(¹)	.....	.....	.....	18,978	(¹)	(¹)
73	Average arrearage per acre.....dollars..	(¹)	.....	(¹)	.....	.....	.....	0.55	(¹)	(¹)
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Where there are less than 3 enterprises reporting, data are included only in State totals.

²In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Spencer	Starke	Steuben	Sullivan	Tippecanoe	Tipton	Union	Vanderburg
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	78	166	469	19	137	74	12	45
Open ditches:								
2 Completed.....miles.....1940..	186.7	500.2	361.6	88.9	132.0	533.5	0.9	100.3
3	188.9	741.2	345.4	90.2	109.7	549.3	0.0	134.4
4	186.8	637.5	352.5	41.8	31.7	558.4	.....	119.0
5 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:								
6 Completed.....miles.....1940..	10.5	13.7	168.7	77.8	369.4	226.3	19.5	2.0
7	16.4	15.3	301.6	29.8	305.8	282.1	42.8	4.6
8	7.4	35.3	248.2	11.7	213.5	253.5	18.1	3.4
9 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	3.0	.....	.....	.....
Levees and dikes:								
10 Completed.....miles.....1940..	.....	.....	.....	22.0	.....	.....	.....	.....
11 .....	.....	20.0	.....	22.5	.....	.....	.....	.....
12 .....	.....	4.0	.....	18.2	.....	.....	.....	.....
13 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:								
14 Engine capacity.....horsepower.....1940..	.....	.....	.....	145	.....	.....	.....	.....
15 .....	.....	.....	.....	125	.....	.....	.....	.....
16 .....	.....	.....	.....	25	.....	.....	.....	.....
17 Pump capacity.....gal. per min.....1940..	.....	.....	.....	23,333	.....	.....	.....	.....
18 .....	.....	.....	.....	40,000	.....	.....	.....	.....
19 .....	.....	.....	.....	348	.....	.....	.....	.....
20 Land served by pumps.....acres.....1940..	.....	.....	.....	1,706	.....	.....	.....	.....
21 .....	.....	.....	.....	2,033	.....	.....	.....	.....
22 .....	.....	.....	.....	311	.....	.....	.....	.....
23 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
24 .....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	276,194	542,338	420,298	418,621	801,063	1,136,139	40,960	100,080
26	191,631	1,816,442	733,238	322,898	728,132	1,433,676	80,500	189,060
27	290,239	718,185	504,041	204,499	424,771	746,053	19,634	167,874
28 Estimated cost when completed.....dollars.....1940..	276,194	542,338	420,298	418,621	805,874	1,136,139	40,960	100,080
29	191,631	1,816,442	733,238	322,898	728,132	1,433,676	80,500	189,060
30	290,239	755,124	516,751	205,499	433,931	746,053	19,634	167,874
31 Average cost per acre when completed.....dollars.....1940..	4.25	2.94	2.79	10.54	6.61	6.97	8.99	1.74
32	2.81	9.37	5.49	7.23	6.50	8.81	9.52	2.79
33	3.29	4.17	3.86	8.29	4.73	4.81	4.23	3.17
Invested in and required for completion, 1940:								
34 Enterprises having open ditches only.....dollars..	247,822	510,403	249,293	144,064	55,330	490,390	.....	95,870
35 Average amount per acre.....dollars..	4.12	2.89	2.28	6.42	3.85	6.75	.....	1.71
36 Enterprises having open ditches and levees.....dollars..	.....	.....	.....	100,060	.....	.....	.....	.....
37 Average amount per acre.....dollars..	.....	.....	.....	73.57	.....	.....	.....	.....
38 Enterprises having tile only.....dollars..	5,559	15,318	147,475	1,098	354,773	281,487	26,475	.....
39 Average amount per acre.....dollars..	4.94	5.48	4.85	2.65	8.24	52.27	8.75	.....
40 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
41 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
42 Enterprises having open ditches and tile.....dollars..	22,813	16,527	23,530	25,977	395,771	364,262	14,485	4,210
43 Average amount per acre.....dollars..	6.20	3.48	2.17	15.51	6.14	4.29	9.46	2.94
44 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	1,145	.....	.....	.....	.....
45 Average amount per acre.....dollars..	.....	.....	.....	1.62	.....	.....	.....	.....
46 Enterprises operating pumping plants ¹.....dollars..	.....	.....	.....	(2)	.....	.....	.....	.....
47 Average amount per acre.....dollars..	.....	.....	.....	(2)	.....	.....	.....	.....
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48 By enterprises operating pumping plants.....dollars..	.....	.....	.....	(3)	.....	.....	.....	.....
49 Enterprises reporting.....number..	.....	.....	.....	1	.....	.....	.....	.....
50 Land in these enterprises.....acres..	.....	.....	.....	(3)	.....	.....	.....	.....
51 Average cost per acre.....dollars..	.....	.....	.....	(3)	.....	.....	.....	.....
52 By enterprises not operating pumping plants.....dollars..	.....	.....	.....	.....	.....	9,282	.....	.....
53 Enterprises reporting.....number..	.....	.....	.....	.....	.....	8	.....	.....
54 Land in these enterprises.....acres..	.....	.....	.....	.....	.....	4,442	.....	.....
55 Average cost per acre.....dollars..	.....	.....	.....	.....	.....	2.09	.....	.....
Federal aid in maintenance:								
56 Enterprises reporting.....number..	.....	.....	.....	1	1	10	.....	.....
57 Land in these enterprises.....acres..	.....	.....	.....	(2)	(2)	19,951	.....	.....
FINANCIAL CONDITION								
58 Drainage taxes collected in 1939.....dollars..	800	.....	.....	.....	.....	5,552	.....	.....
59 Enterprises reporting.....number..	3	.....	.....	.....	.....	4	.....	.....
60 Land in these enterprises.....acres..	2,091	.....	.....	.....	.....	3,989	.....	.....
61 Average amount collected per acre.....dollars..	0.38	.....	.....	.....	.....	1.39	.....	.....
62 Area delinquent in drainage taxes, Dec. 31, 1939 ⁴.....acres..	.....	.....	.....	.....	.....	.....	.....	.....
63 Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....
64 Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....
65 Portion delinquent in these enterprises.....percent..	.....	.....	.....	.....	.....	.....	.....	.....
66 Total indebtedness, Dec. 31, 1939.....dollars..	1,000	.....	.....	(2)	.....	6,987	.....	.....
67 Enterprises reporting.....number..	4	.....	.....	1	.....	7	.....	.....
68 Land in these enterprises.....acres..	4,877	.....	.....	(2)	.....	4,585	.....	.....
69 Average indebtedness per acre.....dollars..	0.20	.....	.....	(2)	.....	1.52	.....	.....
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	800	.....	.....	.....	.....	.....	.....	.....
71 Enterprises reporting.....number..	3	.....	.....	.....	.....	.....	.....	.....
72 Land in these enterprises.....acres..	2,091	.....	.....	.....	.....	.....	.....	.....
73 Average arrearage per acre.....dollars..	0.38	.....	.....	.....	.....	.....	.....	.....
74 Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
75 Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....
76 Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....
77 Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....

¹Data in lines 46 and 47 are not included in lines 34 to 45. ²Where there are less than 3 enterprises reporting, data are included only in State totals. ³Data included with those for Greene County to avoid disclosures with respect to individual enterprises. ⁴In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

CENSUS OF DRAINAGE—INDIANA

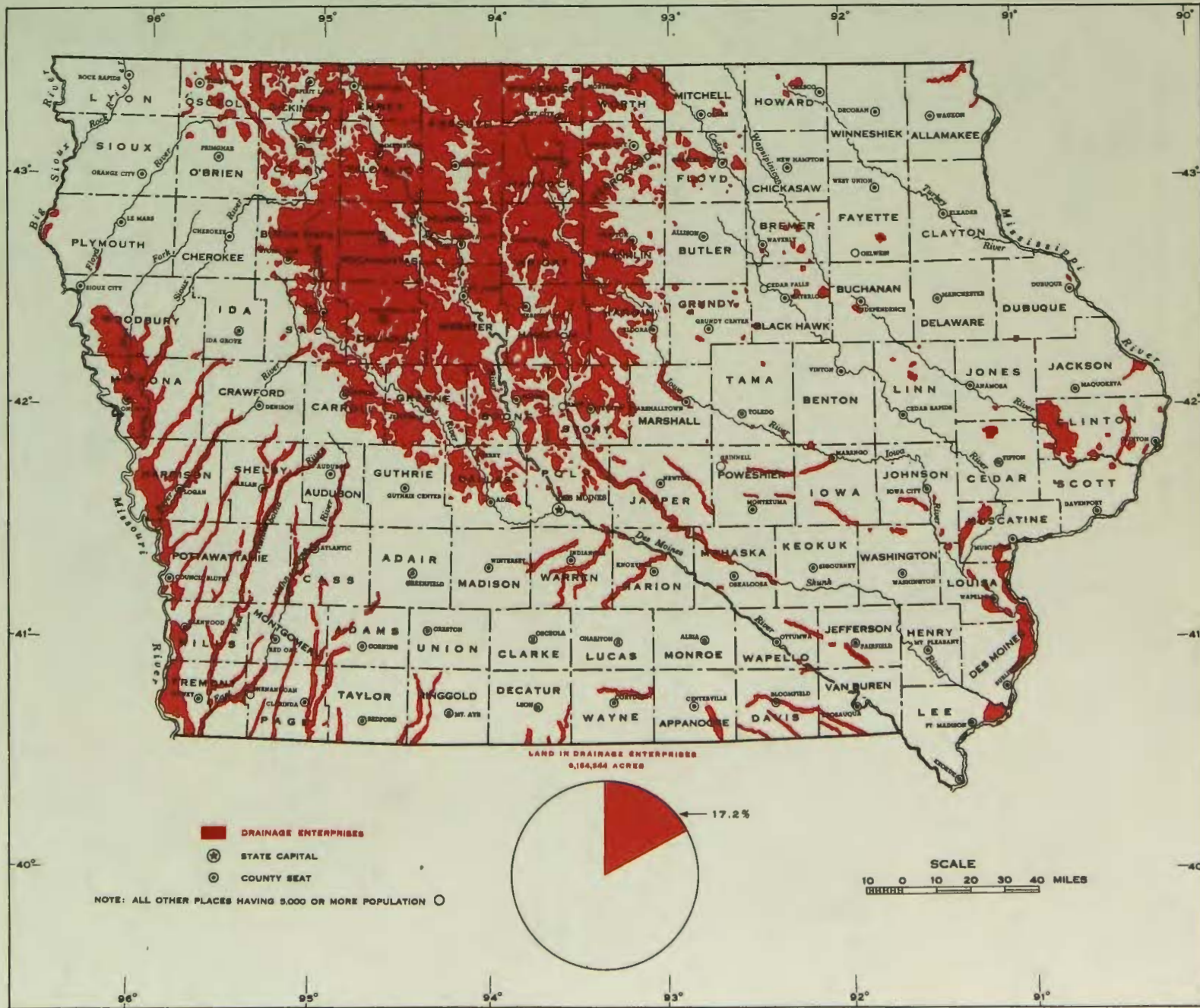
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Vermil- lion	Vigo	Wabash	Warren	Warrick	Washing- ton	Wayne	Wells	White	Whitley	Other counties ¹
DRAINAGE WORKS												
1	Drainage enterprises.....number.....1940..	5	14	153	57	79	5	20	191	270	122	5
Open ditches:												
2	Completed.....miles.....1940..	13.9	79.7	191.8	46.5	187.6	16.3	40.8	843.6	808.5	381.5	9.5
3	.....1930..	17.8	104.2	372.9	52.2	236.5	9.0	23.4	672.7	671.3	298.4	19.3
4	.....1920..	11.9	91.9	266.5	46.0	166.0	11.0	17.4	648.3	149.1	372.4	13.6
5	Additional length authorized.....miles.....1940..											
Tile drains:												
6	Completed.....miles.....1940..	3.4	4.7	142.9	57.7			12.5	356.0	318.2	404.4	
7	.....1930..	6.1	3.7	121.6	68.1			13.3	384.2	476.3	397.9	2.5
8	.....1920..	2.4	1.6	121.9	70.6			5.1	282.5	74.3	336.0	1.0
9	Additional length authorized.....miles.....1940..											
Levees and dikes:												
10	Completed.....miles.....1940..		28.9									
11	.....1930..		15.9									
12	.....1920..		35.8									
13	Additional length authorized.....miles.....1940..											
Pumping plants:												
14	Engine capacity.....horsepower.....1940..		(²)									
15	.....1930..											
16	.....1920..		(²)									
17	Pump capacity.....gal. per min.....1940..		(²)									
18	.....1930..											
19	.....1920..		(²)									
20	Land served by pumps.....acres.....1940..		617									
21	.....1930..											
22	.....1920..		800									
23	Wells pumped for drainage.....number.....1940..											
24	.....1930..											
CAPITAL INVESTED												
25	Capital invested to January 1.....dollars.....1940..	15,498	330,674	431,909	279,761	493,857	105,390	67,385	1,451,549	1,368,267	1,007,061	4,821
26	.....1930..	24,462	395,662	722,953	205,010	509,875	86,700	43,685	1,503,918	2,510,909	1,103,913	24,687
27	.....1920..	11,957	279,453	627,043	102,247	305,980	79,000	16,640	866,817	561,777	883,249	19,954
28	Estimated cost when completed.....dollars.....1940..	15,498	330,674	431,909	279,761	493,857	105,390	67,385	1,451,549	1,368,267	1,007,061	4,821
29	.....1930..	24,462	395,662	722,953	205,010	509,875	86,700	43,685	1,503,918	2,515,726	1,103,913	25,687
30	.....1920..	11,957	289,453	640,543	102,247	305,980	79,000	17,765	1,018,035	561,777	979,936	19,954
31	Average cost per acre when completed.....dollars.....1940..	2.87	11.18	3.30	5.47	4.44	8.64	3.32	7.12	5.51	5.11	2.26
32	.....1930..	2.68	9.38	4.50	3.88	4.46	7.59	3.53	7.11	8.16	5.49	3.37
33	.....1920..	1.83	5.69	4.25	2.12	3.58	7.10	1.96	6.12	2.36	5.67	5.06
Invested in and required for completion, 1940:												
34	Enterprises having open ditches only.....dollars..	3,725	86,025	175,623	85,141	103,857	105,390	29,915	717,163	780,806	255,272	4,821
35	Average amount per acre.....dollars..	2.36	8.01	2.06	4.16	4.44	8.64	2.86	5.80	5.12	2.31	2.26
36	Enterprises having open ditches and levees.....dollars..		196,293									
37	Average amount per acre.....dollars..		12.82									
38	Enterprises having tile only.....dollars..			213,957	185,071			2,762	487,673	318,357	406,743	
39	Average amount per acre.....dollars..			6.83	8.12			3.00	11.65	5.41	17.14	
40	Enterprises having tile and levees.....dollars..											
41	Average amount per acre.....dollars..											
42	Enterprises having open ditches and tile.....dollars..	11,773	4,043	42,319	39,549			34,708	246,713	269,104	345,049	
43	Average amount per acre.....dollars..	3.08	7.49	2.92	3.42			3.89	6.41	7.28	5.49	
44	Enterprises having ditches, tile, and levees.....dollars..		26,949									
45	Average amount per acre.....dollars..		11.35									
46	Enterprises operating pumping plants ³.....dollars..		(⁴)									
47	Average amount per acre.....dollars..		(⁴)									
MAINTENANCE AND OPERATION												
Cost of maintenance and operation in 1939:												
48	By enterprises operating pumping plants.....dollars..											
49	Enterprises reporting.....number..											
50	Land in these enterprises.....acres..											
51	Average cost per acre.....dollars..							2,170	(⁴)			
52	By enterprises not operating pumping plants.....dollars..							4	1			
53	Enterprises reporting.....number..							3,337	(⁴)			
54	Land in these enterprises.....acres..							0.65	(⁴)			
55	Average cost per acre.....dollars..											
Federal aid in maintenance:												
56	Enterprises reporting.....number..					3				(⁴)	1	1
57	Land in these enterprises.....acres..					25,025						(⁴)
FINANCIAL CONDITION												
58	Drainage taxes collected in 1939.....dollars..	(⁴)	(⁴)			2,620		3,270	(⁴)	(⁴)		
59	Enterprises reporting.....number..	1	1			3		4	2	2		
60	Land in these enterprises.....acres..	(⁴)	(⁴)			26,812		3,160	(⁴)	(⁴)		
61	Average amount collected per acre.....dollars..	(⁴)	(⁴)			0.09		1.03	(⁴)	(⁴)		
62	Area delinquent in drainage taxes, Dec. 31, 1939 ⁵.....acres..					2,697						
63	Enterprises reporting.....number..					4						
64	Land in these enterprises.....acres..					31,519						
65	Portion delinquent in these enterprises.....percent..					8.6						
66	Total indebtedness, Dec. 31, 1939.....dollars..	(⁴)	2,306			13,891			(⁴)	(⁴)		
67	Enterprises reporting.....number..	1	3			1			1	1		
68	Land in these enterprises.....acres..	(⁴)	445			31,519			(⁴)	(⁴)		
69	Average indebtedness per acre.....dollars..	(⁴)	5.18			0.44			(⁴)	(⁴)		
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	(⁴)				13,476						
71	Enterprises reporting.....number..	1				4						
72	Land in these enterprises.....acres..	(⁴)				31,519						
73	Average arrearage per acre.....dollars..	(⁴)				0.43						
74	Reduction of debt by refinancing, prior to 1940.....dollars..											
75	Enterprises reporting.....number..											
76	Land in these enterprises.....acres..											
77	Average reduction per acre.....dollars..											

¹ Includes Harrison, Ohio, and Perry Counties in 1940; Decatur, Harrison, Martin, Monroe, Ohio, and Perry Counties in 1930; and Decatur, Martin, Monroe, Ohio, and Perry Counties in 1920. ² Pumping plant located in Clay County. ³ Data in lines 46 and 47 are not included in lines 34 to 45. ⁴ Where there are less than 3 enterprises reporting, data are included only in State totals. ⁵ In some counties there is duplication resulting from the same land being delinquent in 2 or more overlapping enterprises.

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises	CAPACITY			Land served	
		Engine or motor		Pump		
		Number	Hp.	Percent	G. p. m.	Acres
All pumping enterprises.....	1940..	11	3,900	100.0	821,500	81,754
	1930..	11	4,625	100.0	881,500	84,801
	1920..	6	3,153	100.0	530,800	¹ 134,616
Steam.....	1940..	1	200	5.1	30,900	3,800
	1930..	2	1,250	27.0	250,000	18,500
	1920..	2	1,400	44.4	209,300	63,905
Electric.....	1940..	1	50	1.3	5,000	516
	1930..	1	300	13.0	95,000	8,815
	1920..	2	1,700	53.9	302,500	¹ 69,261
Internal combustion.....	1940..	5	1,200	30.8	270,300	13,962
	1930..	5	225	4.9	22,500	5,219
	1920..	2	53	1.7	19,000	1,450
Steam and electric.....	1940..	4	2,450	62.8	518,000	63,456
	1930..	3	2,550	55.1	510,000	52,267
	1920..					

¹ Includes 32,213 acres of tributary area outside of drainage enterprises.

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	PUMPS			Engine or motor capacity	Land served	
	Number	Capacity				
			G. p. m.	Percent	Hp.	Acres
All pumping enterprises.....	1940..	18	824,500	100.0	3,900	81,754
	1930..	21	881,500	100.0	4,625	84,801
Centrifugal.....	1940..	18	824,500	100.0	3,900	81,754
	1930..	21	881,500	100.0	4,625	84,801

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	6,164,344	100.0	6,137,649	100.0	75,374,497	100.0	77,478,893	100.0	43,001	20,595
Enterprises in arrears.....	264,169	4.3	318,637	5.2	3,428,983	4.6	3,801,885	4.9	23,006	10,315
With some delinquent land.....	54,312	0.9	54,370	0.9	1,030,758	1.4	1,501,081	1.9	23,006	10,315
With no delinquent land.....	141,043	2.3	166,900	2.7	1,288,296	1.7	1,223,332	1.5		
With no report on delinquency.....	68,814	1.1	97,367	1.6	1,109,928	1.5	1,077,472	1.4		
Enterprises not in arrears.....	5,900,175	95.7	5,819,012	94.8	71,945,514	95.4	73,677,008	95.1	19,995	9,980
With some delinquent land.....	96,160	1.5	139,684	2.3	642,036	0.8	3,136,557	4.1	19,995	9,980
With no delinquent land.....	5,782,324	93.5	5,599,349	91.2	70,507,002	93.5	69,756,592	90.0		
With no report on delinquency.....	41,691	0.7	79,979	1.3	796,475	1.1	783,759	1.0		

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	6,164,344	75,374,497	1,286,932	208,127	892,092	43,001	544,303
Enterprises in debt.....	900,147	11,585,987	1,286,932	208,127	899,946	42,732	371,050
In arrears, amount of arrearage stated.....	264,169	3,428,983	374,527	208,127	104,956	23,006	89,838
Collecting drainage taxes in 1939.....	127,628	2,059,933	294,663	134,156	104,956	10,926	89,838
No collections reported.....	136,541	1,369,050	79,864	73,971		12,080	
Not in arrears.....	635,978	8,157,004	912,405		794,980	19,725	281,212
Collecting drainage taxes in 1939.....	433,581	5,662,207	746,118		784,980	19,698	281,212
No collections reported.....	202,397	2,494,797	166,287			28	
Enterprises not in debt.....	5,219,067	63,349,275			2,146	269	172,164
Collecting drainage taxes in 1939.....	563,847	7,188,513			333	259	172,164
No collections reported.....	4,655,220	56,160,762			1,813	10	
Enterprises not reporting as to debt.....	45,130	439,235					1,089
Collecting drainage taxes in 1939.....	16,146	162,669					1,089
No collections reported.....	28,984	276,566					

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	6,164,344	100.0	75,374,497	100.0
Improvement of land already in farms.....	6,015,756	97.6	73,491,854	97.5
Reclamation of swamp land not previously in farms.....	63,138	1.0	622,471	0.8
Protection against overflow.....	85,450	1.4	1,260,172	1.7

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	6,164,344	100.0	7,544,931	1,380,567	75,374,497	100.0
1870-1879.....	12,675	0.2	32,650	19,985	37,248	(³)
1880-1889.....	2,105	(³)	15,308	13,203	23,439	(³)
1890-1899.....	111,563	1.8	151,374	39,811	940,426	1.3
1900-1904.....	387,570	6.3	640,379	252,809	2,881,343	3.8
1905-1909.....	1,369,491	22.2	2,000,695	631,204	12,172,162	16.2
1910-1914.....	1,466,100	23.8	1,726,209	260,109	17,295,313	23.0
1915-1919.....	1,903,026	30.9	2,030,564	127,538	29,037,165	38.5
1920-1924.....	653,505	10.6	683,730	30,225	10,502,801	13.9
1925-1929.....	166,644	3.0	192,347	5,703	2,060,785	2.7
1930-1934.....	35,203	0.6	35,203	.....	191,135	0.3
1935-1939.....	36,432	0.5	36,462	.....	229,680	0.3

¹ Land included in more than 1 enterprise is tabulated only in the last organized.
² The sum of the areas of the individual enterprises.
³ Less than one-tenth of 1 percent.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other un-improved land	In occupied farms	In planted crops	Idle	Land available for settlement			
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	6,164,344	6,045,348	98.1	85,370	33,626	6,115,785	99.2	26,391	22,168	5,945,393	96.4	4,697,259	98,727	500
1870-1879.....	12,675	12,675	100.0	.....	.....	12,675	100.0	.....	.....	12,545	99.0	10,132	.....	.....
1880-1889.....	2,105	2,105	100.0	.....	.....	2,105	100.0	.....	.....	2,105	100.0	1,683	.....	.....
1890-1899.....	111,563	108,082	96.9	2,421	1,060	110,442	99.0	61	1,060	107,723	96.6	85,540	2,119	.....
1900-1904.....	387,570	385,316	99.4	1,797	457	383,571	99.0	3,542	457	375,748	96.9	394,092	10,322	.....
1905-1909.....	1,369,491	1,350,200	98.6	14,987	4,304	1,361,353	99.4	5,609	2,529	1,319,487	96.3	1,040,906	21,469	.....
1910-1914.....	1,466,100	1,447,027	98.7	15,275	3,798	1,458,295	99.5	5,187	2,618	1,415,716	96.6	1,126,362	17,393	500
1915-1919.....	1,903,026	1,854,817	97.5	37,215	10,994	1,887,082	99.2	5,305	10,639	1,842,275	96.8	1,456,178	24,562	.....
1920-1924.....	653,505	640,373	98.0	11,040	2,092	650,068	99.6	2,228	1,209	625,013	95.6	494,760	8,162	.....
1925-1929.....	166,644	162,539	97.8	1,379	2,726	162,740	97.9	1,178	2,726	175,331	94.5	138,928	5,110	.....
1930-1934.....	35,203	26,947	76.5	961	7,265	31,942	90.7	3,261	.....	32,972	93.6	21,650	7,404	.....
1935-1939.....	36,462	35,267	96.7	265	930	35,512	97.4	20	930	35,478	97.3	27,028	1,186	.....

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	6,164,344	6,118,637	2,713,505	3,405,132	327,001	0.05	0.12
Gravity drainage only.....	6,076,728	6,031,021	2,627,083	3,403,938	247,519	0.04	0.09
Open ditches only.....	1,500,195	1,492,412	436,612	1,055,800	85,160	0.05	0.20
Open ditches and levees.....	150,689	150,689	95,471	65,218	10,330	0.05	0.11
Tile drains only.....	2,000,256	1,957,557	738,201	1,229,356	44,321	0.02	0.05
Open ditches and tile drains.....	2,391,541	2,386,316	1,343,061	1,043,255	106,909	0.04	0.08
Open ditches, tile drains, and levees.....	24,047	24,047	13,738	10,309	799	0.03	0.00
Pumping for all or part of drainage.....	87,616	87,616	86,422	1,194	79,482	0.91	0.92
All drainage by pumping.....	72,422	72,422	72,422	72,456	1.00	1.00
Part pumping and part gravity.....	15,194	15,194	14,000	1,194	7,026	0.46	0.50

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	3,164,344	100.0	75,374,497	100.0
Method:				
By district forces.....	3,108,576	50.4	39,700,283	52.7
By contract.....	2,264,871	37.1	24,694,708	32.7
Work apportioned to landowners.....	78,915	1.3	1,258,853	1.7
"None," or not reporting.....	691,982	11.2	9,720,653	12.9
Whether systematic:				
Reporting "yes".....	2,639,591	42.8	31,679,318	42.0
Reporting "no".....	3,515,019	57.0	43,525,497	57.8
Not reporting.....	9,734	0.2	159,382	0.2

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	3,164,344	71,019	1.2
Capital invested.....dollars..	75,374,497	1,099,049	1.5
Drainage works:			
Open ditches.....miles....	5,189.7	51.9	1.0
Tile drains.....miles....	12,873.2	285.4	2.2
Levees.....miles....	453.8		

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	853,956	10,122,592	885.7	1,407.9	71.4
Work Projects Administration.....	271,783	3,157,455	229.3	576.6	
Civilian Conservation Corps.....	525,871	6,161,585	609.0	632.7	71.4
W.P.A. and C.C.C.....	55,668	782,377	47.4	198.1	
Other kind or combination.....	634	11,175		0.5	

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	6,164,344	155,178	0.9
Capital invested.....dollars..	75,374,497	791,008	1.0
Drainage works:			
Open ditches.....miles....	5,189.7	78.5	1.5
Tile drains.....miles....	12,873.2	25.8	0.2
Levees.....miles....	456.8	65.8	14.4

¹The land actually dependent upon works of outside agencies for protection is 21,063 acres; which is 38.2 percent of all land in these protected enterprises.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)		THE STATE	Adams	Allamakee	Audubon	Black Hawk	Boone	Bremer	Buena Vista
LAND AREA									
1	Approximate land area.....acres.....1940..	35,831,040	272,640	408,960	286,720	362,880	366,720	280,960	366,720
2	Drainage enterprises.....number.....1940..	13,439	4	3	5	6	162	11	98
3	Land in enterprises.....acres.....1940..	6,164,344	11,885	9,860	15,020	10,278	135,583	8,129	241,020
4	.....1930..	6,137,649	11,484	6,197	7,867	17,444	139,583	4,286	251,805
5	.....1920..	5,224,478	4,797	.....	.....	(²)	90,039	.....	116,826
6	Area of all enterprises, overlapping included.....acres.....1940..	7,544,931	11,885	9,860	15,020	10,278	155,162	8,129	382,644
7	Amount of overlapping.....acres.....1940..	1,380,587	.....	.....	.....	.....	19,579	.....	141,624
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	6,045,348	11,885	9,344	15,020	10,278	135,583	8,129	241,020
9	.....1930..	5,846,118	11,484	5,700	7,867	17,444	139,645	4,206	249,005
10	Increase or decrease (-), 1930-1940.....acres.....	199,230	401	3,644	7,153	-7,166	-4,062	3,923	-7,985
11	.....percent.....	3.4	3.5	63.9	90.9	-41.1	-2.9	93.3	-3.2
12	Land undrained, unfit for any crop.....acres.....1940..	33,626	.....	.....	.....	.....	.....	.....	.....
13	.....1930..	68,371	.....	250	.....	.....	.....	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-34,745	.....	-250	.....	.....	.....	.....	.....
15	.....percent.....	-50.8	.....	-100.0	.....	.....	.....	.....	.....
16	Land partly drained, for partial crop.....acres.....1940..	85,370	.....	516	.....	.....	.....	.....	.....
17	.....1930..	223,160	.....	247	.....	.....	208	80	2,800
18	Increase or decrease (-), 1930-1940.....acres.....	-137,790	.....	269	.....	.....	-208	-80	-2,800
19	.....percent.....	-61.7	.....	108.9	.....	.....	-100.0	-100.0	-100.0
20	Improved land.....acres.....1940..	6,115,785	11,885	9,303	15,020	10,278	135,583	8,129	241,020
21	.....1930..	5,961,454	10,734	4,700	7,867	17,444	139,853	4,206	247,405
22	.....1920..	4,493,407	2,650	.....	.....	(²)	86,089	.....	114,264
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	26,391	.....	557	.....	.....	.....	.....	.....
24	.....1930..	88,802	750	851	.....	.....	.....	.....	.....
25	.....1920..	74,652	240	.....	.....	(²)	.....	.....	.....
26	Other unimproved land.....acres.....1940..	22,168	.....	.....	.....	.....	.....	.....	.....
27	.....1930..	87,393	.....	646	.....	.....	.....	80	4,400
28	.....1920..	656,419	1,907	.....	.....	(²)	3,950	.....	2,562
29	Land in occupied farms.....acres.....1940..	5,945,393	11,347	9,315	13,950	9,919	132,358	7,727	232,287
30	.....1930..	6,105,496	11,484	6,197	7,867	17,444	139,853	4,286	250,205
31	Increase or decrease (-), 1930-1940.....acres.....	-160,103	-137	3,118	6,083	-7,525	-7,495	3,441	-17,918
32	.....percent.....	-2.6	-1.2	50.3	77.3	-43.1	-5.4	80.3	-7.2
33	Land in planted crops.....acres.....1940..	4,697,259	7,115	7,375	9,584	8,163	113,563	7,063	190,999
34	.....1930..	5,376,805	9,398	4,700	7,440	16,368	127,487	3,968	206,924
35	Increase or decrease (-), 1930-1940.....acres.....	-679,546	-2,283	2,675	2,144	-8,205	-13,924	3,095	-15,925
36	.....percent.....	-12.6	-24.3	56.9	28.8	-50.1	-10.9	78.0	-7.7
37	Land idle.....acres.....1940..	98,727	.....	1,516	.....	.....	.....	.....	.....
38	.....1930..	78,303	850	1,030	.....	.....	.....	.....	.....
39	Increase or decrease (-), 1930-1940.....acres.....	20,424	-850	486	.....	.....	.....	100	100
40	.....percent.....	26.1	-100.0	47.2	.....	.....	.....	-100.0	.....
41	Land available for settlement.....acres.....1940..	500	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	15,104	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-14,604	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	-96.7	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	1,500,195	11,885	8,663	15,020	.....	.....	.....	65,450
46	Length of these ditches.....miles.....	2,639.4	21.6	16.5	39.5	.....	.....	.....	83.4
47	Part protected by levees of an outside agency.....acres.....	4,833	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	160,689	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	263.7	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	318.2	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	5,480	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	2,000,256	.....	.....	.....	5,419	86,138	8,129	166,215
53	Length of these tile.....miles.....	78,262	.....	.....	.....	22.0	408.5	20.5	397.2
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	2,391,541	.....	.....	.....	4,859	49,445	.....	9,355
60	Length of these open ditches.....miles.....	2,111.5	.....	.....	.....	1.0	13.3	.....	11.2
61	Length of these tile.....miles.....	5,035.1	.....	.....	.....	25.0	162.7	.....	55.3
62	Part protected by levees of an outside agency.....acres.....	40	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	24,047	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	62.2	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	3.9	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	85.2	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	395	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	87,616	.....	1,194	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	112.9	.....	5.0	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	8.0	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	53.4	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	10,335	.....	.....	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 3,181.

²Included in "Other counties."

³Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - IOWA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Calhoun	Carroll	Cass	Cerro Gordo	Clay	Clinton	Crawford	Dallas	Davis	
LAND AREA										
1	Approximate land area.....acres.....1940..	366,080	367,360	357,760	368,640	365,440	444,800	458,240	382,080	325,760
2	Drainage enterprises.....number.....1940..	208	77	6	83	83	19	7	71	9
3	Land in enterprises.....acres.....1940..	273,767	104,605	27,460	115,569	134,688	77,384	13,272	79,992	23,465
4	.....1930..	278,293	73,787	24,982	115,331	131,323	46,556	13,098	92,902	22,480
5	.....1920..	246,559	78,040	(¹)	106,300	105,912	68,279	5,500	72,637	7,975
6	Area of all enterprises, overlapping included.....acres.....1940..	329,255	104,805	27,750	121,131	136,494	78,998	13,624	79,992	23,465
7	Amount of overlapping.....acres.....1940..	55,488	.....	290	5,545	1,806	1,614	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	273,767	104,605	27,460	90,463	134,388	76,949	13,272	79,992	23,465
9	.....1930..	277,613	73,627	24,982	86,172	130,308	40,503	13,098	92,043	15,930
10	Increase or decrease (-), 1930-1940.....acres.....	-3,846	30,978	2,478	4,291	4,380	36,446	174	-12,051	7,535
11	.....percent.....	-1.4	42.1	9.9	5.0	3.4	90.0	1.3	-13.1	47.3
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	482	.....	.....	.....	.....	.....
13	.....1930..	.....	150	.....	382	850	1,730	.....	115	2,920
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-160	.....	100	-850	-1,730	.....	-115	-2,920
15	.....percent.....	.....	-100.0	.....	26.2	-100.0	-100.0	.....	-100.0	-100.0
16	Land partly drained, for partial crop.....acres.....1940..	.....	.....	.....	24,644	.....	435	.....	.....	.....
17	.....1930..	680	.....	.....	28,777	165	4,403	.....	644	3,630
18	Increase or decrease (-), 1930-1940.....acres.....	-680	.....	.....	-4,133	-165	-3,966	.....	-644	-3,630
19	.....percent.....	-100.0	.....	.....	-14.4	-100.0	-90.1	.....	-100.0	-100.0
20	Improved land.....acres.....1940..	273,767	104,605	27,460	115,188	134,688	77,284	13,272	79,376	23,465
21	.....1930..	278,293	73,787	24,982	115,254	131,323	46,556	13,098	91,533	16,710
22	.....1920..	123,377	72,531	(¹)	95,385	103,553	51,910	2,750	69,469	7,658
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	.....	.....	.....	160	.....	.....	.....	610	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	715	3,130
25	.....1920..	1,015	.....	(¹)	13	.....	13,175	550	.....	.....
26	Other unimproved land.....acres.....1940..	.....	.....	.....	241	.....	100	.....	.....	.....
27	.....1930..	.....	.....	.....	77	.....	.....	.....	554	2,640
28	.....1920..	122,167	5,509	(¹)	12,902	2,359	3,194	2,200	3,168	320
29	Land in occupied farms.....acres.....1940..	265,558	101,045	26,443	112,347	130,613	73,705	12,004	77,371	22,287
30	.....1930..	278,293	73,647	24,982	115,331	131,323	46,556	13,098	92,787	22,480
31	Increase or decrease (-), 1930-1940.....acres.....	-12,735	27,398	1,461	-2,384	-710	27,050	-1,094	-15,416	-193
32	.....percent.....	-4.6	37.2	5.8	-2.6	-0.5	58.0	-8.4	-16.6	-0.8
33	Land in planted crops.....acres.....1940..	215,101	68,407	18,404	95,645	111,123	51,741	8,859	65,584	11,975
34	.....1930..	217,840	68,217	24,550	105,373	117,207	43,012	12,605	84,520	16,180
35	Increase or decrease (-), 1930-1940.....acres.....	-2,739	190	-6,146	-9,728	-6,084	8,729	-3,746	-18,355	-4,205
36	.....percent.....	-1.2	0.3	-25.0	-9.2	-5.2	20.3	-29.7	-22.4	-26.0
37	Land idle.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	856	.....
38	.....1930..	.....	180	.....	.....	.....	1,750	.....	25	3,490
39	Increase or decrease (-), 1930-1940.....acres.....	.....	-180	.....	.....	.....	-1,750	.....	831	-3,490
40	.....percent.....	.....	-100.0	.....	.....	.....	-100.0	.....	(²)	-100.0
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	30,573	.....	26,220	.....	12,409	40,700	13,272	8,840	23,465
46	Length of these ditches.....miles.....	54.0	.....	53.7	.....	17.0	82.9	35.6	13.8	56.8
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	119,686	57,736	.....	74,809	61,565	3,464	.....	53,116	.....
53	Length of these tile.....miles.....	392.5	232.8	.....	387.0	252.5	12.4	.....	177.3	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	123,508	46,869	1,240	40,780	60,714	33,220	.....	18,036	.....
60	Length of these open ditches.....miles.....	111.6	46.8	3.5	16.8	29.8	21.1	.....	13.0	.....
61	Length of these tile.....miles.....	90.3	29.0	0.2	158.1	196.3	32.1	.....	23.6	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	40	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - IOWA

COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Decatur	Des Moines	Dickinson	Emmet	Fayette ¹	Floyd	Franklin	Fremont
LAND AREA								
1 Approximate land area.....acres.....1940..	339,200	251,760	244,480	252,800	465,920	321,920	375,040	327,680
2 Drainage enterprises.....number.....1940..	5	3	73	110	1	26	93	15
3 Land in enterprises.....acres.....1940..	13,277	34,410	114,667	180,636	3,320	37,858	157,043	93,978
4	13,634	38,730	128,129	207,498	3,320	36,975	147,717	96,575
5 .....	.....	53,188	100,317	164,355	.....	.....	15,543	139,852
6 Area of all enterprises, overlapping included.....acres.....1940..	13,977	34,410	122,847	270,223	3,320	37,858	181,173	102,245
7 Amount of overlapping.....acres.....1940..	700	.....	8,180	89,587	.....	.....	24,130	8,267
CONDITION AND USE OF LAND								
8 Land with drainage sufficient for normal crop.....acres.....1940..	13,277	33,390	114,667	176,782	3,000	37,858	156,984	93,978
9	13,634	28,125	128,129	206,498	3,000	36,963	146,427	84,331
10 Increase or decrease (-), 1930-1940.....acres.....	-357	5,265	-13,462	-29,716	.....	895	10,557	9,647
11	percent.....	18.7	-10.5	-14.4	.....	2.4	7.2	11.4
12 Land undrained, unfit for any crop.....acres.....1940..	.....	770	.....	2,172	120	.....	.....	.....
13 .....	.....	7,830	.....	.....	120	.....	40	5,230
14 Increase or decrease (-), 1930-1940.....acres.....	.....	-7,060	.....	2,172	.....	.....	-40	-5,230
15	percent.....	-90.2	.....	.....	.....	.....	-100.0	-100.0
16 Land partly drained, for partial crop.....acres.....1940..	.....	250	.....	1,682	200	.....	59	.....
17 .....	.....	2,775	.....	1,000	200	12	1,250	7,014
18 Increase or decrease (-), 1930-1940.....acres.....	.....	-2,525	.....	682	.....	-12	-1,191	-7,014
19	percent.....	-91.0	.....	68.2	.....	-100.0	-95.3	-100.0
20 Improved land.....acres.....1940..	13,277	33,925	114,665	179,509	3,320	37,858	157,001	93,978
21	10,899	31,000	128,129	207,498	3,200	36,975	147,717	77,773
22 .....	.....	49,955	98,233	162,624	.....	14,878	132,504	33,829
Unimproved land:								
23 Woodland and cut-over land.....acres.....1940..	.....	215	2	125	.....	.....	42	.....
24	2,735	4,600	.....	.....	.....	.....	.....	5,196
25 .....	.....	.....	.....	68	.....	.....	.....	3,514
26 Other unimproved land.....acres.....1940..	.....	270	.....	1,002	.....	.....	.....	.....
27 .....	.....	3,130	.....	.....	120	.....	.....	13,606
28 .....	.....	3,223	2,084	1,663	.....	665	7,348	30,150
29 Land in occupied farms.....acres.....1940..	12,825	33,170	110,421	176,761	3,232	36,945	153,219	90,570
30	13,634	33,250	128,129	207,498	3,320	36,975	147,686	96,575
31 Increase or decrease (-), 1930-1940.....acres.....	-809	-80	-17,708	-30,737	-88	-30	5,533	-6,005
32	percent.....	-5.9	-0.2	-13.8	-14.8	-2.6	-0.1	-6.2
33 Land in planted crops.....acres.....1940..	6,456	24,395	92,322	131,244	2,612	31,921	127,928	70,735
34	10,240	29,400	117,094	188,779	3,000	32,398	131,654	75,694
35 Increase or decrease (-), 1930-1940.....acres.....	-3,782	-5,005	-24,772	-57,535	-388	-477	-3,726	-4,959
36	percent.....	-36.9	-17.0	-21.2	-30.5	-12.9	-2.8	-5.6
37 Land idle.....acres.....1940..	250	800	2	402	.....	.....	54	.....
38	1,420	8,980	.....	115	120	.....	.....	5,063
39 Increase or decrease (-), 1930-1940.....acres.....	-1,170	-8,180	2	287	-120	.....	54	-5,063
40	percent.....	-82.4	-91.1	249.6	-100.0	.....	.....	-100.0
41 Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42 .....	.....	2,800	.....	.....	.....	.....	.....	.....
43 Increase or decrease (-), 1930-1940.....acres.....	.....	-2,800	.....	.....	.....	.....	.....	.....
44	percent.....	-100.0	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45 Land drained by open ditches only.....acres.....	12,577	.....	6,335	1,470	.....	.....	14,931	80,548
46 Length of these ditches.....miles.....	19.8	.....	8.1	10.4	.....	.....	20.1	135.4
47 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Land drained by open ditches and own levees.....acres.....	700	.....	.....	22,270	.....	.....	.....	13,430
49 Length of these ditches.....miles.....	1.5	.....	.....	18.2	.....	.....	.....	9.9
50 Length of these levees.....miles.....	1.5	.....	.....	2.0	.....	.....	.....	9.2
51 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	2,300
52 Land drained by tile only.....acres.....	.....	.....	22,870	51,265	3,320	16,221	103,891	.....
53 Length of these tile.....miles.....	.....	.....	102.9	325.5	12.0	76.4	383.0	.....
54 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55 Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59 Land drained by open ditches and tile.....acres.....	.....	.....	85,462	105,631	.....	21,637	38,221	.....
60 Length of these open ditches.....miles.....	.....	.....	44.0	72.5	.....	2.8	13.7	.....
61 Length of these tile.....miles.....	.....	.....	360.4	283.6	.....	84.3	62.0	.....
62 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63 Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64 Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68 Land in enterprises operating pumping plants ².....acres.....	.....	34,410	.....	.....	.....	.....	.....	.....
69 Length of open ditches owned by these enterprises.....miles.....	.....	51.0	.....	.....	.....	.....	.....	.....
70 Length of tile owned by these enterprises.....miles.....	.....	8.0	.....	.....	.....	.....	.....	.....
71 Length of levees owned by these enterprises.....miles.....	.....	18.5	.....	.....	.....	.....	.....	.....
72 Part protected by levees of an outside agency.....acres.....	.....	3,800	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - IOWA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Greene	Grundy	Guthrie	Hamilton	Hancock	Hardin	Harrison	Howard	Humboldt	
LAND AREA										
1	Approximate land area.....acres.....1940..	364,160	320,640	381,440	369,280	364,600	367,360	443,520	301,440	278,400
2	Drainage enterprises.....number.....1940..	109	8	11	214	100	133	51	4	122
3	Land in enterprises.....acres.....1940..	174,472	8,906	14,990	227,089	277,595	149,378	133,572	6,977	192,700
4	.....1930..	151,464	3,262	14,297	240,781	252,807	152,545	125,038	7,419	183,826
5	.....1920..	139,487	(¹)	14,175	238,515	261,498	121,228	66,951	(¹)	187,425
6	Area of all enterprises, overlapping included.....acres.....1940..	166,818	8,906	15,950	312,221	326,532	161,330	233,371	6,977	220,192
7	Amount of overlapping.....acres.....1940..	12,346	.....	960	85,135	48,837	31,952	99,799	.....	27,492
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	174,472	8,906	14,990	224,606	269,624	149,098	133,572	6,977	191,800
9	.....1930..	151,464	3,262	13,646	222,934	205,603	152,368	116,403	7,042	173,748
10	Increase or decrease (-), 1930-1940.....acres.....	23,008	5,644	1,344	1,672	64,221	-3,270	17,169	-65	18,052
11	.....percent.....	15.2	173.0	9.8	0.8	31.2	-2.1	14.7	-0.9	10.4
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	.....	1,160	.....	.....	.....	200
13	.....1930..	.....	.....	20	3,600	4,469	97	2,280	35	27
14	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-20	-3,500	-3,309	-97	-2,280	-35	173
15	.....percent.....	.....	.....	-100.0	-100.0	-74.0	-100.0	-100.0	-100.0	640.7
16	Land partly drained, for partial crop.....acres.....1940..	.....	.....	.....	2,283	6,711	280	.....	.....	700
17	.....1930..	.....	.....	331	14,247	42,735	80	6,355	342	10,051
18	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-631	-11,964	-36,024	200	-6,355	-342	-9,351
19	.....percent.....	.....	.....	-100.0	-84.0	-84.3	250.0	-100.0	-100.0	-93.0
20	Improved land.....acres.....1940..	174,472	8,906	14,990	226,631	276,535	149,378	133,572	6,977	192,700
21	.....1930..	151,464	3,262	14,297	236,541	240,429	152,423	103,530	7,419	183,769
22	.....1920..	126,870	(¹)	10,523	231,858	229,256	117,860	31,492	(¹)	176,691
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	.....	.....	.....	360	10	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	3,000	10	.....	3,470	.....	30
25	.....1920..	.....	(¹)	.....	.....	731	.....	7,724	(¹)	.....
26	Other unimproved land.....acres.....1940..	.....	.....	.....	78	1,150	.....	.....	.....	.....
27	.....1930..	.....	.....	.....	1,240	12,368	.....	18,038	.....	27
28	.....1920..	12,617	(¹)	3,653	6,657	31,511	3,368	27,735	(¹)	10,734
29	Land in occupied farms.....acres.....1940..	169,521	8,367	14,577	221,317	267,719	145,497	133,572	6,833	181,759
30	.....1930..	151,464	3,262	14,297	240,781	252,807	152,540	123,422	7,419	183,619
31	Increase or decrease (-), 1930-1940.....acres.....	18,057	5,105	280	-19,464	14,912	-7,043	10,150	-586	-1,860
32	.....percent.....	11.9	156.5	2.0	-8.1	5.9	-4.5	8.2	-7.9	-1.0
33	Land in planted crops.....acres.....1940..	138,329	6,727	11,268	160,892	217,954	100,743	101,739	6,522	131,237
34	.....1930..	136,455	3,141	13,793	218,358	220,547	141,119	87,333	6,626	113,313
35	Increase or decrease (-), 1930-1940.....acres.....	1,874	3,586	-2,525	-37,466	-2,593	-40,376	14,406	-104	17,924
36	.....percent.....	1.4	114.2	-18.3	-17.2	-1.2	-25.6	16.5	-1.5	15.8
37	Land idle.....acres.....1940..	.....	.....	.....	1,140	1,582	.....	.....	.....	17,936
38	.....1930..	170	.....	.....	1,551	.....	233	750	331	27
39	Increase or decrease (-), 1930-1940.....acres.....	-170	.....	.....	-411	1,582	-233	-750	-331	17,909
40	.....percent.....	-100.0	.....	.....	-26.5	.....	-100.0	-100.0	-100.0	(²)
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	207
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	-207
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	1,880	.....	.....	26,698	6,850	12,782	120,270	.....	35,217
46	Length of these ditches.....miles.....	1.5	.....	.....	49.8	8.4	20.0	221.0	.....	39.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	7,252	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	3.6	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	5.0	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	61,549	8,906	11,919	130,503	69,077	81,996	400	2,172	59,371
53	Length of these tile.....miles.....	300.5	27.3	38.4	502.7	252.0	260.5	2.2	10.5	221.2
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	111,043	.....	3,071	69,888	201,768	54,600	5,650	4,805	98,112
60	Length of these open ditches.....miles.....	33.2	.....	0.8	102.9	197.0	21.0	1.3	1.0	113.7
61	Length of these tile.....miles.....	287.9	.....	6.9	103.6	226.3	40.0	10.2	12.3	139.9
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - IOWA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Iowa	Jasper	Jefferson	Johnson	Kossuth	Linn	Louisa	Madison
LAND AREA									
1	Approximate land area.....acres....1940..	373,760	471,040	279,040	396,800	626,560	456,320	257,920	361,600
2	Drainage enterprises.....number...1940..	7	13	3	4	160	7	8	3
3	Land in enterprises.....acres....1940..	13,254	46,027	8,922	8,278	469,524	4,367	45,468	1,840
4	.....1930..	19,048	49,344	5,200	2,000	505,404	4,370	33,868	500
5	.....1920..	(¹)	25,170	.....	(¹)	488,297	(¹)	52,113	(¹)
6	Area of all enterprises, overlapping included.....acres....1940..	18,474	54,678	8,922	8,278	557,694	4,367	58,080	1,840
7	Amount of overlapping.....acres....1940..	220	8,651	.....	.....	88,170	.....	12,612	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	17,021	44,313	8,922	8,278	464,455	4,367	32,807	1,840
9	.....1930..	15,248	48,444	4,200	1,880	503,038	3,935	27,847	500
10	Increase or decrease (-), 1930-1940.....acres.....	1,773	-4,131	4,722	6,398	-38,583	432	4,960	1,340
11	.....percent.....	11.6	-8.5	112.4	340.3	-7.7	11.0	17.8	268.0
12	Land undrained, unfit for any crop.....acres....1940..	20	.....	.....	.....	3,512	.....	9,282	.....
13	.....1930..	1,750	900	500	120	1,000	.....	1,430	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-1,730	-900	-500	-120	2,512	.....	7,852	.....
15	.....percent.....	-98.8	-100.0	-100.0	-100.0	251.2	.....	549.1	.....
16	Land partly drained, for partial crop.....acres....1940..	1,213	1,714	.....	.....	1,557	.....	3,379	.....
17	.....1930..	2,050	.....	500	.....	1,366	435	4,611	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-837	1,714	-500	.....	191	-435	-1,232	.....
19	.....percent.....	-40.8	.....	-100.0	.....	14.0	-100.0	-26.7	.....
20	Improved land.....acres....1940..	17,979	44,783	8,922	8,278	466,272	4,367	40,027	1,840
21	.....1930..	16,358	47,487	4,200	1,820	503,684	3,934	29,125	200
22	.....1920..	(¹)	23,690	.....	(¹)	459,984	(¹)	48,572	(¹)
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	100	1,244	.....	.....	970	.....	4,741	.....
24	.....1930..	2,600	1,274	1,000	60	.....	.....	4,183	300
25	.....1920..	(¹)	232	.....	(¹)	38	(¹)	.....	(¹)
26	Other unimproved land.....acres....1940..	175	.....	.....	.....	2,282	.....	700	.....
27	.....1930..	90	583	.....	120	1,720	436	580	.....
28	.....1920..	(¹)	1,248	.....	(¹)	26,275	(¹)	3,541	(¹)
29	Land in occupied farms.....acres....1940..	16,292	44,539	8,648	7,860	451,966	4,231	42,255	1,750
30	.....1930..	18,858	48,444	5,200	1,900	505,404	4,370	33,888	500
31	Increase or decrease (-), 1930-1940.....acres.....	-2,566	-3,905	3,448	5,980	-53,438	-139	8,367	1,250
32	.....percent.....	-13.6	-8.1	66.3	314.7	-10.6	-3.2	24.7	250.0
33	Land in planted crops.....acres....1940..	9,508	33,731	6,771	5,885	373,325	3,546	30,490	1,456
34	.....1930..	16,135	46,085	4,000	1,500	455,388	3,932	27,554	200
35	Increase or decrease (-), 1930-1940.....acres.....	-6,627	-12,354	2,771	4,385	-82,063	-386	2,936	1,256
36	.....percent.....	-41.1	-26.8	69.3	292.3	-18.0	-9.8	10.6	628.0
37	Land idle.....acres....1940..	100	1,244	.....	.....	930	.....	9,191	.....
38	.....1930..	1,650	1,109	500	40	.....	.....	3,000	200
39	Increase or decrease (-), 1930-1940.....acres.....	-1,550	135	-500	-40	930	.....	6,191	-200
40	.....percent.....	-93.9	12.2	-100.0	-100.0	.....	.....	206.4	-100.0
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	244	.....	100	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-244	.....	-100	.....	.....	.....	.....
44	.....percent.....	.....	-100.0	.....	-100.0	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	8,911	33,123	8,922	7,227	48,804	.....	2,433	1,840
46	Length of these ditches.....miles.....	12.8	46.4	13.1	15.5	49.8	.....	6.0	4.8
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	8,730	12,904	.....	.....	.....	.....	3,388	.....
49	Length of these ditches.....miles.....	15.2	22.6	.....	.....	.....	.....	32.3	.....
50	Length of these levees.....miles.....	6.0	6.6	.....	.....	.....	.....	21.6	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	613	.....	.....	1,051	93,895	4,367	.....	.....
53	Length of these tile.....miles.....	3.0	.....	.....	2.6	459.3	19.0	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	326,825	.....	12,124	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	305.6	.....	15.0	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	979.8	.....	6.0	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ².....acres.....	.....	.....	.....	.....	.....	.....	27,523	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	16.6	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	11.4	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	6,000	.....

¹ Included in "Other counties."

² Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - IOWA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Mahaska	Marion	Marshall	Mills	Mitchell	Monona	Montgomery	Muscatine	O'Brien	
LAND AREA										
1	Approximate land area.....acres.....1940..	366,060	363,520	367,360	275,940	298,880	440,960	270,080	280,960	368,000
2	Drainage enterprises.....number.....1940..	4	3	8	17	6	24	10	12	11
3	Land in enterprises.....acres.....1940..	16,325	22,620	19,230	52,084	12,937	152,296	23,192	24,802	16,575
4	.....1930..	13,000	15,827	18,950	78,225	11,967	185,871	22,297	25,167	6,752
5	.....1920..	16,415	8,707	9,000	55,420	7,875	129,004	6,777	43,922	5,453
6	Area of all enterprises, overlapping included.....acres.....1940..	16,325	22,620	19,230	64,917	12,937	240,132	23,652	28,082	17,633
7	Amount of overlapping.....acres.....1940..	.....	.....	.....	12,833	.....	87,836	460	3,150	1,058
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	16,019	22,620	19,230	51,124	12,937	152,296	23,192	24,232	16,575
9	.....1930..	11,500	12,797	18,559	70,077	10,914	185,111	21,857	24,607	6,752
10	Increase or decrease (-), 1930-1940.....acres.....	4,519	9,823	671	-18,953	2,023	-32,815	1,335	-375	9,823
11	.....percent.....	39.3	76.8	3.6	-27.0	18.5	-17.7	6.1	-1.5	145.5
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	192	.....	.....	.....	700	.....
13	.....1930..	1,500	920	23	1,080	222	760	200	560	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-1,500	-920	-23	-888	-222	-760	-200	140	.....
15	.....percent.....	-100.0	-100.0	-100.0	-82.2	-100.0	-100.0	-100.0	25.0	.....
16	Land partly drained, for partial crop.....acres.....1940..	306	.....	.....	768	.....	.....	.....	.....	.....
17	.....1930..	.....	2,110	368	7,068	831	.....	240	.....	.....
18	Increase or decrease (-), 1930-1940.....acres.....	306	-2,110	-368	-6,300	-831	.....	-240	.....	.....
19	.....percent.....	.....	-100.0	-100.0	-89.1	-100.0	.....	-100.0	.....	.....
20	Improved land.....acres.....1940..	16,325	22,620	19,230	51,124	12,937	152,296	23,192	24,042	16,575
21	.....1930..	10,500	10,920	18,850	72,927	11,917	185,111	18,937	23,635	6,752
22	.....1920..	14,203	8,272	8,730	27,045	6,640	69,751	2,711	40,770	5,453
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	.....	.....	.....	192	.....	.....	.....	190	.....
24	.....1930..	2,500	2,300	50	2,080	50	.....	3,360	1,532	.....
25	.....1920..	750	.....	270	5,543	.....	13,433	338	88	.....
26	Other unimproved land.....acres.....1940..	.....	.....	.....	768	.....	.....	.....	700	.....
27	.....1930..	.....	1,007	50	3,218	.....	760	.....	.....	.....
28	.....1920..	1,462	435	.....	22,832	1,235	45,820	3,728	3,064	.....
29	Land in occupied farms.....acres.....1940..	16,152	22,190	18,150	49,889	12,305	147,673	21,655	22,867	15,803
30	.....1930..	13,000	15,127	18,950	78,225	11,967	185,161	21,497	25,167	6,752
31	Increase or decrease (-), 1930-1940.....acres.....	3,152	7,063	-800	-28,336	338	-37,488	158	-2,300	9,151
32	.....percent.....	24.2	46.7	-4.2	-36.2	2.8	-20.2	0.7	-9.1	135.5
33	Land in planted crops.....acres.....1940..	12,647	16,260	14,564	36,806	9,199	113,328	16,545	15,824	13,804
34	.....1930..	8,200	9,500	18,220	68,441	11,002	168,070	18,010	21,225	6,250
35	Increase or decrease (-), 1930-1940.....acres.....	4,447	6,760	-3,656	-31,635	-1,803	-54,742	-1,465	-5,401	7,554
36	.....percent.....	54.2	71.2	-20.1	-46.2	-16.4	-32.6	-8.1	-25.4	120.9
37	Land idle.....acres.....1940..	.....	.....	.....	700	.....	1,909	.....	125	.....
38	.....1930..	1,600	4,655	18	2,400	440	760	1,410	532	.....
39	Increase or decrease (-), 1930-1940.....acres.....	-1,600	-4,655	-18	-1,700	-440	1,149	-1,410	-407	.....
40	.....percent.....	-100.0	-100.0	-100.0	-70.8	-100.0	151.2	-100.0	-76.5	.....
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	300	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	-300	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	-100.0	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	15,325	20,620	12,200	39,354	.....	144,226	23,192	14,978	2,360
46	Length of these ditches.....miles.....	24.3	31.9	14.0	70.2	.....	227.8	52.5	34.7	2.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	2,824	.....	2,000	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	2,000	.....	12,730	.....	960	.....	.....	.....
49	Length of these ditches.....miles.....	.....	3.5	.....	12.4	.....	2.1	.....	.....	.....
50	Length of these levees.....miles.....	.....	0.5	.....	14.2	.....	0.9	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	3,473	.....	4,445	560	.....	.....	7,715
53	Length of these tile.....miles.....	.....	.....	9.1	.....	20.3	15.1	.....	.....	22.4
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,000	.....	3,557	.....	8,492	.....	.....	.....	6,500
60	Length of these open ditches.....miles.....	0.5	.....	1.5	.....	2.3	.....	.....	.....	5.2
61	Length of these tile.....miles.....	4.0	.....	13.3	.....	64.0	.....	.....	.....	9.4
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	6,550	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	17.5	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	0.3	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	10.0	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ¹.....acres.....	.....	.....	.....	.....	.....	.....	.....	9,954	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	17.3	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	3.0	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - IOWA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Ringgold	Sac	Scott ¹	Shelby	Story	Tama	Taylor	Van Buren ²	Wapello	
LAND AREA										
1	Approximate land area.....acres.....1940..	344,320	369,920	289,920	375,680	363,520	460,800	337,920	311,680	278,680
2	Drainage enterprises.....number.....1940..	4	73	2	11	117	3	4	2	4
3	Land in enterprises.....acres.....1940..	21,725	105,874	2,020	40,215	154,035	2,591	13,925	10,739	7,689
4	.....1930..	18,634	102,489	1,905	24,902	155,253	2,489	14,799	11,500	965
5	.....1920..	9,530	98,600	(²)	22,700	143,335	(²)	10,585	5,200	.....
6	Area of all enterprises, overlapping included.....acres.....1940..	21,725	128,196	2,020	40,215	179,791	2,591	13,925	10,739	7,689
7	Amount of overlapping.....acres.....1940..	.....	22,322	.....	.....	25,755	.....	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	21,725	105,874	2,020	40,215	152,965	2,541	13,925	10,739	7,689
9	.....1930..	16,214	101,045	1,815	23,616	152,528	2,355	13,100	11,000	8,900
10	Increase or decrease (-), 1930-1940.....acres.....	5,511	4,829	205	16,599	338	186	825	-261	6,789
11	.....percent.....	34.0	4.8	11.3	70.3	0.2	7.9	5.3	-2.4	754.3
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	.....	991	.....	.....	.....	.....
13	.....1930..	557	812	90	1,078	415	75	900	500	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-557	-812	-90	-1,078	576	-75	-900	-500	.....
15	.....percent.....	-100.0	-100.0	-100.0	-100.0	138.8	-100.0	-100.0	-100.0	.....
16	Land partly drained, for partial crop.....acres.....1940..	.....	.....	.....	.....	79	50	.....	.....	.....
17	.....1930..	1,893	632	.....	208	2,210	59	799	.....	65
18	Increase or decrease (-), 1930-1940.....acres.....	-1,893	-632	.....	-208	-2,131	-9	-799	.....	-65
19	.....percent.....	-100.0	-100.0	.....	-100.0	-95.4	-15.2	-100.0	.....	-100.0
20	Improved land.....acres.....1940..	21,595	105,874	2,020	40,215	153,045	2,591	13,925	10,739	7,689
21	.....1930..	13,974	101,764	1,905	24,582	154,578	2,414	10,500	8,700	900
22	.....1920..	3,812	53,050	(²)	12,074	135,125	(²)	6,351	5,044	.....
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	130	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	3,355	.....	.....	52	410	50	2,700	1,600	65
25	.....1920..	953	707	(²)	1,199	1,276	(²)	529	.....	.....
26	Other unimproved land.....acres.....1940..	.....	.....	.....	.....	991	.....	.....	.....	.....
27	.....1930..	1,305	725	.....	268	165	25	1,599	1,200	.....
28	.....1920..	4,765	44,843	(²)	9,427	6,935	(²)	3,705	156	.....
29	Land in occupied farms.....acres.....1940..	19,797	103,422	1,986	40,080	148,394	2,347	13,650	10,290	7,383
30	.....1930..	18,634	102,489	1,905	24,902	155,252	2,489	14,799	11,500	965
31	Increase or decrease (-), 1930-1940.....acres.....	1,163	933	81	15,178	-6,858	-142	-1,149	-1,210	6,418
32	.....percent.....	6.2	0.9	4.2	61.0	-4.4	-5.7	-7.8	-10.5	665.1
33	Land in planted crops.....acres.....1940..	11,015	81,703	1,471	28,497	117,957	1,638	8,468	6,463	4,243
34	.....1930..	12,483	92,004	1,857	22,582	148,068	2,230	10,500	8,700	900
35	Increase or decrease (-), 1930-1940.....acres.....	-1,468	-10,301	-386	5,905	-30,111	-592	-2,032	-2,237	3,343
36	.....percent.....	-11.8	-11.2	-20.8	26.1	-20.3	-26.5	-19.4	-25.7	371.4
37	Land idle.....acres.....1940..	407	.....	.....	.....	5,698	.....	950	.....	30
38	.....1930..	.....	580	.....	200	245	70	.....	500	50
39	Increase or decrease (-), 1930-1940.....acres.....	407	-580	.....	-200	5,453	-70	950	-500	-20
40	.....percent.....	.....	-100.0	.....	-100.0	(³)	-100.0	.....	-100.0	-40.0
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	21,725	10,990	2,020	35,500	11,195	1,687	13,925	10,739	7,689
46	Length of these ditches.....miles.....	44.2	12.8	2.5	80.7	30.3	2.0	24.0	24.3	14.1
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	46,284	.....	.....	89,661	904	.....	.....	.....
53	Length of these tile.....miles.....	.....	147.6	.....	.....	297.6	2.5	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	48,600	.....	4,715	53,180	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	44.0	.....	7.7	35.9	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	59.4	.....	0.9	105.9	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

² Included in "Other counties."

³ Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - IOWA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Warren	Washington	Webster	Winnebago	Woodbury	Worth	Wright	Other counties ¹
LAND AREA									
1	Approximate land area.....acres....1940..	366,080	363,520	459,520	257,280	554,240	256,040	369,280	4,119,080
2	Drainage enterprises.....number....1940..	8	4	249	86	17	57	180	16
3	Land in enterprises.....acres....1940..	42,940	4,064	279,293	137,937	92,620	116,011	256,949	60,376
4	.....1930..	44,031	4,259	290,083	132,987	102,050	84,652	250,376	58,460
5	.....1920..	16,497	(²)	267,788	181,023	94,795	92,860	261,167	46,247
6	Area of all enterprises, overlapping included.....acres....1940..	43,026	4,064	383,016	176,797	121,322	135,050	310,088	60,376
7	Amount of overlapping.....acres....1940..	680	.....	103,753	38,860	28,702	19,639	53,139	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	42,946	4,064	279,293	133,072	92,620	91,938	256,949	44,573
9	.....1930..	40,811	4,059	280,023	128,987	102,050	64,186	250,362	50,127
10	Increase or decrease (-), 1930-1940.....acres.....	2,135	5	-820	4,085	-9,430	27,752	6,587	-5,550
11	.....percent.....	5.2	0.1	-0.3	3.2	-9.2	43.2	2.6	-11.1
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	60	767	.....	.....	.....	10,277
13	.....1930..	.....	.....	.....	15,000	.....	4,213	4	3,675
14	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	60	-233	.....	-4,213	-4	6,602
15	.....percent.....	.....	.....	.....	-23.3	.....	-100.0	-100.0	179.6
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	.....	4,098	.....	24,073	.....	5,526
17	.....1930..	3,220	200	60	3,000	.....	16,253	10	4,632
18	Increase or decrease (-), 1930-1940.....acres.....	-3,220	-200	-60	1,098	.....	7,820	-10	864
19	.....percent.....	-100.0	-100.0	-100.0	36.6	.....	48.1	-100.0	18.5
20	Improved land.....acres....1940..	42,946	4,064	279,293	130,345	92,620	116,011	256,949	48,199
21	.....1930..	36,411	4,139	280,073	132,115	102,050	78,210	250,372	45,216
22	.....1920..	8,958	(²)	243,396	162,076	51,115	78,210	250,456	43,842
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	.....	.....	.....	7,282	.....	.....	.....	1,900
24	.....1930..	4,850	120	10	472	.....	4,519	.....	5,424
25	.....1920..	2,184	(²)	.....	547	10,773	41	.....	103
26	Other unimproved land.....acres....1940..	.....	.....	.....	310	.....	.....	.....	10,277
27	.....1930..	2,770	.....	.....	400	.....	1,923	4	6,820
28	.....1920..	5,355	(²)	24,402	18,400	32,907	14,609	10,711	4,302
29	Land in occupied farms.....acres....1940..	42,150	3,662	268,667	132,400	89,612	109,084	249,205	53,609
30	.....1930..	37,011	4,259	278,897	126,276	102,050	83,852	250,376	55,397
31	Increase or decrease (-), 1930-1940.....acres.....	5,139	-597	-10,230	6,124	-12,438	25,232	-1,171	-1,788
32	.....percent.....	13.9	-14.0	-3.7	4.8	-12.2	30.1	-0.5	-3.2
33	Land in planted crops.....acres....1940..	31,549	2,420	215,073	95,471	69,360	93,703	206,840	36,037
34	.....1930..	28,230	3,965	265,596	106,458	94,586	72,116	234,816	42,340
35	Increase or decrease (-), 1930-1940.....acres.....	3,319	-1,545	-50,523	-10,987	-25,226	21,587	-27,976	-6,303
36	.....percent.....	11.8	-39.0	-19.0	-10.3	-26.7	29.9	-11.9	-14.9
37	Land idle.....acres....1940..	.....	.....	7,921	13,389	.....	.....	.....	11,977
38	.....1930..	3,000	.....	.....	110	.....	1,914	350	6,100
39	Increase or decrease (-), 1930-1940.....acres.....	-3,000	.....	7,921	13,279	.....	-1,914	-350	5,877
40	.....percent.....	-100.0	.....	.....	(²)	.....	-100.0	-100.0	96.3
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	80
42	.....1930..	4,700	.....	.....	6,673	.....	.....	.....	80
43	Increase or decrease (-), 1930-1940.....acres.....	-4,700	.....	.....	-6,673	.....	.....	.....	-80
44	.....percent.....	-100.0	.....	.....	-100.0	.....	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	42,946	.....	28,273	21,980	70,982	12,340	45,530	26,020
46	Length of these ditches.....miles.....	73.2	.....	51.1	43.9	134.9	18.8	71.0	40.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	9,113
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	21.8
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	10.0
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	655	116,961	42,407	99	35,580	131,719	910
53	Length of these tile.....miles.....	.....	1.5	496.7	242.8	0.4	253.9	421.3	3.8
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	3,409	134,029	73,550	21,539	63,278	79,700	9,798
60	Length of these open ditches.....miles.....	.....	5.4	205.7	99.1	47.3	48.3	85.0	6.0
61	Length of these tile.....miles.....	.....	5.8	124.4	240.1	7.9	139.1	111.0	14.8
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	4,813	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	5.7	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	1.1	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	0.1	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	.....	.....	.....	.....	.....	.....	14,535
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	24.0
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	20.5
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	535

¹Includes Adair, Appanoose, Benton, Buchanan, Butler, Cedar, Dubuque, Jackson, Jones, Lee, and Wayne Counties in 1940; Adair, Appanoose, Buchanan, Butler, Cedar, Dubuque, Jackson, Jones, Lee, and Wayne Counties in 1930; and Appanoose, Black Hawk, Buchanan, Butler, Cass, Cedar, Dubuque, Grundy, Howard, Iowa, Johnson, Lee, Linn, Madison, Scott, Tama, Washington, and Wayne Counties in 1920.

²Included in "Other counties."

³Percent not shown when more than 1,000.

⁴Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—IOWA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Adams	Allamakee	Audubon	Black Hawk	Boone	Bremer	Theresa Vista
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	1 3,439	4	3	5	6	152	11	98
2 Open ditches:								
3 Completed.....miles.....1940..	5,189.7	21.6	21.5	39.5	1.0	13.3		94.5
4 1930..	4,800.0	21.3	19.9	33.0	1.8	16.6	0.3	89.9
5 1920..	3,996.0	16.6			(²)	7.5		96.7
6 Additional length authorized.....miles.....1940..	0.5							
7 Tile drains:								
8 Completed.....miles.....1940..	12,873.2				47.0	571.2	20.5	452.5
9 1930..	13,362.4				77.5	560.4	20.0	561.5
10 1920..	10,384.9				(²)	455.7		395.1
11 Additional length authorized.....miles.....1940..	1.0							
12 Levees and dikes:								
13 Completed.....miles.....1940..	456.6							
14 1930..	113.4		3.0					
15 1920..	45.2				(²)			
16 Additional length authorized.....miles.....1940..								
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	3,900		(³)					
19 1930..	4,625		25					
20 1920..	3,153				(²)			
21 Pump capacity.....gal. per min.....1940..	824,500		(³)					
22 1930..	881,500		1,000					
23 1920..	530,800				(²)			
24 Land served by pumps.....acres.....1940..	81,754		(³)					
25 1930..	84,801		100					
26 1920..	134,616				(²)			
27 Wells pumped for drainage.....number.....1940..								
28 1930..								
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	75,374,497	166,098	134,077	234,026	188,793	2,115,391	80,605	1,708,735
30 1930..	77,478,893	160,432	141,561	238,226	455,201	2,181,393	82,796	1,753,024
31 1920..	49,627,304	102,760			(²)	1,516,735		1,485,798
32 Estimated cost when completed.....dollars.....1940..	75,391,497	166,098	134,077	234,026	188,793	2,115,391	80,605	1,708,735
33 1930..	77,690,195	160,432	142,561	238,226	455,201	2,181,393	82,796	1,753,024
34 1920..	51,169,878	102,760			(²)	1,551,773		1,508,798
35 Average cost per acre when completed.....dollars.....1940..	12.23	13.98	13.60	15.58	18.37	15.60	9.92	7.09
36 1930..	12.66	13.97	23.00	30.28	26.09	15.00	19.32	6.96
37 1920..	10.37	21.42			(²)	17.23		21.91
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	14,301,019	166,098	(³)	234,026				123,245
40 Average amount per acre.....dollars..	9.53	13.98	(³)	15.58				1.88
41 Enterprises having open ditches and levees.....dollars..	2,221,362							
42 Average amount per acre.....dollars..	13.82							
43 Enterprises having tile only.....dollars..	27,646,097				66,217	1,319,649	80,605	1,432,627
44 Average amount per acre.....dollars..	13.82				12.22	15.32	9.92	6.62
45 Enterprises having tile and levees.....dollars..								
46 Average amount per acre.....dollars..								
47 Enterprises having open ditches and tile.....dollars..	26,939,319				122,576	795,742		152,863
48 Average amount per acre.....dollars..	12.10				25.23	16.09		16.34
49 Enterprises having ditches, tile, and levees.....dollars..	513,819							
50 Average amount per acre.....dollars..	21.49							
51 Enterprises operating pumping plants ⁴.....dollars..	1,766,881		(³)					
52 Average amount per acre.....dollars..	20.17		(³)					
MAINTENANCE AND OPERATION								
53 Cost of maintenance and operation in 1939:								
54 By enterprises operating pumping plants.....dollars..	79,482							
55 Enterprises reporting.....number.....	10							
56 Land in these enterprises.....acres.....	72,512							
57 Average cost per acre.....dollars.....	1.10							
58 By enterprises not operating pumping plants.....dollars..	247,519			(³)		1,840	24	
59 Enterprises reporting.....number.....	1,154			1		59	3	
60 Land in these enterprises.....acres.....	2,640,993			(³)		62,925	1,330	
61 Average cost per acre.....dollars.....	0.09			(³)		0.03	0.02	
62 Federal aid in maintenance:								
63 Enterprises reporting.....number.....	129							
64 Land in these enterprises.....acres.....	653,956							
FINANCIAL CONDITION								
65 Drainage taxes collected in 1939.....dollars..	544,303	(³)	(³)	8,643		1,944		
66 Enterprises reporting.....number.....	353	1	1	3		20		
67 Land in these enterprises.....acres.....	1,141,202	(³)	(³)	11,860		19,386		
68 Average amount collected per acre.....dollars..	0.48	(³)	(³)	0.73		0.10		
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	43,001		(³)					
70 Enterprises reporting.....number.....	31		1					
71 Land in these enterprises.....acres.....	150,472		(³)					
72 Portion delinquent in these enterprises.....percent..	28.6		(³)					
73 Total indebtedness, Dec. 31, 1939.....dollars..	1,286,932	(³)	(³)	(³)		80		
74 Enterprises reporting.....number.....	227	1	2	2		4		
75 Land in these enterprises.....acres.....	900,147	(³)	(³)	(³)		6,184		
76 Average indebtedness per acre.....dollars..	1.43	(³)	(³)	(³)		0.01		
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	208,127		(³)					
78 Enterprises reporting.....number.....	51		1					
79 Land in these enterprises.....acres.....	264,169		(³)					
80 Average arrearage per acre.....dollars.....	0.79		(³)					
81 Reduction of debt by refinancing, prior to 1940.....dollars..	892,092							
82 Enterprises reporting.....number.....	7							
83 Land in these enterprises.....acres.....	61,436							
84 Average reduction per acre.....dollars.....	14.52							

¹ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 3,181.

² Included in "Other counties."

³ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1, p. 193.

⁴ Data in lines 46 and 47 are not included in lines 34 to 45.

CENSUS OF DRAINAGE — IOWA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Decatur	Des Moines	Dickinson	Emmet	Fayette ¹	Floyd	Franklin	Fremont
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	5	3	73	110	1	25	93	15
Open ditches:								
2 Completed.....miles.....1940..	21.3	51.0	52.1	101.1	.....	2.8	33.5	145.3
3 .....1930..	19.1	38.0	15.8	119.6	.....	19.5	47.9	178.3
4 .....1920..	.....	18.6	76.1	120.5	.....	14.3	51.6	86.4
5 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:								
6 Completed.....miles.....1940..	.....	8.0	463.3	609.1	12.0	160.7	465.0	.....
7 .....1930..	.....	10.5	410.3	620.8	12.0	153.0	469.3	6.0
8 .....1920..	.....	11.8	410.3	492.9	.....	42.3	423.3	6.0
9 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:								
10 Completed.....miles.....1940..	1.5	18.5	.....	2.0	.....	.....	.....	9.2
11 .....1930..	5.5	30.0	.....	.....	.....	.....	.....	8.0
12 .....1920..	.....	.....	.....	.....	.....	.....	.....	8.0
13 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:								
14 Engine capacity.....horsepower.....1940..	.....	1,890	.....	.....	.....	.....	.....	.....
15 .....1930..	.....	2,300	.....	.....	.....	.....	.....	25
16 .....1920..	.....	600	.....	.....	.....	.....	.....	25
17 Pump capacity.....gal. per min.....1940..	.....	390,900	.....	.....	.....	.....	.....	.....
18 .....1930..	.....	490,000	.....	.....	.....	.....	.....	4,000
19 .....1920..	.....	74,300	.....	.....	.....	.....	.....	4,000
20 Land served by pumps.....acres.....1940..	.....	34,410	.....	.....	.....	.....	.....	650
21 .....1930..	.....	38,250	.....	.....	.....	.....	.....	650
22 .....1920..	.....	53,188	.....	.....	.....	.....	.....	650
23 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
24 .....1930..	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	118,100	668,587	1,922,320	2,817,118	85,162	736,473	2,149,472	1,160,761
26 .....1930..	110,294	678,934	1,387,747	3,066,361	85,162	718,755	2,292,203	1,621,427
27 .....1920..	.....	248,260	1,199,111	1,627,901	.....	230,204	1,784,811	418,940
28 Estimated cost when completed.....dollars.....1940..	118,100	668,587	1,922,320	2,817,118	85,162	736,473	2,149,472	1,160,761
29 .....1930..	112,869	678,894	1,387,747	3,066,361	85,162	718,755	2,292,203	1,677,427
30 .....1920..	.....	255,057	1,376,275	1,713,804	.....	230,204	2,020,349	418,940
31 Average cost per acre when completed.....dollars.....1940..	8.90	19.43	16.76	15.60	25.65	19.45	13.69	12.35
32 .....1930..	8.28	17.53	10.83	14.78	25.65	19.44	15.52	17.37
33 .....1920..	.....	4.80	13.72	10.43	.....	14.81	14.45	6.21
Invested in and required for completion, 1940:								
34 Enterprises having open ditches only.....dollars..	104,600	.....	14,074	67,204	.....	.....	99,451	1,100,518
35 Average amount per acre.....dollars..	8.32	.....	2.22	45.72	.....	.....	6.66	13.66
36 Enterprises having open ditches and levees.....dollars..	13,500	.....	.....	174,650	.....	.....	.....	60,243
37 Average amount per acre.....dollars..	19.28	.....	.....	7.84	.....	.....	.....	4.48
38 Enterprises having tile only.....dollars..	.....	.....	314,028	1,064,637	85,162	311,169	1,447,853	.....
39 Average amount per acre.....dollars..	.....	.....	13.73	20.77	25.65	19.16	13.94	.....
40 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
41 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
42 Enterprises having open ditches and tile.....dollars..	.....	.....	1,594,218	1,510,627	.....	425,304	602,168	.....
43 Average amount per acre.....dollars..	.....	.....	16.65	14.30	.....	19.66	15.75	.....
44 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
46 Enterprises operating pumping plants.....dollars..	.....	668,587	.....	.....	.....	.....	.....	.....
47 Average amount per acre.....dollars..	.....	19.43	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION								
48 Cost of maintenance and operation in 1939:								
49 By enterprises operating pumping plants.....dollars..	.....	51,673	.....	.....	.....	.....	.....	.....
50 Enterprises reporting.....number.....	.....	3	.....	.....	.....	.....	.....	.....
51 Land in these enterprises.....acres.....	.....	34,410	.....	.....	.....	.....	.....	.....
52 Average cost per acre.....dollars..	.....	1.50	.....	.....	.....	.....	.....	.....
53 By enterprises not operating pumping plants.....dollars..	(3)	.....	1,491	3,737	.....	1,108	3,652	15,706
54 Enterprises reporting.....number.....	.....	2	36	59	.....	14	62	3
55 Land in these enterprises.....acres.....	(3)	.....	89,358	152,042	.....	32,846	119,572	41,630
56 Average cost per acre.....dollars..	(3)	.....	0.02	0.02	.....	0.03	0.03	0.40
Federal aid in maintenance:								
57 Enterprises reporting.....number.....	.....	3	24	1	.....	.....	2	1
58 Land in these enterprises.....acres.....	.....	34,410	86,432	(3)	.....	.....	(3)	(3)
FINANCIAL CONDITION								
59 Drainage taxes collected in 1939.....dollars..	3,540	39,302	989	5,014	.....	(3)	.....	20,443
60 Enterprises reporting.....number.....	3	3	10	.....	.....	2	.....	6
61 Land in these enterprises.....acres.....	9,116	34,410	34,637	13,246	.....	(3)	.....	44,722
62 Average amount collected per acre.....dollars..	0.39	1.14	0.03	0.38	.....	(3)	.....	0.46
63 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	.....	.....	92	.....	.....	.....	.....	.....
64 Enterprises reporting.....number.....	.....	.....	3	.....	.....	.....	.....	.....
65 Land in these enterprises.....acres.....	.....	.....	3,190	.....	.....	.....	.....	.....
66 Portion delinquent in these enterprises.....percent..	.....	.....	2.9	.....	.....	.....	.....	.....
67 Total indebtedness, Dec. 31, 1939.....dollars..	(3)	51,403	.....	.....	.....	.....	.....	(3)
68 Enterprises reporting.....number.....	.....	2	3	.....	.....	.....	.....	1
69 Land in these enterprises.....acres.....	(3)	34,410	.....	.....	.....	.....	.....	(3)
70 Average indebtedness per acre.....dollars..	(3)	1.49	.....	.....	.....	.....	.....	(3)
71 Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	.....	.....	.....	(3)
72 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	1
73 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	(3)
74 Average arrearage per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	(3)
75 Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
76 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....
77 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
78 Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Data in lines 46 and 47 are not included in lines 34 to 45.

³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Greene	Grundy	Guthrie	Hamilton	Hancock	Hardin	Harrison	Howard	Humboldt
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	109	8	11	214	100	133	51	4	122
Open ditches:										
2	Completed.....miles.....1940..	34.7	.....	0.8	152.7	205.4	41.0	225.9	1.0	152.7
3	.....1930..	27.8	.....	3.1	121.1	198.0	41.4	123.8	0.8	123.4
4	.....1920..	24.2	(¹)	0.7	171.5	226.9	52.5	113.7	(¹)	153.5
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	588.4	27.3	45.3	606.3	478.3	300.5	12.4	22.8	361.1
7	.....1930..	601.5	13.9	41.6	690.6	594.5	387.0	8.0	23.5	367.5
8	.....1920..	462.5	(¹)	34.3	504.4	431.2	284.9	15.4	(¹)	311.6
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	5.0	.....	.....
11	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	.....	(¹)	.....	.....	.....	.....	0.3	(¹)	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	(¹)	.....	.....	.....	.....	.....	(¹)	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	(¹)	.....	.....	.....	.....	.....	(¹)	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	(¹)	.....	.....	.....	.....	.....	(¹)	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	2,595,475	69,405	219,540	2,970,997	2,867,560	1,303,101	1,152,238	97,678	1,911,470
26	.....1930..	2,258,770	27,616	218,443	3,111,856	3,407,366	1,559,358	1,070,681	117,566	2,167,197
27	.....1920..	1,749,554	(¹)	146,744	2,341,671	2,355,636	931,232	693,221	(¹)	1,437,381
28	Estimated cost when completed.....dollars.....1940..	2,595,475	69,405	219,540	2,970,997	2,867,560	1,303,101	1,152,238	97,678	1,911,470
29	.....1930..	2,258,770	27,616	218,443	3,111,856	3,420,366	1,559,358	1,070,681	117,566	2,167,197
30	.....1920..	2,018,172	(¹)	183,245	2,460,514	2,734,297	950,141	693,221	(¹)	1,437,527
31	Average cost per acre when completed.....dollars.....1940..	14.88	7.79	14.64	13.08	10.33	8.72	8.63	14.00	9.92
32	.....1930..	14.91	8.47	15.28	12.92	13.53	10.22	8.56	15.85	11.79
33	.....1920..	14.47	(¹)	12.93	10.32	10.46	7.84	10.35	(¹)	7.67
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	2,728	.....	.....	213,502	12,390	54,250	1,029,619	.....	167,809
35	Average amount per acre.....dollars..	1.45	.....	.....	8.00	1.81	4.24	8.56	.....	4.76
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	69,622	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	9.60	.....	.....
38	Enterprises having tile only.....dollars..	1,064,495	69,406	193,090	1,927,594	1,114,944	825,112	6,407	55,970	724,368
39	Average amount per acre.....dollars..	17.30	7.79	16.20	14.77	16.14	10.06	16.02	25.77	12.20
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	1,528,252	.....	26,441	829,901	1,740,226	423,739	46,590	41,708	1,019,293
43	Average amount per acre.....dollars..	13.76	.....	8.61	11.87	8.62	7.76	8.25	8.68	10.39
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amtmt per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	.....	(²)	1,086	14,520	34,506	2,518	.....	.....	13,444
53	Enterprises reporting.....number..	.....	2	5	81	60	18	.....	.....	65
54	Land in these enterprises.....acres..	.....	(²)	11,418	107,871	253,486	54,665	.....	.....	159,354
55	Average cost per acre.....dollars..	.....	(²)	0.10	0.13	0.14	0.05	.....	.....	0.08
Federal aid in maintenance:										
56	Enterprises reporting.....number..	.....	.....	.....	3	3	.....	.....	.....	8
57	Land in these enterprises.....acres..	.....	.....	.....	10,524	95,426	.....	.....	.....	67,293
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	.....	(²)	136	(²)	.....	.....	82,395	.....	59,033
59	Enterprises reporting.....number..	.....	1	4	1	.....	.....	30	.....	19
60	Land in these enterprises.....acres..	.....	(²)	9,367	(²)	.....	.....	102,297	.....	81,976
61	Average amount collected per acre.....dollars..	.....	(²)	0.01	(²)	.....	.....	0.60	.....	0.72
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	.....	.....	.....	(²)	.....	.....	5,161	.....	(²)
63	Enterprises reporting.....number..	.....	.....	.....	2	.....	.....	16	.....	2
64	Land in these enterprises.....acres..	.....	.....	.....	(²)	.....	.....	82,470	.....	(²)
65	Portion delinquent in these enterprises.....percent..	.....	.....	.....	(²)	.....	.....	6.2	.....	(²)
66	Total indebtedness, Dec. 31, 1939.....dollars..	.....	.....	(²)	1,873	(²)	.....	166,772	.....	30,426
67	Enterprises reporting.....number..	.....	.....	1	3	1	.....	37	.....	4
68	Land in these enterprises.....acres..	.....	.....	(²)	5,123	(²)	.....	111,055	.....	16,171
69	Average indebtedness per acre.....dollars..	.....	.....	(²)	0.36	(²)	.....	1.50	.....	1.88
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	(²)	.....	.....	4,613	.....	(²)
71	Enterprises reporting.....number..	.....	.....	.....	2	.....	.....	3	.....	1
72	Land in these enterprises.....acres..	.....	.....	.....	(²)	.....	.....	19,002	.....	(²)
73	Average arrearage per acre.....dollars..	.....	.....	.....	(²)	.....	.....	0.24	.....	(²)
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Included in "Other counties."

² Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1, p. 193.

CENSUS OF DRAINAGE — IOWA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Iowa	Jasper	Jefferson	Johnson	Kossuth	Linn	Louisa	Madison
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	7	13	3	4	160	7	8	3
Open ditches:									
2	Completed.....miles.....1940..	28.0	69.0	13.1	15.5	355.4		68.9	4.8
3	1930..	35.5	67.4	9.3		337.3		65.2	1.5
4	1920..	(1)	27.7		(1)	311.2	(1)	28.0	(1)
5	Additional length authorized.....miles.....1940..								
Tile drains:									
6	Completed.....miles.....1940..	3.0			2.6	1,439.1	19.0	6.0	
7	1930..	7.0			5.2	1,506.2	19.9	16.3	
8	1920..	(1)			(1)	1,343.1	(1)	4.1	(1)
9	Additional length authorized.....miles.....1940..					1.0			
Levees and dikes:									
10	Completed.....miles.....1940..	6.0	6.6					33.0	
11	1930..	2.0						18.1	1.5
12	1920..	(1)			(1)		(1)	3.8	(1)
13	Additional length authorized.....miles.....1940..								
Pumping plants:									
14	Engine capacity.....horsepower.....1940..							1,450	
15	1930..							1,650	
16	1920..	(1)			(1)		(1)	1,900	(1)
17	Pump capacity.....gal. per min.....1940..							338,000	
18	1930..							290,000	
19	1920..	(1)			(1)		(1)	337,500	(1)
20	Land served by pumps.....acres.....1940..							27,523	
21	1930..							27,881	
22	1920..	(1)			(1)		(1)	34,757	(1)
23	Wells pumped for drainage.....number.....1940..								
24	1930..								
CAPITAL INVESTED									
25	Capital invested to January 1.....dollars.....1940..	336,444	400,476	101,411	33,667	7,071,326	60,724	521,297	32,664
26	1930..	375,626	385,150	76,250	11,816	7,566,146	60,769	613,565	5,597
27	1920..	(1)	142,635		(1)	5,738,533		366,461	(1)
28	Estimated cost when completed.....dollars.....1940..	336,444	400,476	101,411	33,667	7,031,326	60,724	521,297	32,664
29	1930..	375,626	385,150	77,250	11,816	7,566,146	60,769	613,565	5,597
30	1920..	(1)	142,635		(1)	6,220,759		366,461	(1)
31	Average cost per acre when completed.....dollars.....1940..	18.43	8.70	11.37	4.07	15.08	13.90	11.46	17.75
32	1930..	19.72	7.81	14.86	5.91	14.97	13.91	18.11	11.19
33	1920..	(1)	5.67		(1)	12.74	(1)	7.03	(1)
Invested in and required for completion, 1940:									
34	Enterprises having open ditches only.....dollars..	139,380	304,765	101,411	26,060	298,845		15,185	32,664
35	Average amount per acre.....dollars..	15.64	9.20	11.37	3.60	6.14		6.24	17.75
36	Enterprises having open ditches and levees.....dollars..	189,372	95,711					119,295	
37	Average amount per acre.....dollars..	21.69	7.42					35.21	
38	Enterprises having tile only.....dollars..	7,692			7,607	1,639,239	60,724		
39	Average amount per acre.....dollars..	12.55			7.24	17.46	13.90		
40	Enterprises having tile and levees.....dollars..								
41	Average amount per acre.....dollars..								
42	Enterprises having open ditches and tile.....dollars..					5,142,242		70,950	
43	Average amount per acre.....dollars..					15.73		5.85	
44	Enterprises having ditches, tile, and levees.....dollars..								
45	Average amount per acre.....dollars..								
46	Enterprises operating pumping plants.....dollars..							315,867	
47	Average amount per acre.....dollars..							11.48	
MAINTENANCE AND OPERATION									
Cost of maintenance and operation in 1939:									
48	By enterprises operating pumping plants.....dollars..							15,695	
49	Enterprises reporting.....number..							3	
50	Land in these enterprises.....acres..							14,911	
51	Average cost per acre.....dollars..							1.05	
52	By enterprises not operating pumping plants.....dollars..	(3)				(3)	483	1,430	
53	Enterprises reporting.....number..	2				1	3	4	
54	Land in these enterprises.....acres..	(3)				(3)	1,924	28,124	
55	Average cost per acre.....dollars..	(3)				(3)	0.25	0.05	
Federal aid in maintenance:									
56	Enterprises reporting.....number..							24	7
57	Land in these enterprises.....acres..							249,655	43,947
FINANCIAL CONDITION									
58	Drainage taxes collected in 1939.....dollars..			3,902		29,592		26,309	
59	Enterprises reporting.....number..			3		20		7	
60	Land in these enterprises.....acres..			8,922		103,736		43,035	
61	Average amount collected per acre.....dollars..			0.44		0.28		0.61	
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..								
63	Enterprises reporting.....number..								
64	Land in these enterprises.....acres..								
65	Portion delinquent in these enterprises.....percent..								
66	Total indebtedness, Dec. 31, 1939.....dollars..	(3)	(3)	(3)		5,795		105,831	
67	Enterprises reporting.....number..	1	2	1		3		6	
68	Land in these enterprises.....acres..	(3)	(3)	(3)		6,472		30,911	
69	Average indebtedness per acre.....dollars..	(3)	(3)	(3)		0.90		3.42	
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..					(3)			
71	Enterprises reporting.....number..					1			
72	Land in these enterprises.....acres..					(3)			
73	Average arrearage per acre.....dollars..					(3)			
74	Reduction of debt by refinancing, prior to 1940.....dollars..								
75	Enterprises reporting.....number..								
76	Land in these enterprises.....acres..								
77	Average reduction per acre.....dollars..								

¹Included in "Other counties."

²Data in lines 46 and 47 are not included in lines 34 to 45.

³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1, p. 193.

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COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Mahaska	Marion	Marshall	Mills	Mitchell	Monona	Montgomery	Muscatine	O'Brien
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	4	3	8	17	6	24	10	12	11
Open ditches:										
2	Completed.....miles.....1940..	24.8	35.4	15.5	82.6	2.3	247.4	52.5	52.0	7.7
3	.....1930..	32.0	12.2	16.7	72.5	1.9	132.5	50.0	50.0	2.5
4	.....1920..	6.9	8.3	9.3	58.6	1.9	196.5	9.6	42.8	2.5
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	0.6	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	4.0	.....	22.4	.....	84.3	15.4	.....	.....	31.8
7	.....1930..	5.0	.....	22.5	.....	62.2	.....	.....	2.0	22.0
8	.....1920..	3.8	.....	.....	.....	23.7	33.8	.....	.....	11.8
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	0.5	.....	14.2	.....	10.9	.....	3.0	.....
11	.....1930..	3.0	.....	.....	.....	.....	.....	.....	4.0	.....
12	.....1920..	.....	.....	.....	.....	.....	8.3	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	28	.....	.....	.....
17	Pump capacity.....gal. per min. 1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	15,000	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	8,655	.....
22	.....1920..	.....	.....	.....	.....	.....	800	.....	29,440	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	194,620	170,775	276,116	452,586	329,562	1,637,043	346,518	241,986	157,694
26	.....1930..	280,000	70,584	276,116	556,401	263,671	1,269,565	369,993	383,684	70,294
27	.....1920..	88,175	44,151	200,000	392,201	85,499	1,551,571	88,613	201,939	51,558
28	Estimated cost when completed.....dollars.....1940..	194,620	170,775	276,116	452,586	329,562	1,644,043	346,518	241,986	157,694
29	.....1930..	280,000	156,319	276,116	556,401	263,671	1,269,565	369,993	433,684	70,294
30	.....1920..	190,542	44,151	260,000	392,201	96,620	1,551,571	88,613	201,939	51,558
31	Average cost per acre when completed.....dollars.....1940..	11.92	7.55	14.36	8.69	25.47	10.80	14.94	9.70	9.51
32	.....1930..	21.54	9.88	14.57	7.11	22.03	6.83	16.59	17.23	10.41
33	.....1920..	11.61	5.07	28.89	7.08	12.27	12.03	13.08	4.60	9.45
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	174,721	150,034	192,850	410,282	.....	1,372,852	346,518	105,326	9,505
35	Average amount per acre.....dollars..	11.40	7.28	15.81	10.42	.....	9.52	14.94	7.03	4.03
36	Enterprises having open ditches and levees.....dollars..	.....	20,741	.....	42,306	.....	4,981	.....	.....	.....
37	Average amount per acre.....dollars..	.....	10.37	.....	3.82	.....	5.19	.....	.....	.....
38	Enterprises having tile only.....dollars..	.....	.....	41,780	.....	113,330	36,810	.....	.....	61,716
39	Average amount per acre.....dollars..	.....	.....	12.03	.....	25.50	65.73	.....	.....	10.59
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	19,899	.....	41,486	.....	216,232	.....	.....	.....	66,473
43	Average amount per acre.....dollars..	19.90	.....	11.66	.....	25.46	.....	.....	.....	10.23
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	229,400	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	35.02	.....	.....	.....
46	Enterprises operating pumping plants ².....dollars..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
49	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	2	.....
50	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
52	By enterprises not operating pumping plants.....dollars..	.....	.....	.....	3,454	(¹)	20,155	.....	.....	226
53	Enterprises reporting.....number..	.....	.....	.....	3	2	20	.....	.....	6
54	Land in these enterprises.....acres..	.....	.....	.....	15,554	(¹)	97,251	.....	.....	13,579
55	Average cost per acre.....dollars..	.....	.....	.....	0.22	(¹)	0.21	.....	.....	0.02
Federal aid in maintenance:										
56	Enterprises reporting.....number..	.....	.....	.....	.....	.....	5	.....	.....	1
57	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	15,075	.....	(¹)	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	.....	(¹)	.....	12,847	5,076	22,410	.....	10,231	(¹)
59	Enterprises reporting.....number..	.....	2	.....	8	4	5	.....	8	1
60	Land in these enterprises.....acres..	.....	(¹)	.....	29,264	11,797	35,414	.....	22,516	(¹)
61	Average amount collected per acre.....dollars..	.....	(¹)	.....	0.44	0.43	0.63	.....	0.45	(¹)
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	.....	.....	.....	.....	.....	(¹)	.....	.....	.....
63	Enterprises reporting.....number..	.....	.....	.....	.....	.....	1	.....	.....	.....
64	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	(¹)	.....	.....	.....
65	Portion delinquent in these enterprises.....percent..	.....	.....	.....	.....	.....	(¹)	.....	.....	.....
66	Total indebtedness, Dec. 31, 1939.....dollars..	.....	(¹)	.....	(¹)	(¹)	(¹)	.....	32,291	.....
67	Enterprises reporting.....number..	.....	1	.....	1	2	2	.....	4	.....
68	Land in these enterprises.....acres..	.....	(¹)	.....	(¹)	(¹)	(¹)	.....	17,483	.....
69	Average indebtedness per acre.....dollars..	.....	(¹)	.....	(¹)	(¹)	(¹)	.....	1.85	.....
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
71	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	1	.....
72	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
73	Average arrearage per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	(¹)	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1, p. 193.
²Data in lines 46 and 47 are not included in lines 34 to 45.

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Osceola	Page	Palo Alto	Plymouth	Pocahontas	Polk	Pottawattamie	Poweshiek
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	44	16	131	3	95	37	35	4
2 Open ditches:								
3 Completed.....miles.....1940..	51.9	97.4	156.6	8.1	254.1	46.8	198.6	27.6
4 1930..	41.6	132.1	152.2	19.0	221.2	30.9	171.6	14.2
5 1920..	45.4	53.0	130.4		209.1	16.0	61.0	
6 Additional length authorized.....miles.....1940..								
7 Tile drains:								
8 Completed.....miles.....1940..	285.2		504.4		484.0	54.6	2.8	
9 1930..	263.3		472.4		462.0	51.2	3.0	
10 1920..	179.4		442.0		400.0	30.5	4.1	
11 Additional length authorized.....miles.....1940..								
12 Levees and dikes:								
13 Completed.....miles.....1940..		0.1				30.8	284.9	
14 1930..		2.3					6.1	
15 1920..						0.4	3.0	
16 Additional length authorized.....miles.....1940..								
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..								
19 1930..								
20 1920..								
21 Pump capacity.....gal. per min.....1940..								
22 1930..								
23 1920..								
24 Land served by pumps.....acres.....1940..								
25 1930..								
26 1920..								
27 Wells pumped for drainage.....number.....1940..								
28 1930..								
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	1,098,093	570,219	1,911,382	79,318	2,939,855	820,442	1,401,865	230,201
30 1930..	806,919	552,046	2,216,842	54,800	3,123,424	570,743	1,560,196	197,500
31 1920..	543,945	292,364	1,547,570		2,041,778	203,507	592,302	
32 Estimated cost when completed.....dollars.....1940..	1,098,093	570,219	1,911,382	79,318	2,939,855	820,442	1,401,865	230,201
33 1930..	806,919	552,046	2,216,842	54,800	3,123,424	570,743	1,560,196	197,500
34 1920..	722,847	292,364	1,649,640		2,041,778	473,596	592,302	
35 Average cost per acre when completed.....dollars.....1940..	15.49	12.05	8.79	13.22	10.43	19.38	15.10	21.20
36 1930..	8.94	12.95	9.76	7.51	10.73	16.39	14.40	29.41
37 1920..	11.41	9.31	7.45		7.68	18.20	14.43	
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	64,721	559,856	236,043	79,318	266,201	101,098	429,419	230,201
40 Average amount per acre.....dollars.....	5.66	12.07	9.00	13.22	7.30	10.46	14.29	21.20
41 Enterprises having open ditches and levees.....dollars..		10,363				414,019	693,905	
42 Average amount per acre.....dollars.....		11.26				25.29	13.90	
43 Enterprises having tile only.....dollars.....	491,368		505,123		845,093	186,340		
44 Average amount per acre.....dollars.....	16.88		9.56		12.48	19.54		
45 Enterprises having tile and levees.....dollars.....								
46 Average amount per acre.....dollars.....								
47 Enterprises having open ditches and tile.....dollars..	542,004		1,170,216		1,828,561	118,985	1,620	
48 Average amount per acre.....dollars.....	17.86		8.45		10.30	17.53	8.35	
49 Enterprises having ditches, tile, and levees.....dollars..							276,921	
50 Average amount per acre.....dollars.....							21.83	
51 Enterprises operating pumping plants.....dollars..								
52 Average amount per acre.....dollars.....								
MAINTENANCE AND OPERATION								
53 Cost of maintenance and operation in 1939:								
54 By enterprises operating pumping plants.....dollars..								
55 Enterprises reporting.....number.....								
56 Land in these enterprises.....acres.....								
57 Average cost per acre.....dollars.....								
58 By enterprises not operating pumping plants.....dollars..	981	14,281	21,843		1,967		6,823	
59 Enterprises reporting.....number.....	23	9	66		23		16	
60 Land in these enterprises.....acres.....	48,101	30,577	174,744		105,102		54,694	
61 Average cost per acre.....dollars.....	0.02	0.47	0.12		0.02		0.12	
62 Federal aid in maintenance:								
63 Enterprises reporting.....number.....							1	
64 Land in these enterprises.....acres.....							(¹)	
FINANCIAL CONDITION								
65 Drainage taxes collected in 1939.....dollars..	8,809	2,358			6,611	16,887	34,160	
66 Enterprises reporting.....number.....	7	3			23	21	11	
67 Land in these enterprises.....acres.....	20,521	2,312			52,631	29,593	38,421	
68 Average amount collected per acre.....dollars..	0.43	1.02			0.12	0.57	0.89	
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres...	(¹)							
70 Enterprises reporting.....number.....	1							
71 Land in these enterprises.....acres.....	(¹)							
72 Portion delinquent in these enterprises.....percent.....	(¹)							
73 Total indebtedness, Dec. 31, 1939.....dollars..	(¹)	6,151			49,117	43,677	50,265	
74 Enterprises reporting.....number.....	2	3			28	9	16	
75 Land in these enterprises.....acres.....	(¹)	7,860			153,751	18,815	47,477	
76 Average indebtedness per acre.....dollars.....	(¹)	0.78			0.32	2.32	1.06	
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(¹)				48,887		44,421	
78 Enterprises reporting.....number.....	1				24		11	
79 Land in these enterprises.....acres.....	(¹)				124,934		38,814	
80 Average arrearage per acre.....dollars.....	(¹)				0.39		1.14	
81 Reduction of debt by refinancing, prior to 1940.....dollars..					(¹)	(¹)		
82 Enterprises reporting.....number.....					2	1		
83 Land in these enterprises.....acres.....					(¹)	(¹)		
84 Average reduction per acre.....dollars.....					(¹)	(¹)		

¹ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1, p. 193.

CENSUS OF DRAINAGE — IOWA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAIN-TENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Kinggold	Sac	Scott ¹	Shelby	Story	Tama	Taylor	Van Duren ¹	Wapello
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	4	73	2	11	117	3	4	2	4
Open ditches:										
2	Completed.....miles.....1940..	44.2	56.8	2.5	88.4	66.2	2.0	24.0	24.3	14.1
3	1930..	40.2	54.1	2.4	32.4	60.5	1.5	23.8	59.0	5.7
4	1920..	18.4	47.3	(²)	50.9	53.2	(²)	17.1	16.2	.....
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	.....	207.0	.....	0.9	403.5	2.5	.....	.....	.....
7	1930..	.....	242.2	.....	24.9	382.2	10.8	.....	.....	.....
8	1920..	.....	190.1	(²)	0.4	324.0	(²)	.....	.....	.....
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	1930..	.....	.....	.....	.....	.....	0.5	.....	.....	.....
12	1920..	.....	.....	(²)	.....	.....	(²)	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	1920..	.....	.....	(²)	.....	.....	(²)	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	1920..	.....	.....	(²)	.....	.....	(²)	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	1920..	.....	.....	(²)	.....	.....	(²)	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	316,296	1,133,785	19,595	668,135	1,720,595	19,512	173,251	99,498	96,904
26	1930..	293,170	969,098	26,136	371,633	1,659,260	20,366	208,464	100,840	49,750
27	1920..	125,000	989,898	(²)	240,971	1,339,365	(²)	82,196	47,169	.....
28	Estimated cost when completed.....dollars.....1940..	316,296	1,133,785	19,595	668,135	1,720,595	19,512	173,251	99,498	96,904
29	1930..	293,170	969,098	26,136	371,633	1,659,260	20,366	208,464	100,840	49,750
30	1920..	125,000	1,008,267	(²)	240,971	1,358,036	(²)	82,196	47,169	.....
31	Average cost per acre when completed.....dollars.....1940..	14.56	10.71	9.70	16.61	11.17	7.53	12.44	9.26	12.60
32	1930..	15.73	9.46	13.72	14.92	10.69	8.18	14.09	8.77	51.55
33	1920..	13.12	10.23	(²)	10.62	9.47	(²)	7.77	9.07	.....
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	316,296	97,689	19,595	640,409	64,720	8,791	173,251	99,498	96,904
35	Average amount per acre.....dollars..	14.56	8.89	9.70	18.04	5.78	5.21	12.44	9.26	12.60
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars..	.....	537,716	.....	.....	1,047,614	10,721	.....	.....	.....
39	Average amount per acre.....dollars..	.....	11.62	.....	.....	11.68	11.86	.....	.....	.....
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	.....	498,380	.....	27,726	608,261	.....	.....	.....	.....
43	Average amount per acre.....dollars..	.....	10.25	.....	5.88	11.44	.....	.....	.....	.....
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	.....	2,469	.....	(³)	2,700	(³)	.....	.....	.....
53	Enterprises reporting.....number.....	.....	25	.....	1	89	1	.....	.....	.....
54	Land in these enterprises.....acres.....	.....	27,802	.....	(³)	126,317	(³)	.....	.....	.....
55	Average cost per acre.....dollars..	.....	0.09	.....	(²)	0.02	(²)	.....	.....	.....
Federal aid in maintenance:										
56	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	(³)	.....	.....	(³)	9,493	.....	(³)	1,302	.....
59	Enterprises reporting.....number.....	2	.....	.....	1	11	.....	1	1	.....
60	Land in these enterprises.....acres.....	(³)	.....	.....	(³)	14,340	.....	(³)	8,161	.....
61	Average amount collected per acre.....dollars..	(³)	.....	.....	(³)	0.66	.....	(³)	0.16	.....
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	.....	.....	.....	.....	(³)	.....	(³)	.....	.....
63	Enterprises reporting.....number.....	.....	.....	.....	.....	1	.....	1	.....	.....
64	Land in these enterprises.....acres.....	.....	.....	.....	.....	(³)	.....	(³)	.....	.....
65	Portion delinquent in these enterprises.....percent.....	.....	.....	.....	.....	(³)	.....	(³)	.....	.....
66	Total indebtedness, Dec. 31, 1939.....dollars..	(³)	.....	.....	.....	.....	.....	(³)	7,500	.....
67	Enterprises reporting.....number.....	2	.....	.....	.....	.....	.....	1	1	.....
68	Land in these enterprises.....acres.....	(³)	.....	.....	.....	.....	.....	(³)	8,161	.....
69	Average indebtedness per acre.....dollars..	(³)	.....	.....	.....	.....	.....	(³)	0.92	.....
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	.....	.....	(³)	.....	.....
71	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	1	.....	.....
72	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	(³)	.....	.....
73	Average arrearage per acre.....dollars..	.....	.....	.....	.....	.....	.....	(³)	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²Included in "other counties."
³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

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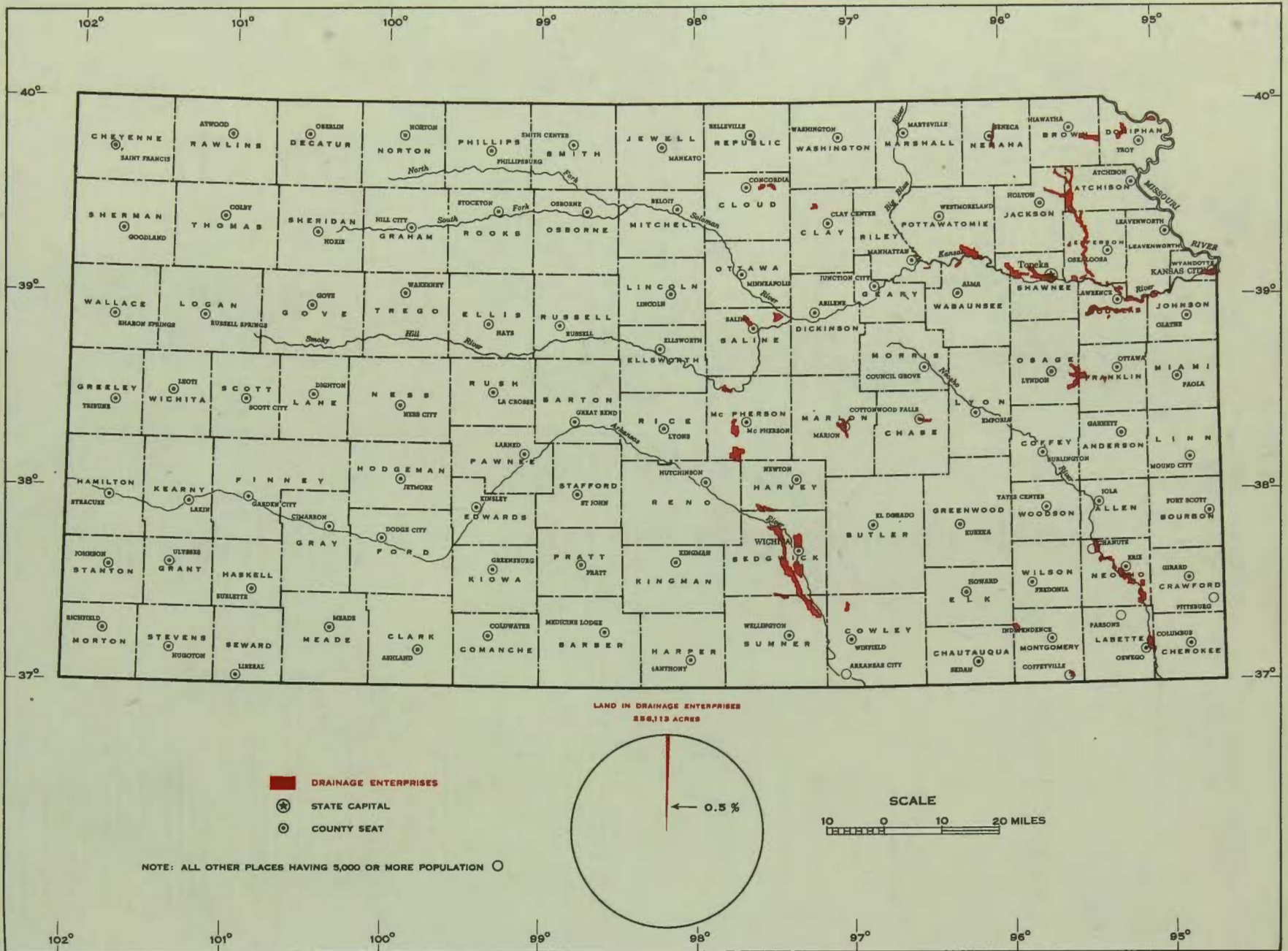
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Warren	Washington	Webster	Winnebago	Woodbury	Worth	Wright	Other counties ¹
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	8	4	249	86	17	57	180	16
Open ditches:								
2 Completed.....miles.....1940..	73.2	5.4	256.8	143.0	182.2	72.8	156.0	92.3
3	1930..	72.5	9.6	227.3	146.2	170.1	89.7	69.1
4	1920..	40.8	(²)	223.5	120.9	144.6	74.3	52.2
5 Additional length authorized.....miles.....1940..								
6 Tile drains:								
7 Completed.....miles.....1940..		7.3	621.1	482.9	8.3	394.1	532.3	18.6
8	1930..	1.0	6.3	562.5	474.3	5.7	442.0	13.2
9	1920..	1.2	(²)	506.3	442.4	8.1	172.9	448.8
10 Additional length authorized.....miles.....1940..								
11 Levees and dikes:								
12 Completed.....miles.....1940..						0.1		30.5
13	1930..						3.6	25.8
14	1920..		(²)		0.2	0.2		19.0
15 Additional length authorized.....miles.....1940..								
16 Pumping plants:								
17 Engine capacity.....horsepower.....1940..								510
18	1930..							625
19	1920..		(²)					600
20 Pump capacity.....gal. per min.....1940..								90,600
21	1930..							96,500
22	1920..		(²)					100,000
23 Land served by pumps.....acres.....1940..								9,351
24	1930..							9,265
25	1920..		(²)					15,781
26 Wells pumped for drainage.....number.....1940..								
27	1930..							
CAPITAL INVESTED								
28 Capital invested to January 1.....dollars.....1940..	559,887	90,460	3,266,924	1,955,115	762,554	1,457,836	3,016,515	1,271,230
29	1930..	454,207	81,498	3,127,509	2,895,477	746,806	1,530,155	1,242,286
30	1920..	252,302	(²)	2,412,781	1,368,324	476,816	684,411	807,490
31 Estimated cost when completed.....dollars.....1940..	559,887	90,460	3,266,924	1,955,115	762,554	1,457,836	3,016,515	1,271,230
32	1930..	454,207	81,498	3,127,509	2,895,477	746,806	1,530,155	1,242,286
33	1920..	333,379	(²)	2,532,904	1,613,542	476,816	867,350	842,322
34 Average cost per acre when completed.....dollars.....1940..	13.04	22.26	11.70	14.17	8.23	12.57	11.74	21.06
35	1930..	10.32	21.48	11.17	21.77	7.32	18.08	21.25
36	1920..	20.21	(²)	9.46	8.91	5.03	9.34	5.68
37 Invested in and required for completion, 1940:								
38 Enterprises having open ditches only.....dollars..	559,887		231,040	62,173	553,966	49,599	270,526	223,659
39 Average amount per acre.....dollars.....	13.04		8.17	2.83	7.80	4.02	5.94	8.60
40 Enterprises having open ditches and levees.....dollars..								312,654
41 Average amount per acre.....dollars.....								34.31
42 Enterprises having tile only.....dollars.....		3,718	1,655,420	772,502	695	696,613	1,954,808	10,206
43 Average amount per acre.....dollars.....		5.68	15.86	18.22	7.02	19.58	14.84	11.22
44 Enterprises having tile and levees.....dollars.....								
45 Average amount per acre.....dollars.....								
46 Enterprises having open ditches and tile.....dollars..		86,742	1,180,464	1,120,440	207,893	701,126	791,181	101,113
47 Average amount per acre.....dollars.....		25.44	8.81	15.23	9.65	11.08	9.93	10.32
48 Enterprises having ditches, tile, and levees.....dollars..						10,498		
49 Average amount per acre.....dollars.....						2.18		
50 Enterprises operating pumping plants ³.....dollars..								623,598
51 Average amount per acre.....dollars.....								42.90
MAINTENANCE AND OPERATION								
52 Cost of maintenance and operation in 1939:								
53 By enterprises operating pumping plants.....dollars..								(⁴)
54 Enterprises reporting.....number.....								2
55 Land in these enterprises.....acres.....								(⁴)
56 Average cost per acre.....dollars.....								(⁴)
57 By enterprises not operating pumping plants.....dollars..		(⁴)	5,189	4,874	27,126		21,217	831
58 Enterprises reporting.....number.....		1	81	59	12		92	3
59 Land in these enterprises.....acres.....		(⁴)	159,024	111,911	72,163		160,043	16,117
60 Average cost per acre.....dollars.....		(⁴)	0.03	0.04	0.38		0.13	0.05
61 Federal aid in maintenance:								
62 Enterprises reporting.....number.....				3			30	
63 Land in these enterprises.....acres.....				11,133			119,601	
FINANCIAL CONDITION								
64 Drainage taxes collected in 1939.....dollars.....			335	15,753	24,191	10,466	44,515	7,118
65 Enterprises reporting.....number.....			10	23	6	5	26	6
66 Land in these enterprises.....acres.....			34,117	34,197	58,056	10,238	62,524	32,221
67 Average amount collected per acre.....dollars.....			0.01	0.46	0.42	1.02	0.71	0.22
68 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..				(⁴)				(⁴)
69 Enterprises reporting.....number.....				1				2
70 Land in these enterprises.....acres.....				(⁴)				(⁴)
71 Portion delinquent in these enterprises.....percent.....				(⁴)				(⁴)
72 Total indebtedness, Dec. 31, 1939.....dollars..	9,238		28,672	(⁴)	42,507		(⁴)	168,626
73 Enterprises reporting.....number.....	3		58	1	6		2	8
74 Land in these enterprises.....acres.....	17,260		90,798	(⁴)	58,056		(⁴)	45,831
75 Average indebtedness per acre.....dollars.....	0.54		0.32	(⁴)	0.73		(⁴)	3.68
76 Indebtedness in arrears, Dec. 31, 1939.....dollars..				(⁴)				16,665
77 Enterprises reporting.....number.....				1				3
78 Land in these enterprises.....acres.....				(⁴)				21,120
79 Average arrearage per acre.....dollars.....				(⁴)				0.79
80 Reduction of debt by refinancing, prior to 1940.....dollars..				(⁴)				(⁴)
81 Enterprises reporting.....number.....				1				2
82 Land in these enterprises.....acres.....				(⁴)				(⁴)
83 Average reduction per acre.....dollars.....				(⁴)				(⁴)

¹ Includes Adair, Appanoose, Benton, Buchanan, Butler, Cedar, Dubuque, Jackson, Jones, Lee, and Wayne Counties in 1940; Adair, Appanoose, Buchanan, Butler, Cedar, Dubuque, Jackson, Jones, Lee, and Wayne Counties in 1930; and Appanoose, Black Hawk, Buchanan, Butler, Cass, Cedar, Dubuque, Grundy, Howard, Iowa, Johnson, Lee, Linn, Madison, Scott, Tama, Washington, and Wayne Counties in 1920. ² Included in "Other counties." ³ Data in lines 46 and 47 are not included in lines 34 to 45. ⁴ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1, p. 193.

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LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — KANSAS

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (—)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	52,552,320	52,335,360	52,335,330				
Land in drainage enterprises.....acres.....	258,113	257,169	93,856	944	0.4	183,313	174.0
Improved.....acres.....	253,983	248,241	87,449	5,742	2.3	160,792	183.9
Unimproved:							
Timber and cut-over.....Acres.....	2,019	4,280	4,135	-2,241	-52.5	125	3.0
Other.....acres.....	2,111	4,668	2,272	-2,557	-54.8	2,395	105.1
Drainage sufficient for normal crop.....acres.....	257,347	242,215	(1)	15,131	6.2		
Partly drained, for partial crop.....acres.....	230	11,351	(1)	-11,101	-97.7		
Unfit to raise any crop for lack of drainage.....acres.....	506	3,592	2,370	-3,086	-85.9	-3,112	-46.4
In occupied farms.....acres.....	250,455	253,845	(1)	-3,390	-1.3		
In planted crops.....acres.....	221,218	219,735	(1)	1,482	0.7		
Idle.....acres.....	9,853	3,131	(1)	6,722	214.7		
Available for settlement.....acres.....			(1)				
Open ditches, completed.....miles.....	381.4	324.7	138.4	55.7	17.5	185.3	134.6
Tile drains, completed.....miles.....	210.5	212.1	213.0	-1.6	-0.8	-0.9	-0.4
Drainage pumping plants, capacity.....horsepower.....	420	120	65	300	250.0	55	84.6
.....gal. per min.....	24,000	12,000	4,000	12,000	100.0	8,000	209.0
Capital invested in enterprises.....dollars.....	3,733,919	2,701,082	936,508	1,032,837	38.2	1,764,574	188.4
Average per acre.....dollars.....	14.47	10.50	9.98	3.97	37.5	0.52	5.2

¹ Not available.

² Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
All enterprises.....	Acres 258,946	Acres 257,726	Acres 93,856	Acres 258,113	1,000 to 1,999 acres.....	Acres 34,216	Acres 78,425	Acres 33,086	Acres 33,383
100 to 199 acres.....		172	575		2,000 to 4,999 acres.....	45,729			46,729
200 to 499 acres.....	3,147	4,235	4,419	3,147	5,000 to 9,999 acres.....	73,361	74,962	22,792	73,361
500 to 999 acres.....	16,783	15,227	11,944	16,783	10,000 to 19,999 acres.....	84,710		21,040	84,710
					20,000 to 49,999 acres.....		84,705		

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	258,113	100.0	3,733,919	100.0
Drainage districts.....	206,981	80.2	2,958,148	79.5
County drains.....	40,218	15.6	636,091	17.0
Township drains.....	3,150	1.2	24,280	0.7
Commercial developments:				
Incorporated.....				
Unincorporated.....	1,062	0.4	5,500	0.1
Individually owned projects.....	6,592	2.6	99,900	2.7

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	258,113	100.0	257,169	100.0	93,856	100.0	3,733,919	100.0	2,701,082	100.0	936,508	100.0
Gravity drainage only by—												
Open ditches.....	247,113	95.7	249,742	97.1	} ² 93,856	} 100.0	2,572,419	71.5	2,385,046	88.3	} ² 936,508	} 100.0
Tile drains.....							11,500	0.3	266,036	9.8		
Open ditches and tile drains..	1,020	0.4	4,927	1.9								
Part only by pumping by—												
Open ditches.....	6,500	2.5	} 2,500	} 1.0			1,000,000	26.8	} 50,000	} 1.9		
Tile drains.....							50,000	1.3				
Open ditches and tile drains..	3,480	1.4										
Total area served by pumps.....	5,000	1.9	2,000	0.8	2,200	2.3						

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

² Includes 1 enterprise operating pumps in which 2,200 acres are served part of the time.

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises	CAPACITY				Land served
		Engine or motor		Pump	Acres	
		Number	Hp.	Percent		G. p. m.
All pumping enterprises.....	1940.. 2	420	100.0	24,000	5,000	
	1930.. 1	120	100.0	12,000	2,000	
	1920.. 1	35	100.0	4,000	2,200	
Steam.....	1940..					
	1930..					
	1920.. 1	65	100.0	4,000	2,200	
Electric.....	1940.. 2	420	100.0	24,000	5,000	
	1930.. 1	120	100.0	12,000	2,000	
	1920..					

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Enterprises	PUMPS			Engine or motor capacity	Land served
		Number	Capacity			
			G. p. m.	Percent	Hp.	Acres
All pumping enterprises.....	1940.. 4	24,000	100.0	420	5,000	
	1930.. 2	12,000	100.0	120	2,000	
Centrifugal.....	1940.. 4	24,000	100.0	420	5,000	
	1930.. 2	12,000	100.0	120	2,000	

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	258,113	100.0	257,169	100.0	3,733,919	100.0	2,701,082	100.0	5,737	360
Enterprises in arrears.....	10,329	4.0	3,000	1.2	200,000	5.4	19,780	0.7	1,150	
With some delinquent land.....	10,329	4.0			200,000	5.4			1,150	
With no delinquent land.....			3,000	1.2			19,780	0.7		
With no report on delinquency.....										
Enterprises not in arrears.....	247,784	95.0	254,169	98.8	3,533,919	94.6	2,681,302	99.3	4,577	360
With some delinquent land.....	51,027	19.8	8,320	3.2	998,334	26.7	65,621	2.4	4,577	360
With no delinquent land.....	197,857	72.8	245,849	95.3	2,470,575	63.2	2,615,681	96.9		
With no report on delinquency.....	8,900	3.4			65,010	1.7				

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	258,113	3,733,919	1,806,105	8,000	105	5,737	257,598
Enterprises in debt.....	91,128	2,247,511	1,806,105	8,000		5,437	237,973
In arrears, amount of arrearage stated.....	10,329	200,000	57,000	8,000		1,150	11,700
Collecting drainage taxes in 1939.....	10,329	200,000	57,000	8,000		1,150	11,700
Not in arrears.....	80,799	2,047,511	1,749,105			4,277	226,273
Collecting drainage taxes in 1939.....	75,699	1,970,811	1,728,431			4,277	226,273
No collections reported.....	5,100	76,700	20,674				
Enterprises not in debt.....	159,973	1,437,408			105	300	15,375
Collecting drainage taxes in 1939.....	52,777	700,881			105	300	15,375
No collections reported.....	107,196	736,527					
Enterprises not reporting as to debt.....	7,012	49,000					4,350
Collecting drainage taxes in 1939.....	7,012	49,000					4,350

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	258,113	100.0	3,733,919	100.0
Improvement of land already in farms ¹	27,120	10.5	77,317	2.1
Protection against overflow.....	230,993	89.5	3,656,602	97.9

¹ Undoubtedly a large part of the drainage reported as for protection against overflow was undertaken for the protection of lands already included in farms.

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STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	258,113	100.0	258,945	832	3,733,919	100.0
1890-1899.....	18,726	7.3	19,559	833	355,679	9.6
1900-1904.....	8,543	3.3	8,543	.....	80,079	2.1
1905-1909.....	44,991	17.4	44,991	.....	1,387,440	37.1
1910-1914.....	44,399	17.2	44,399	.....	354,927	9.5
1915-1919.....	36,868	25.9	33,953	.....	783,557	21.0
1920-1924.....	22,778	8.8	22,778	.....	195,924	5.0
1925-1929.....	37,958	14.7	37,838	.....	475,553	12.7
1930-1934.....	5,178	2.0	5,178	.....	103,781	2.8
1935-1939.....	8,762	3.4	8,762	.....	5,979	0.2

¹ Land included in more than 1 enterprise is tabulated only in the last organized.
² The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION				DEVELOPMENT				USE OF LAND				
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres
All enterprises..	258,113	257,347	99.7	260	506	253,983	98.4	2,019	2,111	250,455	97.0	221,218	8,853	.....
1890-1899.....	18,726	18,726	100.0	.....	.....	18,706	99.9	.....	20	18,726	100.0	17,805	.....	.....
1900-1904.....	8,543	8,543	100.0	.....	.....	8,543	100.0	.....	.....	8,543	100.0	8,098	.....	.....
1905-1909.....	44,991	44,991	99.3	.....	300	43,531	96.8	500	960	38,541	85.7	32,615	4,600	.....
1910-1914.....	44,399	44,399	100.0	.....	.....	43,248	97.4	685	465	44,144	99.4	37,298	1,281	.....
1915-1919.....	36,868	66,771	99.8	97	.....	65,971	98.6	590	307	35,868	100.0	58,208	3,416	.....
1920-1924.....	22,778	22,538	99.4	49	91	22,708	99.7	7	63	22,731	99.8	20,784	346	.....
1925-1929.....	37,958	37,868	100.0	.....	.....	37,473	99.0	220	175	36,983	97.7	33,589	210	.....
1930-1934.....	5,178	5,178	100.0	.....	.....	5,178	100.0	.....	.....	5,178	100.0	4,644	.....	.....
1935-1939.....	8,762	8,533	97.4	114	115	8,625	98.4	16	121	8,741	99.9	8,177	.....	.....

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

	MAINTENANCE		Land		Capital invested	
	Acres	Percent	Acres	Percent	Dollars	Percent
All enterprises.....	258,113	100.0	258,113	100.0	3,733,919	100.0
Method:						
By district forces.....	308,309	80.7	308,309	80.7	3,318,143	88.9
By contract.....	21,690	8.4	21,690	8.4	244,781	6.5
Work apportioned to landowners.....	25,413	10.2	25,413	10.2	160,195	4.3
"None," or not reporting.....	1,701	0.7	1,701	0.7	10,800	0.3
Whether systematic:						
Reporting "yes".....	182,608	70.7	182,608	70.7	3,032,552	81.2
Reporting "no".....	75,505	29.3	75,505	29.3	701,357	18.8

STATE TABLE 13.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	258,113	258,113	187,712	70,401	Dollars 42,038	Dollars 0.16	Dollars 0.22
Gravity drainage only.....	248,113	248,133	181,212	66,921	17,038	0.07	0.09
Open ditches only.....	72,708	72,708	39,745	32,963	2,449	0.03	0.06
Open ditches and levees.....	174,405	174,405	140,447	33,958	14,389	0.08	0.10
Open ditches, tile drains, and levees.....	1,020	1,020	1,020	200	0.20	0.20
Part pumping and part gravity.....	9,980	9,980	6,500	3,480	25,000	2.50	3.85

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STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	258,113	21,060	8.2
Capital invested.....dollars..	3,733,919	1,292,500	34.6
Drainage works:			
Open ditches.....miles....	381.4	15.3	4.0
Tile drains.....miles....	210.5	210.0	99.8
Levees.....miles....	278.3	59.5	21.4

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
			Acres	Dollars	Miles
All enterprises reporting Federal aid received.....	27,403	1,290,028	14.3	.....	56.2
Work Projects Administration.....	27,403	1,290,028	14.3	.....	56.2

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	258,113	1,020	0.4
Capital invested.....dollars..	3,733,919	11,500	0.3
Drainage works:			
Open ditches.....miles....	381.4	2.0	0.5
Tile drains.....miles....	210.5	0.5	0.2
Levees.....miles....	278.3	2.0	0.7

¹The land actually dependent upon outside agencies for protection is 1,020 acres, which is all land in the protected enterprises.

CENSUS OF DRAINAGE — KANSAS

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Chase ¹	Cherokee ¹	Clay ¹	Doniphan ¹	Douglas	Jackson	Jefferson	
LAND AREA									
1	Approximate land area.....acres....1940..	52,552,320	495,360	375,680	421,120	250,240	299,520	419,840	351,360
2	Drainage enterprises.....number....1940..	² 92	¹ 1	¹ 1	¹ 1	² 2	⁶ 6	³ 3	¹³ 13
3	Land in enterprises.....acres....1940..	258,113	1,376	360	1,400	6,500	18,731	6,377	18,587
4	.....1930..	257,189	(³)	(³)	(³)	(³)	48,570	(³)	24,486
5	.....1920..	93,656	(³)	(³)	(³)	(³)	(³)	(³)	14,147
6	Area of all enterprises, overlapping included.....acres....1940..	258,946	1,376	360	1,400	6,500	18,731	6,377	18,587
7	Amount of overlapping.....acres....1940..	833							
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	257,347	1,376	360	1,260	6,500	18,731	6,377	18,490
9	.....1930..	242,216	(³)	(³)	(³)	(³)	48,370	(³)	21,930
10	Increase or decrease (-), 1930-1940.....acres.....	15,131		360	1,260		-29,639		-3,440
11	.....percent.....	6.2					-61.3		-15.7
12	Land undrained, unfit for any crop.....acres....1940..	506			91				
13	.....1930..	3,592							529
14	Increase or decrease (-), 1930-1940.....acres.....	-3,086			91				-529
15	.....percent.....	-85.9							-100.0
16	Land partly drained, for partial crop.....acres....1940..	260			49				97
17	.....1930..	11,361			(³)		200	(³)	2,027
18	Increase or decrease (-), 1930-1940.....acres.....	-11,101			49		-200		-1,930
19	.....percent.....	-97.7					-100.0		-95.2
20	Improved land.....acres....1940..	253,983	1,376	360	1,330	6,460	18,731	6,377	18,070
21	.....1930..	248,241	(³)	(³)	(³)	(³)	48,370	(³)	22,916
22	.....1920..	87,449	(³)	(³)	(³)	(³)	(³)	(³)	14,046
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	2,019			7	40			450
24	.....1930..	4,260					200		1,160
25	.....1920..	4,135	(³)	(³)	(³)	(³)	(³)	(³)	26
26	Other unimproved land.....acres....1940..	2,111			63				67
27	.....1930..	4,668							410
28	.....1920..	2,272							75
29	Land in occupied farms.....acres....1940..	250,455	1,376	360	1,365	6,500	18,711	6,377	18,587
30	.....1930..	253,845	(³)	(³)	(³)	(³)	48,570	(³)	24,486
31	Increase or decrease (-), 1930-1940.....acres.....	-3,390		360	1,365		-29,859		-5,899
32	.....percent.....	-1.3					-61.5		-24.1
33	Land in planted crops.....acres....1940..	221,218	1,348	360	1,190	5,868	16,762	5,540	16,526
34	.....1930..	219,736	(³)	(³)	(³)	(³)	43,600	(³)	22,403
35	Increase or decrease (-), 1930-1940.....acres.....	1,482		360	1,190		-26,838		-5,877
36	.....percent.....	0.7					-61.6		-26.2
37	Land idle.....acres....1940..	9,853				26	220	200	297
38	.....1930..	3,131	(³)	(³)	(³)	(³)	(³)	(³)	(³)
39	Increase or decrease (-), 1930-1940.....acres.....	6,722				26	220	200	297
40	.....percent.....	214.7							
41	Land available for settlement.....acres....1940..								
42	.....1930..								
43	Increase or decrease (-), 1930-1940.....acres.....								
44	.....percent.....								
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	72,708			1,400	4,600	9,060	5,117	3,399
46	Length of these ditches.....miles.....	121.3			3.5	7.5	6.5	10.5	10.8
47	Part protected by levees of an outside agency.....acres.....								
48	Land drained by open ditches and own levees.....acres.....	174,405	1,376	360		1,900	8,651	1,260	15,188
49	Length of these ditches.....miles.....	253.3	2.2	0.5		5.0	3.5	2.5	28.7
50	Length of these levees.....miles.....	248.8	4.5	1.0		2.0	4.0	0.5	18.2
51	Part protected by levees of an outside agency.....acres.....								
52	Land drained by tile only.....acres.....								
53	Length of these tile.....miles.....								
54	Part protected by levees of an outside agency.....acres.....								
55	Land drained by tile and own levees.....acres.....								
56	Length of these tile.....miles.....								
57	Length of these levees.....miles.....								
58	Part protected by levees of an outside agency.....acres.....								
59	Land drained by open ditches and tile.....acres.....								
60	Length of these open ditches.....miles.....								
61	Length of these tile.....miles.....								
62	Part protected by levees of an outside agency.....acres.....								
63	Land drained by open ditches, tile, and levees.....acres.....	1,020					1,020		
64	Length of these open ditches.....miles.....	2.0					2.0		
65	Length of these tile.....miles.....	0.5					0.5		
66	Length of these levees.....miles.....	2.0					2.0		
67	Part protected by levees of an outside agency.....acres.....	1,020					1,020		
68	Land in enterprises operating pumping plants ⁴.....acres.....	9,980							
69	Length of open ditches owned by these enterprises.....miles.....	4.8							
70	Length of tile owned by these enterprises.....miles.....	210.0							
71	Length of levees owned by these enterprises.....miles.....	27.5							
72	Part protected by levees of an outside agency.....acres.....								

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 88.

³Included in "Other counties."

⁴Data included in lines 68 to 72 are not included in data in lines 45 to 67.

CENSUS OF DRAINAGE - KANSAS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Johnson ¹	McPherson	Montgomery ¹	Neosho	Sedgwick	Shawnee	Wabaunsee ¹	Other counties ²
LAND AREA									
1	Approximate land area.....acres.....1940..	304,610	572,800	415,360	375,680	639,360	348,800	506,240	7,039,360
2	Drainage enterprises.....number.....1940..	1	5	2	23	5	3	1	25
3	Land in enterprises.....acres.....1940..	1,500	20,370	3,560	21,871	41,360	21,230	1,800	93,091
4	.....1930..	.....	16,400	(³)	22,434	31,700	22,510	(³)	91,059
5	.....1920..	.....	4,760	.....	21,758	(³)	12,516	.....	40,675
6	Area of all enterprises, overlapping included.....acres.....1940..	1,500	20,370	3,560	22,704	41,360	21,230	1,800	93,091
7	Amount of overlapping.....acres.....1940..	.....	.....	.....	833	.....	.....	.....	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	1,500	20,370	3,560	21,871	41,360	20,930	1,800	92,862
9	.....1930..	.....	15,350	(³)	21,602	31,700	20,611	(³)	82,453
10	Increase or decrease (-), 1930-1940.....acres.....	1,500	5,020	.....	269	9,660	119	.....	10,409
11	.....percent.....	.....	32.7	.....	1.2	30.5	0.6	.....	12.6
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	.....	.....	300	.....	115
13	.....1930..	.....	250	(³)	390	.....	600	(³)	1,823
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-250	.....	-390	.....	-300	.....	-1,708
15	.....percent.....	.....	-100.0	.....	-100.0	.....	-50.0	.....	-93.7
16	Land partly drained, for partial crop.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	114
17	.....1930..	.....	800	(³)	442	.....	1,099	(³)	6,793
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-800	.....	-442	.....	-1,099	.....	-6,679
19	.....percent.....	.....	-100.0	.....	-100.0	.....	-100.0	.....	-98.3
20	Improved land.....acres.....1940..	1,500	20,110	2,900	21,871	40,840	20,430	1,800	91,828
21	.....1930..	.....	16,100	(³)	21,583	31,700	21,660	(³)	85,912
22	.....1920..	.....	4,760	.....	17,556	(³)	11,281	.....	39,806
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	.....	.....	.....	.....	520	500	.....	502
24	.....1930..	.....	.....	(³)	398	.....	550	.....	1,952
25	.....1920..	.....	.....	.....	2,005	(³)	1,235	.....	869
26	Other unimproved land.....acres.....1940..	.....	260	660	.....	.....	300	.....	761
27	.....1930..	.....	300	(³)	453	.....	300	.....	3,205
28	.....1920..	.....	.....	.....	2,197	.....	.....	.....	.....
29	Land in occupied farms.....acres.....1940..	1,500	20,370	2,900	21,871	40,760	18,950	1,800	89,018
30	.....1930..	.....	16,400	(³)	22,434	31,700	22,510	(³)	87,745
31	Increase or decrease (-), 1930-1940.....acres.....	1,500	3,970	.....	-563	9,060	-3,550	.....	1,273
32	.....percent.....	.....	24.2	.....	-2.5	28.6	-15.8	.....	1.4
33	Land in planted crops.....acres.....1940..	1,331	17,377	2,660	19,246	37,387	14,368	1,679	79,576
34	.....1930..	.....	14,760	(³)	20,085	21,250	21,266	(³)	76,332
35	Increase or decrease (-), 1930-1940.....acres.....	1,331	2,617	.....	-849	16,137	-6,928	.....	3,244
36	.....percent.....	.....	17.7	.....	-4.2	75.9	-32.5	.....	4.2
37	Land idle.....acres.....1940..	.....	1,938	.....	.....	.....	4,400	40	2,732
38	.....1930..	.....	.....	(³)	738	.....	1,150	.....	1,243
39	Increase or decrease (-), 1930-1940.....acres.....	.....	1,938	.....	-738	.....	3,250	40	1,489
40	.....percent.....	.....	.....	.....	-100.0	.....	282.6	.....	119.8
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	.....	.....	.....	833	.....	.....	1,800	46,499
46	Length of these ditches.....miles.....	.....	.....	.....	2.0	.....	.....	3.0	77.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	1,500	20,370	3,560	21,038	41,360	21,230	.....	36,612
49	Length of these ditches.....miles.....	2.4	43.0	9.3	56.9	31.5	17.5	.....	50.3
50	Length of these levees.....miles.....	1.5	18.0	7.0	104.1	22.0	42.0	.....	24.0
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	.....	.....	.....	.....	.....	.....	9,980
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	4.8
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	210.0
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	27.5
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

² Includes Atchison, Brown, Cloud, Cowley, Franklin, Harvey, Labette, Leavenworth, Marion, Nemaha, Osage, Pottawatomie, Riley, Saline, Sumner, and Wyandotte Counties in 1940; Atchison, Chase, Cowley, Doniphan, Franklin, Harvey, Jackson, Labette, Leavenworth, Marion, Montgomery, Nemaha, Osage, Pottawatomie, Republic, Riley, Saline, Sumner, Wabaunsee, and Wyandotte Counties in 1930; and Atchison, Chase, Doniphan, Douglas, Jackson, Labette, Marion, Pottawatomie, Riley, Saline, and Sedgwick Counties in 1920.

³ Included in "Other counties."

⁴ Data included in lines 68 to 72 are not included in data in lines 45 to 67.

CENSUS OF DRAINAGE — KANSAS

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Chase ¹	Cherokee ¹	Clay ¹	Doniphan ¹	Douglas	Jackson	Jefferson
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	2 92	1	1	1	2	6	3	13
2 Open ditches:								
3 Completed.....miles.....1940..	381.4	2.2	0.5	3.5	12.5	12.0	13.0	39.5
4	324.7	(3)			(3)	(3)	(3)	28.6
5	138.4	(3)			(3)	(3)	(3)	18.3
6 Additional length authorized.....miles.....1940..								
7 Tile drains:								
8 Completed.....miles.....1940..	210.5					0.5		
9	212.1					0.5		1.5
10	213.0	(3)			(3)	(3)	(3)	0.2
11 Additional length authorized.....miles.....1940..								
12 Levees and dikes:								
13 Completed.....miles.....1940..	278.3	4.5	1.0		2.0	6.0	0.5	18.2
14	227.0				(3)	5.3	(3)	6.0
15	165.1	(3)			(3)	(3)	(3)	
16 Additional length authorized.....miles.....1940..								
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	420							
19	120							
20	65							
21 Pump capacity.....gal. per min.....1940..	24,000							
22	12,000							
23	4,000							
24 Land served by pumps.....acres.....1940..	5,000							
25	2,000							
26	2,200							
27 Wells pumped for drainage.....number.....1940..								
28								
29								
CAPITAL INVESTED								
30 Capital invested to January 1.....dollars.....1940..	3,733,919	28,000	1,500	1,500	71,000	37,085	99,700	240,828
31	2,701,082	(3)			(3)	(3)	(3)	238,940
32	936,508	(3)			(3)	(3)	(3)	127,692
33 Estimated cost when completed.....dollars.....1940..	3,833,919	28,000	1,500	1,500	71,000	37,085	99,700	240,828
34	2,721,082	(3)			(3)	(3)	(3)	238,940
35	1,210,353	(3)			(3)	(3)	(3)	127,692
36 Average cost per acre when completed.....dollars.....1940..	14.85	20.35	4.17	1.07	10.92	1.98	15.63	12.96
37	10.58	(3)			(3)	(3)	(3)	9.76
38	12.90	(3)			(3)	(3)	(3)	9.03
39 Invested in and required for completion, 1940:								
40 Enterprises having open ditches only.....dollars.....	558,839			1,500	41,000	7,135	81,700	26,200
41 Average amount per acre.....dollars.....	7.69			1.07	8.91	0.79	15.97	7.71
42 Enterprises having open ditches and levees.....dollars.....	2,113,580	28,000	1,500		30,000	18,450	18,000	214,828
43 Average amount per acre.....dollars.....	12.12	20.35	4.17		15.79	2.13	14.28	14.13
44 Enterprises having tile only.....dollars.....								
45 Average amount per acre.....dollars.....								
46 Enterprises having tile and levees.....dollars.....								
47 Average amount per acre.....dollars.....								
48 Enterprises having open ditches and tile.....dollars.....								
49 Average amount per acre.....dollars.....								
50 Enterprises having ditches, tile, and levees.....dollars.....	11,500					11,500		
51 Average amount per acre.....dollars.....	11.27					11.27		
52 Enterprises operating pumping plants ⁴.....dollars.....	⁵ 1,150,000							
53 Average amount per acre.....dollars.....	⁶ 115.23							
MAINTENANCE AND OPERATION								
54 Cost of maintenance and operation in 1939:								
55 By enterprises operating pumping plants.....dollars.....	⁶ 25,000							
56 Enterprises reporting.....number.....	⁶ 1							
57 Land in these enterprises.....acres.....	⁶ 6,500							
58 Average cost per acre.....dollars.....	⁶ 3.85							
59 By enterprises not operating pumping plants.....dollars.....	17,038				300	(?)	660	800
60 Enterprises reporting.....number.....	49				2		2	5
61 Land in these enterprises.....acres.....	181,212				6,500	(?)	6,377	14,398
62 Average cost per acre.....dollars.....	0.09				0.05	(?)	0.10	0.06
63 Federal aid in maintenance:								
64 Enterprises reporting.....number.....	6							1
65 Land in these enterprises.....acres.....	27,403							(?)
FINANCIAL CONDITION								
66 Drainage taxes collected in 1939.....dollars.....	257,698					(?)	(?)	(?)
67 Enterprises reporting.....number.....	34					2	1	2
68 Land in these enterprises.....acres.....	145,817					(?)	(?)	(?)
69 Average amount collected per acre.....dollars.....	1.77					(?)	(?)	(?)
70 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	5,737					(?)	(?)	(?)
71 Enterprises reporting.....number.....	10					1	1	1
72 Land in these enterprises.....acres.....	61,356					(?)	(?)	(?)
73 Portion delinquent in these enterprises.....percent.....	9.4					(?)	(?)	(?)
74 Total indebtedness, Dec. 31, 1939.....dollars.....	1,806,105				16,000	(?)	(?)	(?)
75 Enterprises reporting.....number.....	20				1	2	2	1
76 Land in these enterprises.....acres.....	91,128				1,900	(?)	(?)	(?)
77 Average indebtedness per acre.....dollars.....	19.82				8.42	(?)	(?)	(?)
78 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	⁶ 8,000							
79 Enterprises reporting.....number.....	⁶ 2							
80 Land in these enterprises.....acres.....	⁶ 10,329							
81 Average arrearage per acre.....dollars.....	⁶ 0.77							
82 Reduction of debt by refinancing, prior to 1940.....dollars.....	⁶ 105							
83 Enterprises reporting.....number.....	⁶ 1							
84 Land in these enterprises.....acres.....	⁶ 7,000							
85 Average reduction per acre.....dollars.....	⁶ 0.02							

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 88. ³Included in "Other counties." ⁴Data included in lines 46 and 47 are not included in data in lines 34 to 45. ⁵Includes cost assessed against nonagricultural lands in Kansas City. ⁶Not distributed by counties. ⁷Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE - KANSAS

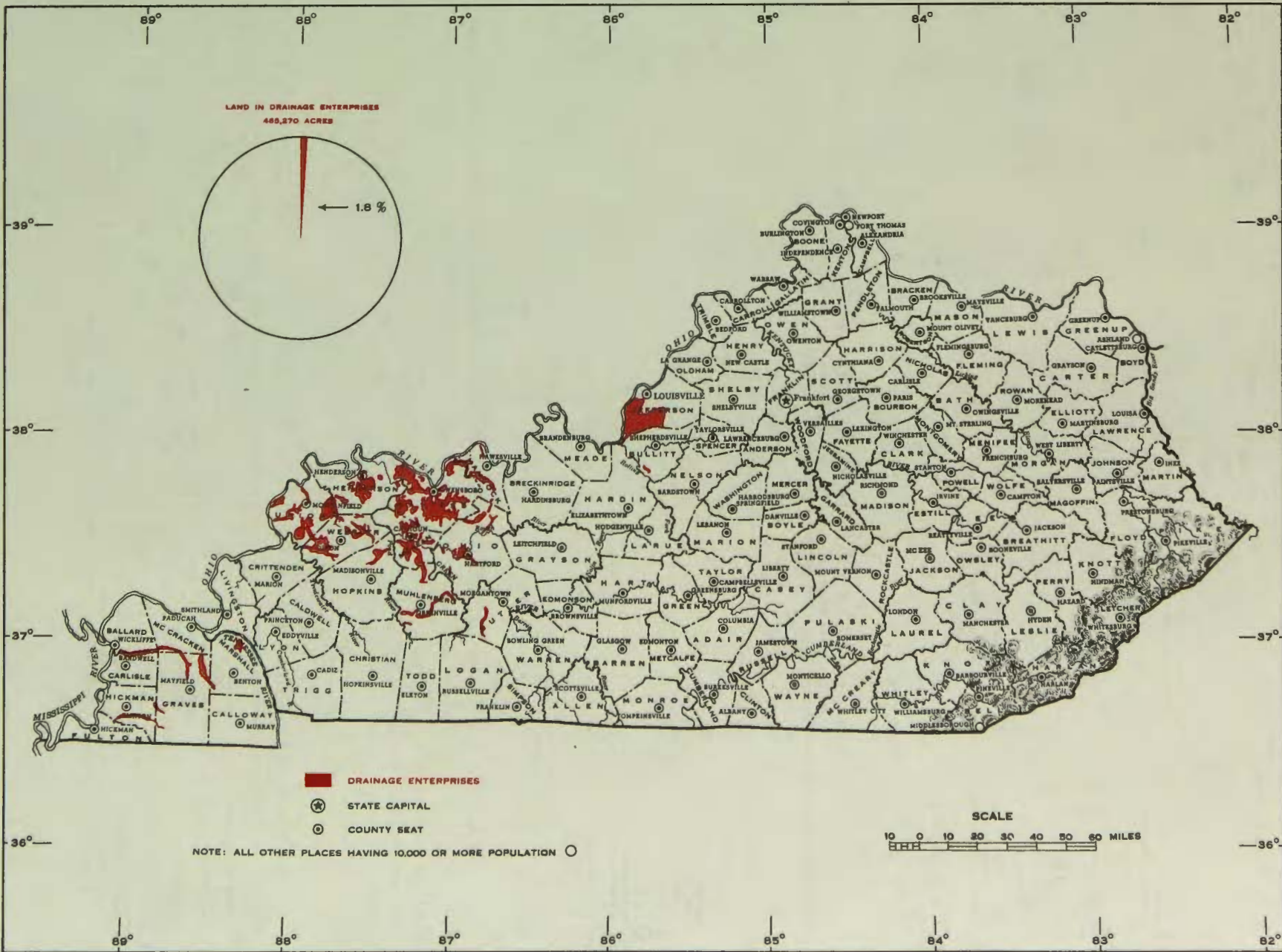
COUNTY TABLE II--DRAINAGE ENTERPRISES--WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939--Continued

ITEM (See definitions in Introduction)		Johnson ¹	McPherson	Montgomery ¹	Neosho	Sedgwick	Shawnee	Wabaunsee ¹	Other counties ²
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	1	5	2	23	5	3	1	25
2	Open ditches:								
3	Completed.....miles.....1940..	2.4	43.0	9.3	58.9	31.5	17.5	3.0	132.6
4	1930.....		30.9	(³)	56.9	36.0	18.0	(³)	144.5
5	1920.....		8.3		58.9	(³)	2.6		50.3
6	Additional length authorized.....miles.....1940..								
7	Tile drains:								
8	Completed.....miles.....1940..			(³)					210.0
9	1930.....								210.0
10	1920.....				2.5	(³)			210.3
11	Additional length authorized.....miles.....1940..								
12	Levees and dikes:								
13	Completed.....miles.....1940..	1.5	18.0	7.0	104.1	22.0	42.0		51.5
14	1930.....		6.0	(³)	111.6		35.5		62.6
15	1920.....		9.5		119.8	(³)	6.0		29.8
16	Additional length authorized.....miles.....1940..								
17	Pumping plants:								
18	Engine capacity.....horsepower.....1940..								420
19	1930.....								120
20	1920.....								65
21	Pump capacity.....gal. per min.....1940..								24,000
22	1930.....								12,000
23	1920.....								4,000
24	Land served by pumps.....acres.....1940..								5,000
25	1930.....								2,000
26	1920.....								2,200
27	Wells pumped for drainage.....number.....1940..								
28	1930.....								
CAPITAL INVESTED									
29	Capital invested to January 1.....dollars.....1940..	5,000	236,710	47,672	402,169	332,000	302,290	4,500	1,923,965
30	1930.....		175,200	(³)	383,915	70,627	310,541	(³)	1,488,584
31	1920.....		28,500		122,450	(³)	220,500		437,366
32	Estimated cost when completed.....dollars.....1940..	5,000	236,710	47,672	402,169	332,000	302,290	4,500	2,023,965
33	1930.....		175,200	(³)	383,915	70,627	310,541	(³)	1,488,584
34	1920.....		43,500		122,450	(³)	232,500		684,211
35	Average cost per acre when completed.....dollars.....1940..	3.33	11.62	13.39	18.39	8.03	14.24	2.50	21.74
36	1930.....		10.68	(³)	17.11	2.23	13.80	(³)	16.34
37	1920.....		9.14		5.63	(³)	18.58		16.82
38	Invested in and required for completion, 1940:								
39	Enterprises having open ditches only.....dollars..				3,855			4,500	392,949
40	Average amount per acre.....dollars..				4.63			2.50	8.45
41	Enterprises having open ditches and levees.....dollars..	5,000	236,710	47,672	398,314	332,000	302,290		481,016
42	Average amount per acre.....dollars..	3.33	11.62	13.39	18.93	8.03	14.24		13.14
43	Enterprises having tile only.....dollars..								
44	Average amount per acre.....dollars..								
45	Enterprises having tile and levees.....dollars..								
46	Average amount per acre.....dollars..								
47	Enterprises having open ditches and tile.....dollars..								
48	Average amount per acre.....dollars..								
49	Enterprises having ditches, tile, and levees.....dollars..								
50	Average amount per acre.....dollars..								
51	Enterprises operating pumping plants ⁴.....dollars..								⁵ 1,150,000
52	Average amount per acre.....dollars..								⁶ 115.23
MAINTENANCE AND OPERATION									
53	Cost of maintenance and operation in 1939:								
54	By enterprises operating pumping plants.....dollars..								
55	Enterprises reporting.....number..								
56	Land in these enterprises.....acres..								
57	Average cost per acre.....dollars..		(³)	700	2,147	2,009	5,485		3,162
58	By enterprises not operating pumping plants.....dollars..			2	14	4	3		12
59	Enterprises reporting.....number..		(³)	2	2	4	3		60,987
60	Land in these enterprises.....acres..		(³)	3,560	16,029	34,320	21,230		0.05
61	Average cost per acre.....dollars..		(³)	0.20	0.15	0.06	0.26		
62	Federal aid in maintenance:								
63	Enterprises reporting.....number..					1	1		3
64	Land in these enterprises.....acres..					(³)	(³)		7,916
FINANCIAL CONDITION									
65	Drainage taxes collected in 1939.....dollars..		(³)	1,022	3,044	24,987	(³)		213,006
66	Enterprises reporting.....number..		1	1	10	3	2		12
67	Land in these enterprises.....acres..		(³)	1,160	9,925	25,220	(³)		62,614
68	Average amount collected per acre.....dollars..		(³)	0.88	0.31	0.99	(³)		3.40
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..					(³)	(³)		2,317
70	Enterprises reporting.....number..					2	1		4
71	Land in these enterprises.....acres..					(³)	(³)		16,309
72	Portion delinquent in these enterprises.....percent..					(³)	(³)		14.2
73	Total indebtedness, Dec. 31, 1939.....dollars..				(³)	158,000			1,587,248
74	Enterprises reporting.....number..				2	3			9
75	Land in these enterprises.....acres..				(³)	25,220			48,949
76	Average indebtedness per acre.....dollars..				(³)	6.26			32.49
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..								
78	Enterprises reporting.....number..								
79	Land in these enterprises.....acres..								
80	Average arrearage per acre.....dollars..								
81	Reduction of debt by refinancing, prior to 1940.....dollars..								
82	Enterprises reporting.....number..								
83	Land in these enterprises.....acres..								
84	Average reduction per acre.....dollars..								

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²Includes Atchison, Brown, Cloud, Cowley, Franklin, Harvey, Labette, Leavenworth, Marion, Nemaha, Osage, Pottawatomie, Riley, Saline, Sumner, and Wyandotte Counties in 1940; Atchison, Chase, Cowley, Doniphan, Franklin, Harvey, Jackson, Labette, Leavenworth, Marion, Montgomery, Nemaha, Osage, Pottawatomie, Republic, Riley, Saline, Sumner, Wabaunsee, and Wyandotte Counties in 1930; and Atchison, Chase, Doniphan, Douglas, Jackson, Labette, Marion, Pottawatomie, Riley, Saline, and Sedgwick Counties in 1920. ³Included in "Other counties." ⁴Data included in lines 46 and 47 are not included in data in lines 34 to 45. ⁵Includes cost assessed against nonagricultural lands in Kansas City. ⁶Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

KENTUCKY

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE—KENTUCKY

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (—)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	25,669,760	25,715,840	25,715,840	.....	.....	.....	.....
Land in drainage enterprises.....acres.....	465,270	585,625	358,480	-120,355	-20.6	227,145	63.4
Improved.....acres.....	376,370	445,613	245,334	-69,243	-15.5	200,279	81.6
Unimproved:							
Timber and cut-over.....acres.....	57,876	101,709	92,495	-43,833	-43.1	9,214	10.0
Other.....acres.....	31,024	38,303	20,651	-7,279	-19.0	17,652	85.5
Drainage sufficient for normal crop.....acres.....	386,620	428,883	(¹)	-42,263	-9.8	.....	.....
Partly drained, for partial crop.....acres.....	46,422	109,440	(¹)	-63,018	-57.6	.....	.....
Unfit to raise any crop for lack of drainage.....acres.....	32,228	47,302	² 69,413	-15,074	-31.9	-22,111	-31.8
In occupied farms.....acres.....	464,963	515,101	(¹)	-50,138	-9.7	.....	.....
In planted crops.....acres.....	295,757	320,084	(¹)	-24,327	-7.6	.....	.....
Idle.....acres.....	132,591	223,064	(¹)	-90,473	-40.6	.....	.....
Available for settlement.....acres.....	.....	8,274	(¹)	-8,274	-100.0	.....	.....
Open ditches, completed.....miles.....	1,231.8	1,204.8	664.5	27.0	2.2	540.3	81.3
Tile drains, completed.....miles.....	2.0	71.0	86.2	-69.0	-97.2	-15.2	-17.6
Drainage pumping plants, capacity.....horsepower.....	.....	.....	.....	.....	.....	.....	.....
.....gal. per min.....	.....	.....	.....	.....	.....	.....	.....
Capital invested in enterprises.....dollars.....	4,947,994	5,357,633	1,521,725	-409,639	-7.6	3,835,908	252.1
Average per acre.....dollars.....	10.63	9.15	4.24	1.48	16.2	4.91	115.8

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	
All enterprises.....	Acres 515,617	Acres 626,408	Acres 358,480	Acres 465,270
Less than 100 acres.....	300	.....	.....	300
100 to 199 acres.....	619	795	1,651	474
200 to 499 acres.....	14,808	7,536	16,537	9,858
500 to 999 acres.....	27,088	36,505	23,143	21,981
1,000 to 1,999 acres.....	56,749	202,222	130,176	50,118
2,000 to 4,999 acres.....	119,617			
5,000 to 9,999 acres.....	130,760	122,746	79,592	106,078
10,000 to 19,999 acres.....	58,070	200,998	107,381	58,070
20,000 to 49,999 acres.....	.....		
50,000 to 99,999 acres.....	107,606	55,606	.....	97,313

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	465,270	100.0	4,947,994	100.0
County drains.....	462,120	99.3	4,940,899	99.8
Individually owned projects.....	3,150	0.7	7,095	0.2

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	465,270	100.0	585,625	100.0	358,480	100.0	4,947,994	100.0	5,357,633	100.0	1,521,725	100.0
Gravity drainage only by—												
Open ditches.....	464,650	99.9	563,025	96.1	346,745	96.7	4,932,586	99.7	5,065,717	94.6	1,415,029	92.9
Tile drains.....	.....	.....	117	(²)	117	(²)	.....	.....	1,979	(²)	1,979	0.1
Open ditches and tile drains...	620	0.1	22,483	3.8	11,618	3.2	15,408	0.3	289,937	5.4	104,717	6.9

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

²Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE — KENTUCKY

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	465,270	100.0	585,625	100.0	4,947,994	100.0	5,357,633	100.0	28,674	54,219
Enterprises in arrears.....	103,532	22.2	209,821	35.8	1,844,413	37.3	2,678,900	50.0	16,926	51,200
With some delinquent land.....	48,543	10.4	104,864	17.9	1,000,035	20.2	1,869,585	31.2	16,926	51,200
With no delinquent land.....	54,989	11.8	71,000	12.1	844,378	17.1	779,074	14.5	.....	.....
With no report on delinquency.....	.....	.....	33,857	5.8	.....	.....	230,241	4.3	.....	.....
Enterprises not in arrears.....	361,738	77.8	375,804	64.2	3,103,581	62.7	2,678,733	50.0	11,748	3,019
With some delinquent land.....	86,817	18.7	41,815	7.2	555,157	11.2	437,429	8.2	11,748	3,019
With no delinquent land.....	274,821	59.1	314,564	53.7	2,548,424	51.5	2,124,456	39.6	.....	.....
With no report on delinquency.....	.....	.....	19,425	3.3	.....	.....	116,849	2.2	.....	.....
Enterprises not reporting on arrearage.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no report on delinquency.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	465,270	4,947,994	758,606	625,666	225,535	28,674	60,877
Enterprises in debt.....	114,261	2,000,627	758,606	625,666	225,535	18,361	13,543
In arrears, amount of arrearage stated ²	103,532	1,844,413	724,359	625,666	146,759	16,926	9,572
Collecting drainage taxes in 1939.....	53,708	1,079,128	534,418	476,328	146,759	16,926	9,572
No collections reported.....	49,824	765,285	189,941	149,338	.....	.....	.....
Not in arrears.....	10,729	156,214	34,247	.....	78,776	1,435	3,971
Collecting drainage taxes in 1939.....	10,729	156,214	34,247	.....	78,776	1,435	3,971
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Enterprises not in debt.....	351,009	2,947,367	.....	.....	.....	10,313	47,334
Collecting drainage taxes in 1939.....	218,031	1,426,678	.....	.....	.....	10,133	47,334
No collections reported.....	132,978	1,520,689	.....	.....	.....	180	.....
Enterprises not reporting as to debt.....	.....	.....	.....	.....	.....	.....	.....
Collecting drainage taxes in 1939.....	.....	.....	.....	.....	.....	.....	.....
No collections reported.....	.....	.....	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Includes 1 enterprise reporting in arrears with amount of arrearage not stated.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	465,270	100.0	4,947,994	100.0
Improvement of land already in farms.....	426,162	91.6	4,741,114	95.8
Reclamation of swamp land not previously in farms.....	39,108	8.4	206,880	4.2

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	465,270	100.0	515,617	50,347	4,947,994	100.0
1890-1899.....	3,976	0.9	10,067	6,091	42,744	0.9
1900-1904.....	78,572	16.9	83,181	4,609	637,888	12.9
1905-1909.....	10,613	2.3	12,087	1,474	18,543	0.4
1910-1914.....	39,238	8.4	52,922	13,684	170,001	3.4
1915-1919.....	136,455	29.3	141,920	5,465	1,750,273	35.4
1920-1924.....	145,802	31.3	164,826	19,024	2,031,191	41.0
1925-1929.....	32,030	6.9	32,030	.....	240,350	4.8
1930-1934.....	18,131	3.9	18,131	.....	55,175	1.1
1935-1939.....	453	0.1	453	.....	1,829	0.1

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

CENSUS OF DRAINAGE—KENTUCKY

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION				DEVELOPMENT				USE OF LAND				
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	465,270	386,620	83.1	46,422	32,228	376,370	80.9	57,876	31,024	464,963	99.9	295,767	132,591	.....
1890-1899.....	3,976	3,826	96.2	.....	150	3,726	93.7	250	.....	3,976	100.0	2,800	426	.....
1900-1904.....	78,572	78,302	99.6	160	110	77,413	98.5	432	727	78,572	100.0	58,737	2,599	.....
1905-1909.....	10,613	8,768	82.6	715	1,130	8,406	79.2	545	1,662	10,606	99.9	6,108	4,105	.....
1910-1914.....	39,238	34,229	87.2	3,105	1,904	34,514	88.0	1,300	3,424	39,238	100.0	26,165	8,290	.....
1915-1919.....	136,455	114,017	83.6	14,682	7,756	107,265	78.6	21,365	7,825	136,455	100.0	85,157	44,668	.....
1920-1924.....	145,802	98,456	67.5	26,950	20,396	97,604	66.9	31,729	16,469	145,802	100.0	78,984	66,418	.....
1925-1929.....	32,030	30,595	95.5	705	730	29,215	91.2	1,905	910	31,730	99.1	23,181	4,948	.....
1930-1934.....	18,131	17,981	99.2	100	50	17,781	98.1	350	.....	18,131	100.0	14,279	1,030	.....
1935-1939.....	453	446	98.4	5	2	446	98.4	.....	7	453	100.0	346	107	.....

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 465,270	Acres 457,023	Acres 353,586	Acres 103,437	Dollars 64,992	Dollars 0.14	Dollars 0.18
Gravity drainage only.....	465,270	457,023	353,586	103,437	64,992	0.14	0.18
Open ditches only.....	464,650	456,403	353,586	102,817	64,992	0.14	0.18
Open ditches and tile drains.....	620	620	.....	620	.....	.....	.....

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	465,270	100.0	4,947,994	100.0
Method:				
By district forces.....	383,389	82.4	3,475,766	70.2
By contract.....	13,593	2.9	158,547	3.2
Work apportioned to landowners.....	16,025	3.5	270,447	5.5
"None," or not reporting.....	52,263	11.2	1,043,234	21.1
Whether systematic:				
Reporting "yes".....	355,403	76.4	3,306,019	66.8
Reporting "no".....	109,867	23.6	1,641,975	33.2

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres...	465,270	114,313	24.6
Capital invested.....dollars..	4,947,994	1,275,000	25.8
Drainage works:			
Open ditches.....miles....	1,231.8	112.0	9.1
Tile drains.....miles....	2.0	.....	.....
Levees.....miles....	.....	.....	.....

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
			Miles	Miles	Miles
All enterprises reporting Federal aid received.....	Acres 288,516	Dollars 3,084,793	Miles 603.1	.....	.....
Work Projects Administration.....	90,067	1,107,328	112.2	.....	.....
Civilian Conservation Corps.....	198,449	1,977,465	490.9

CENSUS OF DRAINAGE — KENTUCKY

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Daviness	Fulton ¹	Graves	Hancock	Henderson	Hopkins ¹	
LAND AREA								
1	Approximate land area.....acres....1940..	25,669,760	296,240	131,200	358,400	119,680	281,600	355,200
2	Drainage enterprises.....number...1940..	² 160	46	1	4	11	13	1
3	Land in enterprises.....acres....1940..	465,270	115,429	379	16,649	14,856	37,959	9,356
4	.....1930..	585,625	170,265	(³)	15,867	12,959	78,889	22,603
5	.....1920..	358,480	61,477	(³)	(³)	10,758	48,304	15,219
6	Area of all enterprises, overlapping included.....acres....1940..	515,617	165,168	379	16,649	14,856	37,959	9,356
7	Amount of overlapping.....acres....1940..	50,347	49,739					
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	386,620	101,725	334	10,549	12,456	37,524	8,106
9	.....1930..	428,883	123,333	(³)	13,729	11,328	49,700	14,695
10	Increase or decrease (-), 1930-1940.....acres.....	-42,263	-21,608		-3,180	1,130	-12,176	-6,589
11	.....percent.....	-9.8	-17.5		-23.2	10.0	-24.5	-44.8
12	Land undrained, unfit for any crop.....acres....1940..	32,228	2,831	15	2,656	677	360	500
13	.....1930..	47,302	13,831	(³)	1,086	100	1,350	500
14	Increase or decrease (-), 1930-1940.....acres.....	-15,074	-11,000		1,570	577	-950	
15	.....percent.....	-31.9	-79.5		144.6	577.0	-73.3	
16	Land partly drained, for partial crop.....acres....1940..	46,422	10,873	30	3,444	1,723	75	750
17	.....1930..	109,440	33,101	(³)	1,052	1,533	27,839	7,408
18	Increase or decrease (-), 1930-1940.....acres.....	-63,018	-22,228		2,392	190	-27,764	-6,658
19	.....percent.....	-57.6	-67.2		227.4	12.4	-89.7	-89.9
20	Improved land.....acres....1940..	376,370	102,234	199	8,913	12,770	35,334	5,856
21	.....1930..	445,613	119,627	(³)	9,412	11,244	69,052	16,848
22	.....1920..	245,334	56,004		(³)	3,987	33,463	6,888
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	57,876	8,571	180	5,115	1,057	2,315	3,000
24	.....1930..	101,709	30,964	(³)	3,926	1,595	8,537	3,600
25	.....1920..	92,495	4,677		(³)	2,257	7,349	7,109
26	Other unimproved land.....acres....1940..	31,024	4,624		2,621	1,029	310	500
27	.....1930..	38,303	19,674		2,529	120	1,300	2,155
28	.....1920..	20,651	796		(³)	4,514	7,492	1,222
29	Land in occupied farms.....acres....1940..	464,963	115,429	379	16,649	14,849	37,659	9,356
30	.....1930..	515,101	135,063	(³)	14,179	12,521	78,889	15,425
31	Increase or decrease (-), 1930-1940.....acres.....	-50,138	19,634		2,470	2,328	41,230	-6,069
32	.....percent.....	-9.7	14.5		17.4	18.6	52.3	-39.3
33	Land in planted crops.....acres....1940..	295,757	79,380	180	7,255	11,372	27,811	5,856
34	.....1930..	320,084	107,875	(³)	7,820	9,368	32,000	7,100
35	Increase or decrease (-), 1930-1940.....acres.....	-24,327	28,495		-565	2,004	-4,189	-1,244
36	.....percent.....	-7.6	26.4		-7.2	21.4	-13.1	-17.5
37	Land idle.....acres....1940..	132,591	36,049	199	9,393	3,484	3,826	3,500
38	.....1930..	223,064	43,463	(³)	7,755	3,560	46,889	13,603
39	Increase or decrease (-), 1930-1940.....acres.....	-90,473	-7,414		1,638	-76	-43,063	-10,103
40	.....percent.....	-40.6	-17.0		21.1	-2.1	-91.8	-74.3
41	Land available for settlement.....acres....1940..							
42	.....1930..	8,274	50	(³)	1,617			
43	Increase or decrease (-), 1930-1940.....acres.....	-8,274	-50		-1,617			
44	.....percent.....	-100.0	-100.0		-100.0			
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	464,650	114,809	379	16,649	14,856	37,959	9,356
46	Length of these ditches.....miles.....	1,228.6	453.9	3.0	32.3	58.3	73.2	12.0
47	Part protected by levees of an outside agency.....acres.....							
48	Land drained by open ditches and own levees.....acres.....							
49	Length of these ditches.....miles.....							
50	Length of these levees.....miles.....							
51	Part protected by levees of an outside agency.....acres.....							
52	Land drained by tile only.....acres.....							
53	Length of these tile.....miles.....							
54	Part protected by levees of an outside agency.....acres.....							
55	Land drained by tile and own levees.....acres.....							
56	Length of these tile.....miles.....							
57	Length of these levees.....miles.....							
58	Part protected by levees of an outside agency.....acres.....							
59	Land drained by open ditches and tile.....acres.....	620	620					
60	Length of these open ditches.....miles.....	3.2	3.2					
61	Length of these tile.....miles.....	2.0	2.0					
62	Part protected by levees of an outside agency.....acres.....							
63	Land drained by open ditches, tile, and levees.....acres.....							
64	Length of these open ditches.....miles.....							
65	Length of these tile.....miles.....							
66	Length of these levees.....miles.....							
67	Part protected by levees of an outside agency.....acres.....							
68	Land in enterprises operating pumping plants.....acres.....							
69	Length of open ditches owned by these enterprises.....miles.....							
70	Length of tile owned by these enterprises.....miles.....							
71	Length of levees owned by these enterprises.....miles.....							
72	Part protected by levees of an outside agency.....acres.....							

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 144.

³Included in "Other counties."

CENSUS OF DRAINAGE—KENTUCKY

COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Jefferson	McLean	Muhlenberg	Ohio	Union	Webster	Other counties ¹
LAND AREA								
1	Approximate land area.....acres....1940..	240,000	164,480	308,480	381,440	219,520	216,960	1,424,000
2	Drainage enterprises.....number...1940..	3	10	5	13	16	27	10
3	Land in enterprises.....acres....1940..	69,000	32,759	18,715	21,673	49,664	43,458	35,373
4	.....1930..	63,000	40,090	(²)	22,164	50,250	36,250	73,288
5	.....1920..	90,000	18,485	(²)	10,320	32,722	42,291	28,904
6	Area of all enterprises, overlapping included.....acres....1940..	69,000	33,367	18,715	21,673	49,664	43,458	35,373
7	Amount of overlapping.....acres....1940..	.....	608	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	69,000	17,828	13,015	13,685	48,655	29,877	23,868
9	.....1930..	60,000	21,098	(²)	22,164	35,050	29,350	48,438
10	Increase or decrease (-), 1930-1940.....acres.....	9,000	-3,272	.....	-8,479	13,605	527	-24,570
11	.....percent.....	15.0	-15.5	.....	-38.2	38.8	1.8	-50.7
12	Land undrained, unfit for any crop.....acres....1940..	.....	9,613	3,518	3,663	1,009	3,869	3,517
13	.....1930..	3,000	8,407	.....	.....	200	1,675	17,153
14	Increase or decrease (-), 1930-1940.....acres.....	-3,000	1,206	3,518	3,663	809	2,194	-13,636
15	.....percent.....	-100.0	14.3	.....	.....	404.5	131.0	-79.5
16	Land partly drained, for partial crop.....acres....1940..	.....	5,320	2,182	4,325	.....	9,712	7,988
17	.....1930..	.....	10,585	(²)	.....	15,000	5,225	7,697
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-5,265	.....	4,325	-15,000	4,487	291
19	.....percent.....	.....	-49.7	.....	.....	-100.0	85.9	3.8
20	Improved land.....acres....1940..	69,000	15,806	13,115	13,795	48,263	28,561	22,524
21	.....1930..	56,000	26,898	(²)	14,217	44,200	31,525	46,590
22	.....1920..	45,000	13,709	(²)	7,657	29,294	32,984	16,348
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	.....	10,123	4,118	5,190	442	7,228	10,537
24	.....1930..	6,000	11,079	(²)	5,723	6,050	4,275	19,960
25	.....1920..	40,000	4,642	(²)	1,838	3,428	8,809	12,386
26	Other unimproved land.....acres....1940..	.....	6,830	1,482	2,688	959	7,669	2,312
27	.....1930..	1,000	2,113	(²)	2,224	.....	450	6,738
28	.....1920..	5,000	134	(²)	825	.....	498	170
29	Land in occupied farms.....acres....1940..	69,000	32,759	18,715	21,673	49,664	43,458	35,373
30	.....1930..	63,000	26,897	(²)	20,437	50,250	36,150	62,290
31	Increase or decrease (-), 1930-1940.....acres.....	6,000	5,862	.....	1,236	-586	7,308	-26,917
32	.....percent.....	9.5	21.8	.....	6.0	-1.2	20.2	-43.2
33	Land in planted crops.....acres....1940..	52,000	14,899	11,717	10,508	37,596	20,084	17,099
34	.....1930..	53,000	20,813	(²)	11,510	23,100	17,800	29,698
35	Increase or decrease (-), 1930-1940.....acres.....	-1,000	-5,914	.....	-1,002	14,496	2,284	-12,599
36	.....percent.....	-1.9	-28.4	.....	-8.7	62.8	12.8	-42.4
37	Land idle.....acres....1940..	.....	17,713	6,998	10,765	1,399	20,991	18,274
38	.....1930..	6,000	14,241	(²)	8,654	27,150	17,850	33,899
39	Increase or decrease (-), 1930-1940.....acres.....	-6,000	3,472	.....	2,111	-25,751	3,141	-15,625
40	.....percent.....	-100.0	24.4	.....	24.4	-94.8	17.6	-46.1
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	309	.....	.....	.....	.....	6,298
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-309	.....	.....	.....	.....	-6,298
44	.....percent.....	.....	-100.0	.....	.....	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	69,000	32,759	18,715	21,673	49,664	43,458	35,373
46	Length of these ditches.....miles.....	77.0	137.6	55.4	63.5	114.0	75.8	72.6
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹ Includes Ballard, Bullitt, Butler, Carlisle, Hickman, McCracken, Marshall, and Spencer Counties in 1940; Ballard, Bullitt, Carlisle, Fulton, Hickman, McCracken, Marshall, Muhlenberg, and Spencer Counties in 1930; and Ballard, Bullitt, Carlisle, Graves, Hickman, Lewis, McCracken, Marshall, Muhlenberg, and Spencer Counties in 1920.
² Included in "Other counties."

CENSUS OF DRAINAGE—KENTUCKY

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Davless	Fulton ¹	Graves	Hancock	Henderson	Hopkins ¹
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	2 160	46	1	4	11	13	1
2 Open ditches:							
3 Completed.....miles.....1940..	1,231.8	457.1	3.0	32.3	58.3	73.2	12.0
4	1930..	1,204.8	339.7	(3) 36.7	55.2	106.0	48.5
5	1920..	664.5	205.1	(3)	19.1	79.1	13.2
6 Additional length authorized.....miles.....1940..							
7 Tile drains:							
8 Completed.....miles.....1940..	2.0	2.0					
9	1930..	71.0	5.3				44.0
10	1920..	86.2	3.1	(3)		10.0	44.0
11 Levees and dikes:							
12 Completed.....miles.....1940..							
13	1930..						
14	1920..	0.2					
15 Additional length authorized.....miles.....1940..							
16 Pumping plants:							
17 Engine capacity.....horsepower.....1940..							
18	1930..						
19	1920..						
20 Pump capacity.....gal. per min.....1940..							
21	1930..						
22	1920..						
23 Land served by pumps.....acres.....1940..							
24	1930..						
25 Wells pumped for drainage.....number.....1940..							
26	1930..						
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	4,947,994	1,418,069	13,737	378,558	215,240	193,237	31,400
26	1930..	5,357,633	1,339,974	(3) 304,567	238,537	389,465	142,728
27	1920..	1,521,725	249,560	(3)	37,942	189,829	31,016
28 Estimated cost when completed.....dollars.....1940..	4,947,994	1,418,069	13,737	378,558	215,240	193,237	31,400
29	1930..	5,357,633	1,339,974	(3) 304,567	238,537	389,465	142,728
30	1920..	1,820,996	289,555	(3)	222,129	197,571	52,447
31 Average cost per acre when completed.....dollars.....1940..	10.63	12.28	36.24	22.74	14.49	5.09	3.36
32	1930..	9.15	7.87	(3) 19.19	18.41	4.94	6.31
33	1920..	5.08	4.71	(3)	20.65	4.09	3.45
34 Invested in and required for completion, 1940:							
35 Enterprises having open ditches only.....dollars..	4,932,586	1,402,661	13,737	378,558	215,240	193,237	31,400
36 Average amount per acre.....dollars..	10.62	12.22	36.24	22.74	14.49	5.09	3.36
37 Enterprises having open ditches and levees.....dollars..							
38 Average amount per acre.....dollars..							
39 Enterprises having tile only.....dollars..							
40 Average amount per acre.....dollars..							
41 Enterprises having tile and levees.....dollars..							
42 Average amount per acre.....dollars..							
43 Enterprises having open ditches and tile.....dollars..	15,408	15,408					
44 Average amount per acre.....dollars..	24.85	24.85					
45 Enterprises having ditches, tile, and levees.....dollars..							
46 Average amount per acre.....dollars..							
47 Enterprises operating pumping plants.....dollars..							
Average amount per acre.....dollars..							
MAINTENANCE AND OPERATION							
48 Cost of maintenance and operation in 1939:							
49 By enterprises operating pumping plants.....dollars..							
50 Enterprises reporting.....number..							
51 Land in these enterprises.....acres..							
52 Average cost per acre.....dollars..							
53 By enterprises not operating pumping plants.....dollars..	64,992	10,597	26	879	(3)	4,559	3,665
54 Enterprises reporting.....number..	90	3	1	4	2	11	1
55 Land in these enterprises.....acres..	353,586	47,910	379	16,649	(3)	33,579	9,356
56 Average cost per acre.....dollars..	0.18	0.22	0.07	0.05	(3)	0.14	0.39
57 Federal aid in maintenance:							
Enterprises reporting.....number..	69	32		1	3	8	1
Land in these enterprises.....acres..	288,516	90,248		(4)	2,468	28,938	9,356
FINANCIAL CONDITION.							
58 Drainage taxes collected in 1939.....dollars..	60,877	2,585	265	4,953	1,797	5,641	2,738
59 Enterprises reporting.....number..	87	4	1	4	3	10	1
60 Land in these enterprises.....acres..	282,468	16,043	379	16,649	2,468	31,079	9,356
61 Average amount collected per acre.....dollars..	0.22	0.16	0.70	0.30	0.73	0.19	0.29
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	28,674	(4)	116	5,811		1,966	1,793
63 Enterprises reporting.....number..	51	1	1	4		9	1
64 Land in these enterprises.....acres..	135,460	(4)	379	16,649		29,934	9,356
65 Portion delinquent in these enterprises.....percent..	21.2	(4)	30.6	34.9		6.6	19.2
66 Total indebtedness, Dec. 31, 1939.....dollars..	758,606	2,545	3,087	157,956	(4)	(4)	
67 Enterprises reporting.....number..	33	3	1	4	1	2	
68 Land in these enterprises.....acres..	114,261	4,102	379	16,649	(4)	(4)	
69 Average indebtedness per acre.....dollars..	6.64	0.62	8.14	9.49	(4)	(4)	
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	625,666	2,277		143,540	(3)		
71 Enterprises reporting.....number..	25	3		3	1		
72 Land in these enterprises.....acres..	103,532	4,102		15,763	(3)		
73 Average arrearage per acre.....dollars..	(5)	0.56		9.11	(3)		
74 Reduction of debt by refinancing, prior to 1940.....dollars..	225,535		7,720	(3)			
75 Enterprises reporting.....number..	6		1	2			
76 Land in these enterprises.....acres..	21,029		379	(3)			
77 Average reduction per acre.....dollars..	10.72		20.37	(3)			

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 144.
³Included in "Other counties."
⁴Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.
⁵Not computed because acreage of 1 enterprise is included for which amount of arrearage was not reported.

CENSUS OF DRAINAGE—KENTUCKY

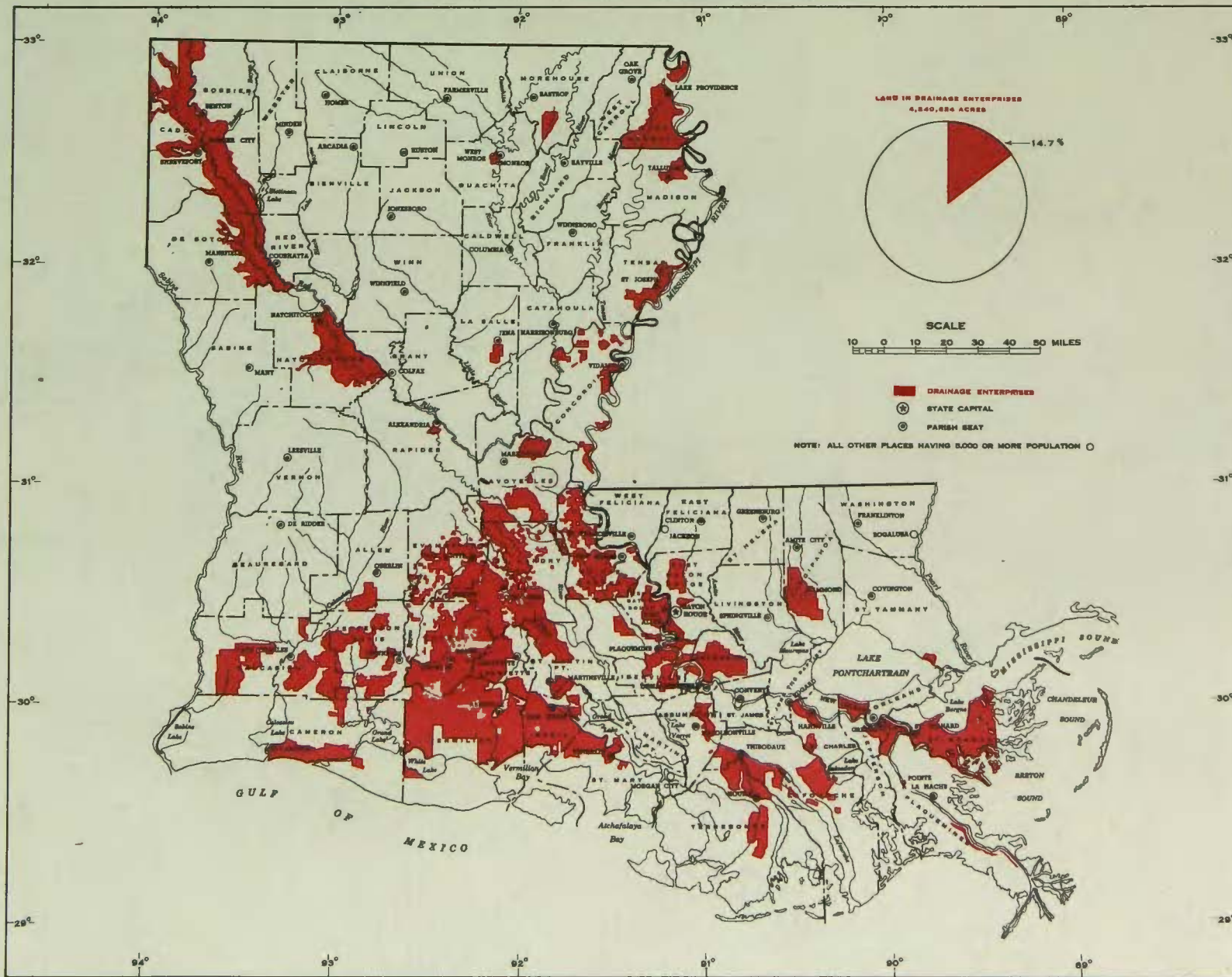
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Jefferson	McLean	Muhlenberg	Ohio	Union	Webster	Other counties ¹
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	3	10	5	13	16	27	10
Open ditches:							
2 Completed.....miles.....1940..	77.0	137.6	55.4	63.5	114.0	75.8	72.6
3	1930..	85.0	120.6	(²) 81.3	73.5	132.2	126.1
4	1920..	38.5	76.6	(²) 24.4	64.3	85.7	58.5
5 Additional length authorized.....miles.....1940..							
Tile drains:							
6 Completed.....miles.....1940..							
7	1930..	2.8			18.9		
8	1920..	0.2	(²)		18.9		10.0
9 Additional length authorized.....miles.....1940..							
Levees and dikes:							
10 Completed.....miles.....1940..							
11	1930..						
12	1920..				0.2		
13 Additional length authorized.....miles.....1940..							
Pumping plants:							
14 Engine capacity.....horsepower.....1940..							
15	1930..						
16	1920..						
17 Pump capacity.....gal. per min.....1940..							
18	1930..						
19	1920..						
20 Land served by pumps.....acres.....1940..							
21	1930..						
22	1920..						
23 Wells pumped for drainage.....number.....1940..							
24	1930..						
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	600,000	447,746	183,939	251,393	310,004	225,087	679,584
26	1930..	753,000	542,601	(²) 230,286	311,801	151,476	953,198
27	1920..	175,000	194,076	(²) 45,500	267,568	129,609	201,625
28 Estimated cost when completed.....dollars.....1940..	600,000	447,746	183,939	251,393	310,004	225,087	679,584
29	1930..	753,000	542,601	(²) 230,286	311,801	151,476	953,198
30	1920..	197,000	202,992	(²) 45,500	267,568	129,609	216,625
31 Average cost per acre when completed.....dollars.....1940..	8.70	13.67	9.83	11.60	6.24	5.18	19.21
32	1930..	11.95	13.53	(²) 10.39	6.20	4.18	13.01
33	1920..	2.19	10.98	(²) 4.41	8.18	3.06	7.49
Invested in and required for completion, 1940:							
34 Enterprises having open ditches only.....dollars..	600,000	447,746	183,939	251,393	310,004	225,087	679,584
35 Average amount per acre.....dollars..	8.70	13.67	9.83	11.60	6.24	5.18	19.21
36 Enterprises having open ditches and levees.....dollars..							
37 Average amount per acre.....dollars..							
38 Enterprises having tile only.....dollars..							
39 Average amount per acre.....dollars..							
40 Enterprises having tile and levees.....dollars..							
41 Average amount per acre.....dollars..							
42 Enterprises having open ditches and tile.....dollars..							
43 Average amount per acre.....dollars..							
44 Enterprises having ditches, tile, and levees.....dollars..							
45 Average amount per acre.....dollars..							
46 Enterprises operating pumping plants.....dollars..							
47 Average amount per acre.....dollars..							
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48 By enterprises operating pumping plants.....dollars..							
49 Enterprises reporting.....number.....							
50 Land in these enterprises.....acres.....							
51 Average cost per acre.....dollars.....							
52 By enterprises not operating pumping plants.....dollars..	25,000	1,634	534	2,711	6,843	5,529	3,015
53 Enterprises reporting.....number.....	3	10	5	8	16	19	7
54 Land in these enterprises.....acres.....	69,000	31,632	18,715	13,453	49,664	34,478	28,771
55 Average cost per acre.....dollars.....	0.36	0.05	0.03	0.20	0.14	0.16	0.10
Federal aid in maintenance:							
56 Enterprises reporting.....number.....	3	3	2	2	6	5	3
57 Land in these enterprises.....acres.....	69,000	15,629	(³)	(³)	14,532	25,995	14,706
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..	25,000	887		2,711	7,699	2,841	3,760
59 Enterprises reporting.....number.....	3	4		8	16	26	7
60 Land in these enterprises.....acres.....	69,000	5,456		13,453	49,664	42,558	26,363
61 Average amount collected per acre.....dollars..	0.36	0.16		0.20	0.16	0.07	0.14
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....		(³)			(³)	8,524	8,792
63 Enterprises reporting.....number.....		2			1	25	7
64 Land in these enterprises.....acres.....		(³)			(³)	41,538	26,363
65 Portion delinquent in these enterprises.....percent..		(³)			(³)	20.5	33.3
66 Total indebtedness, Dec. 31, 1939.....dollars..		116,353	(³)	17,837	750	(³)	398,796
67 Enterprises reporting.....number.....		6	1	3	3	1	8
68 Land in these enterprises.....acres.....		23,294	(³)	7,781	2,400	(³)	32,873
69 Average indebtedness per acre.....dollars..		4.99	(³)	2.29	0.31	(³)	12.13
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..		89,672	(²)	17,837		(⁴)	⁵ 372,340
71 Enterprises reporting.....number.....		6	1	3		1	7
72 Land in these enterprises.....acres.....		23,294	(²)	7,781		(²)	⁵ 52,592
73 Average arrearage per acre.....dollars..		3.85	(²)	2.29			(⁴)
74 Reduction of debt by refinancing, prior to 1940.....dollars..							217,815
75 Enterprises reporting.....number.....							3
76 Land in these enterprises.....acres.....							20,660
77 Average reduction per acre.....dollars..							10.55

¹Includes Ballard, Bullitt, Butler, Carlisle, Hickman, McCracken, Marshall, and Spencer Counties in 1940; Ballard, Bullitt, Carlisle, Fulton, Hickman, McCracken, Marshall, Muhlenberg, and Spencer Counties in 1930; and Ballard, Bullitt, Carlisle, Graves, Hickman, Lewis, McCracken, Marshall, Muhlenberg, and Spencer Counties in 1920.
²Included in "Other counties."
³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1 on page 215.
⁴Amount not reported.
⁵Includes data for Hancock, Muhlenberg, and Webster Counties with those named in footnote 1.
⁶Not computed because acreage of 1 enterprise is included for which amount of arrearage was not reported.

LOUISIANA

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — LOUISIANA

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY				Land served	KIND OF POWER	Enter-prises	CAPACITY				Land served		
		Engine or motor		Pump	G. p. m.				Acres	Engine or motor		Pump		G. p. m.	Acres
		Number	Hp.	Percent						Number	Hp.	Percent			
All pumping enterprises.....	1940..	22	11,041	100.0	5,055,600	123,066	Internal combustion.....	1940..	16	5,761	52.2	2,625,600	73,866		
	1930..	18	6,495	100.0	2,956,500	123,163		1930..	11	3,555	54.7	1,373,500	79,804		
	1920..	29	7,655	100.0	5,245,150	140,809		1920..	10	1,860	24.3	743,650	29,182		
Steam.....	1940..	1	120	1.1	50,000	2,000	Steam and electric.....	1940..	.....	.....	.....	.....	.....
	1930..	5	1,590	24.5	920,000	29,962		1930..	.....	.....	.....	.....	.....
	1920..	18	5,105	66.6	4,281,300	104,684	Steam and internal combustion...	1940..	.....	.....	.....	.....	.....
Electric.....	1940..	3	2,150	19.5	1,030,000	21,000		1930..	1	700	9.1	220,200	6,943		
	1930..	1	150	2.3	63,000	4,000		1920..	.....	.....	.....	.....	.....
	1920..	.....	.....	.....	.....	.....	Steam, electric, and internal combustion.....	1940..	2	3,010	27.2	1,350,000	26,200

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	CAPACITY		Engine or motor capacity	Land served	
		G. p. m.	Percent			
				
All pumping enterprises.....	1940..	59	5,055,600	100.0	11,041	123,066
	1930..	52	2,956,500	100.0	6,495	123,163
Centrifugal.....	1940..	27	1,835,600	36.3	3,841	55,850
	1930..	31	1,710,000	57.8	3,635	79,097
Rotary.....	1940..	.....	.....	.....	.....	.....
	1930..	11	261,500	8.9	750	11,216
Screw.....	1940..	11	625,000	12.4	1,530	19,434
	1930..	3	140,000	4.7	330	3,796
Centrifugal and— Rotary.....	1940..	.....	.....	.....	.....	.....
	1930..	4	500,000	16.9	700	15,000
Screw.....	1940..	19	2,545,000	50.3	5,550	45,782
	1930..	3	345,000	11.7	1,080	14,054
Paddle wheel.....	1940..	2	50,000	1.0	120	2,000
	1930..	.....	.....	.....	.....	.....

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	4,219,624	100.0	3,655,483	100.0	23,361,758	100.0	20,752,645	100.0	78,168	147,008
Enterprises in arrears.....	517,040	12.3	351,578	9.6	2,885,992	12.3	1,445,000	7.0	17,385	110,000
With some delinquent land.....	349,878	8.3	225,000	6.1	2,111,592	9.0	975,000	4.7	17,385	110,000
With no delinquent land.....	167,162	4.0	126,578	3.5	774,400	3.3	470,000	2.3	.....	.....
Enterprises not in arrears.....	3,702,584	87.7	3,303,905	90.4	20,475,766	87.7	19,307,645	93.0	60,783	37,008
With some delinquent land.....	747,879	17.7	205,460	5.6	7,878,000	33.7	3,623,898	17.5	60,783	37,008
With no delinquent land.....	2,954,705	70.0	2,840,632	77.7	12,597,766	54.0	14,905,247	71.8	.....	.....
With no report on delinquency.....	.....	.....	257,813	7.1	.....	.....	778,500	3.7	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	4,219,624	23,361,758	10,797,537	666,198	2,162,706	78,168	1,117,208
Enterprises in debt.....	3,077,448	19,803,500	10,797,537	666,198	2,162,706	77,968	1,100,475
In arrears, amount of arrearage stated.....	517,040	2,885,992	2,124,794	666,198	.....	17,385	132,394
Collecting drainage taxes in 1939.....	517,040	2,885,992	2,124,794	666,198	.....	17,385	132,394
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Not in arrears.....	2,560,408	16,917,508	8,672,743	.....	2,162,706	60,583	968,091
Collecting drainage taxes in 1939.....	2,541,528	16,759,697	8,640,743	.....	2,162,706	60,583	968,091
No collections reported.....	18,880	157,811	32,000	.....	.....	.....	.....
Enterprises not in debt.....	1,142,176	3,558,258	.....	.....	.....	200	16,733
Collecting drainage taxes in 1939.....	78,614	541,550	.....	.....	.....	200	16,733
No collections reported.....	1,063,562	3,016,708	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

CENSUS OF DRAINAGE—LOUISIANA

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,219,624	100.0	23,361,758	100.0
Improvement of land already in farms.....	3,202,427	75.9	13,289,133	56.9
Reclamation of swamp land not previously in farms.....	475,747	11.3	6,805,142	29.1
Protection against overflow.....	527,450	12.5	3,049,651	13.1
Removal of alkali or seepage from irrigation.....	14,000	0.3	217,832	0.9

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	4,219,624	100.0	4,703,474	483,850	23,361,758	100.0
Before 1870.....	30,456	0.7	53,936	23,480	47,395	0.2
1870-1879.....	12,874	0.3	20,115	7,241	11,345	0.1
1880-1889.....	50,024	1.2	89,364	39,340	128,680	0.6
1890-1899.....	276,034	6.5	303,096	27,062	2,335,556	10.0
1900-1904.....	155,168	3.7	230,979	75,811	708,582	3.0
1905-1909.....	257,714	6.1	352,468	94,754	673,469	2.9
1910-1914.....	859,208	20.4	967,388	108,180	4,933,237	21.1
1915-1919.....	707,024	16.8	787,021	79,997	3,137,591	13.4
1920-1924.....	812,944	19.3	819,724	6,780	7,149,167	30.6
1925-1929.....	502,676	11.9	523,881	21,205	2,661,950	11.4
1930-1934.....	258,083	6.1	258,083	.....	1,058,615	4.5
1935-1939.....	297,419	7.0	297,419	.....	516,171	2.2

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement	
		Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres
All enterprises..	4,219,624	3,172,725	75.2	317,411	4,434	2,597,311	61.6	943,924	678,389	2,512,250	59.5	1,356,366	656,011	160,269
Before 1870.....	30,456	25,011	82.1	1,011	4,434	18,596	61.0	10,911	949	24,305	79.8	11,515	9,059	.....
1870-1879.....	12,874	9,747	75.7	287	2,840	7,802	60.6	4,772	300	10,198	79.2	4,635	4,703	.....
1880-1889.....	50,024	27,056	54.1	1,050	21,918	18,571	37.1	14,376	17,077	30,828	61.6	10,500	16,653	.....
1890-1899.....	276,034	208,731	75.6	31,355	35,948	109,935	39.8	164,078	2,021	142,905	51.8	56,467	17,537	3,000
1900-1904.....	155,168	115,235	74.3	24,615	15,318	116,310	75.0	22,434	16,424	108,728	70.1	67,038	29,208	1,600
1905-1909.....	257,714	190,135	73.8	21,401	46,178	178,280	69.2	20,374	59,060	159,539	61.9	90,828	30,893	2,000
1910-1914.....	859,208	495,802	57.7	27,306	336,100	396,498	46.1	136,727	325,983	436,019	50.7	207,968	67,626	17,845
1915-1919.....	707,024	587,655	84.5	54,688	54,681	567,305	80.2	70,308	69,411	515,892	73.0	274,267	82,075	4,500
1920-1924.....	812,944	667,430	82.1	67,651	77,863	566,162	69.6	200,801	45,981	505,584	62.2	313,156	168,843	54,330
1925-1929.....	502,676	405,420	80.6	26,651	70,605	363,633	72.3	69,994	69,049	330,350	65.7	191,289	71,610	23,294
1930-1934.....	258,083	216,461	83.9	12,255	29,367	130,535	50.6	101,554	25,994	128,089	49.6	60,504	42,325	.....
1935-1939.....	297,419	214,042	72.0	49,141	34,236	123,684	41.6	127,595	46,140	119,803	40.3	68,199	115,479	53,700

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
		Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	4,219,624	4,219,039	3,305,042	913,997	374,903	0.09	0.11
Gravity drainage only.....	4,074,308	4,073,723	3,161,026	912,697	233,794	0.06	0.07
Open ditches only.....	3,411,021	3,410,436	2,757,139	653,287	131,605	0.04	0.05
Open ditches and levees.....	663,287	663,287	400,887	259,400	102,189	0.15	0.25
Pumping for all or part of drainage.....	145,316	145,316	144,016	1,300	141,109	0.97	0.98
All drainage by pumping.....	119,016	119,016	119,016	136,114	1.14	1.14
Part pumping and part gravity.....	26,300	26,300	25,000	1,300	4,995	0.19	0.20

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,219,624	100.0	23,361,758	100.0
Method:				
By district forces.....	2,560,528	60.7	16,216,272	69.4
By contract.....	819,062	19.4	4,216,590	18.1
Work apportioned to landowners.....	566,595	13.4	1,798,871	7.7
"None," or not reporting.....	273,439	6.5	1,130,025	4.8
Whether systematic:				
Reporting "yes".....	2,847,160	67.5	18,951,150	81.1
Reporting "no".....	1,346,489	31.9	4,332,663	18.6
Not reporting.....	25,975	0.6	77,925	0.3

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	4,219,624	429,763	10.2
Capital invested.....dollars..	23,361,758	6,784,800	29.0
Drainage works:			
Open ditches.....miles....	7,105.5	1,022.7	14.4
Tile drains.....miles....	6.0	1.0	16.7
Levees.....miles....	624.4	149.0	23.9

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	Acres 1,765,417	Dollars 14,162,172	Miles 2,546.8	Miles 1.0	Miles 376.1
Work Projects Administration.....	823,021	9,878,222	1,169.1	1.0	328.0
Civilian Conservation Corps.....	843,866	3,383,950	1,263.7	.....	27.1
Public Works Administration.....	98,530	900,000	114.0	.....	21.0

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	4,219,624	¹ 1,746,547	41.4
Capital invested.....dollars..	23,361,758	13,268,068	56.8
Drainage works:			
Open ditches.....miles....	7,105.5	3,078.2	43.3
Tile drains.....miles....	6.0	6.0	100.0
Levees.....miles....	624.4	375.8	60.2

¹The land actually dependent upon outside agencies for protection is 1,587,166 acres, which is 90.9 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE - LOUISIANA

PARISH TABLE I--LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Acadia	Allen ¹	Ascension	Assumption	Avoyelles	Dossier	Calcasieu	
LAND AREA									
1	Approximate land area.....acres....1940..	28,913,280	423,680	496,000	192,000	228,480	528,640	538,240	706,560
2	Drainage enterprises.....number...1940..	² 511	57	1	4	5	7	3	10
3	Land in enterprises.....acres....1940..	4,219,624	252,683	34,189	85,175	28,850	121,720	128,840	225,177
4	.....1930..	3,635,483	266,582	34,149	90,517	100,800	148,999	20,000	180,039
5	.....1920..	2,266,328	159,000	12,500	94,500	53,500	55,509	20,000	101,930
6	Area of all enterprises, overlapping included.....acres....1940..	4,703,474	309,820	34,189	85,175	28,850	122,020	128,640	237,177
7	Amount of overlapping.....acres....1940..	483,850	57,137	.....	.....	.....	1,200	.....	12,000
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	3,172,725	252,511	34,000	67,125	24,887	79,809	98,281	178,061
9	.....1930..	2,486,972	221,770	32,149	52,317	64,925	57,490	12,000	160,159
10	Increase or decrease (-), 1930-1940.....acres.....	685,753	30,741	1,851	14,808	-40,038	22,319	86,281	17,902
11	.....percent.....	27.6	13.9	5.8	28.3	-61.7	38.8	719.0	11.2
12	Land undrained, unfit for any crop.....acres....1940..	729,488	172	.....	12,000	3,325	31,551	12,350	27,836
13	.....1930..	786,889	10,330	2,000	18,200	35,575	63,709	2,000	19,880
14	Increase or decrease (-), 1930-1940.....acres.....	-57,401	-10,158	-2,000	-6,200	-32,250	-32,158	10,350	7,956
15	.....percent.....	-7.3	-98.3	-100.0	-34.1	-90.6	-50.5	517.5	40.0
16	Land partly drained, for partial crop.....acres....1940..	317,411	.....	189	6,050	628	10,360	18,209	19,280
17	.....1930..	381,622	34,482	.....	20,000	300	27,800	6,000	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-64,211	-34,482	189	-13,950	338	-17,440	12,209	19,280
19	.....percent.....	-16.8	-100.0	.....	-69.8	112.7	-62.7	203.5	.....
20	Improved land.....acres....1940..	2,597,311	237,039	13,189	65,474	24,237	53,985	97,600	169,360
21	.....1930..	2,267,737	199,628	15,094	46,817	59,675	58,518	12,000	95,000
22	.....1920..	1,269,391	154,000	12,500	56,100	20,625	35,228	12,000	62,601
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	943,924	15,012	21,000	16,467	3,875	67,450	6,325	16,855
24	.....1930..	745,560	61,034	3,960	35,700	40,700	43,100	6,000	24,258
25	.....1920..	467,822	5,000	.....	38,400	31,675	20,281	6,000	6,909
26	Other unimproved land.....acres....1940..	678,389	632	.....	3,234	738	285	24,915	38,862
27	.....1930..	641,186	5,920	15,095	8,000	425	47,381	2,000	60,781
28	.....1920..	529,115	.....	.....	.....	1,200	.....	2,000	32,420
29	Land in occupied farms.....acres....1940..	2,512,250	179,000	15,000	59,410	24,200	47,142	109,465	154,518
30	.....1930..	2,571,531	263,987	15,094	44,517	60,125	73,590	12,000	95,000
31	Increase or decrease (-), 1930-1940.....acres.....	-59,281	-84,987	-94	14,893	-35,925	-26,448	97,465	59,518
32	.....percent.....	-2.3	-32.2	-0.6	33.4	-59.8	-35.9	812.2	62.6
33	Land in planted crops.....acres....1940..	1,356,366	101,000	13,000	28,500	18,560	29,942	70,500	69,360
34	.....1930..	1,822,620	173,844	15,094	24,550	57,025	43,990	12,000	95,000
35	Increase or decrease (-), 1930-1940.....acres.....	-466,254	-72,844	-2,094	3,950	-38,465	-14,048	58,500	-25,640
36	.....percent.....	-25.6	-41.9	-13.9	16.1	-67.4	-31.9	487.5	-27.0
37	Land idle.....acres....1940..	656,011	18,469	200	12,879	2,713	37,175	21,230	25,158
38	.....1930..	1,343,437	56,514	19,055	36,450	38,275	47,800	8,000	83,967
39	Increase or decrease (-), 1930-1940.....acres.....	-692,426	-38,045	-18,855	-23,571	-35,562	-10,625	13,230	-58,809
40	.....percent.....	-51.4	-67.3	-99.0	-64.7	-92.9	-22.2	165.4	-70.0
41	Land available for settlement.....acres....1940..	160,269	.....	.....	.....	1,000	13,700	9,225	10,000
42	.....1930..	338,867	.....	.....	7,800	.....	14,200	6,000	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-178,598	.....	.....	-7,800	1,000	-500	3,225	10,000
44	.....percent.....	-52.7	.....	.....	-100.0	.....	-3.5	53.8	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	3,411,021	211,683	34,189	85,175	28,850	121,720	112,840	225,177
46	Length of these ditches.....miles.....	5,978.0	510.0	40.0	89.5	28.5	107.5	73.0	280.5
47	Part protected by levees of an outside agency.....acres.....	1,242,274	.....	.....	85,175	.....	2,700	112,840	.....
48	Land drained by open ditches and own levees.....acres.....	663,287	41,000	.....	.....	.....	.....	16,000	.....
49	Length of these ditches.....miles.....	550.1	39.0	.....	.....	.....	.....	35.0	.....
50	Length of these levees.....miles.....	385.3	1.0	.....	.....	.....	.....	3.0	.....
51	Part protected by levees of an outside agency.....acres.....	242,747	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	145,316	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	577.4	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	6.0	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	239.1	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	102,145	.....	.....	.....	.....	.....	.....	.....

¹For parishes having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²An interparish enterprise is counted in each parish in which a part is located. The number of separate enterprises in the State is 495.

³Data in lines 68 to 72 are not included in lines 45 to 67.

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PARISH TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Cameron	Concordia	East Baton Rouge	East Carroll	Evange- line	Iberia	Iberville	Jefferson	Jefferson Davis	
LAND AREA										
1	Approximate land area.....acres.....1940..	924,180	453,760	295,680	276,480	430,080	376,320	391,040	261,760	421,120
2	Drainage enterprises.....number.....1940..	8	21	4	5	55	12	9	4	11
3	Land in enterprises.....acres.....1940..	96,960	64,903	52,509	142,334	126,089	163,308	98,588	43,800	128,781
4	.....1930..	56,220	23,345	44,500	129,944	132,327	139,499	122,715	48,459	101,239
5	.....1920..	45,587	.....	28,508	.....	9,100	121,990	102,515	29,293	55,020
6	Area of all enterprises, overlapping included.....acres.....1940..	107,660	64,903	52,509	142,334	141,498	189,848	38,588	43,800	135,313
7	Amount of overlapping.....acres.....1940..	10,700	.....	.....	.....	15,409	26,540	.....	.....	6,532
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	29,390	50,655	38,892	124,954	117,944	118,272	85,243	40,500	119,212
9	.....1930..	56,040	23,345	40,500	118,835	101,318	78,699	68,115	22,392	101,239
10	Increase or decrease (-), 1930-1940.....acres.....	-26,650	27,310	-1,608	6,119	16,626	39,573	17,128	18,108	17,973
11	.....percent.....	-47.6	117.0	-4.0	5.1	16.4	50.3	25.1	80.9	17.8
12	Land undrained, unfit for any crop.....acres.....1940..	65,870	2,627	9,550	3,680	4,746	36,130	7,619	1,750	5,519
13	.....1930..	.....	.....	.....	7,469	8,532	800	19,600	15,884	.....
14	Increase or decrease (-), 1930-1940.....acres.....	65,870	2,627	9,550	-3,789	-3,786	35,330	-11,981	-14,134	5,519
15	.....percent.....	.....	.....	.....	-50.7	-44.4	(¹)	-61.1	-89.0	.....
16	Land partly drained, for partial crop.....acres.....1940..	2,000	11,621	4,067	13,700	3,399	8,905	5,725	1,550	4,050
17	.....1930..	180	.....	4,000	3,640	22,477	60,000	35,000	10,183	.....
18	Increase or decrease (-), 1930-1940.....acres.....	1,820	11,621	67	10,060	-19,078	-51,094	-29,274	-8,633	4,050
19	.....percent.....	(¹)	.....	1.7	276.4	-84.9	-85.2	-83.6	-84.8	.....
20	Improved land.....acres.....1940..	30,390	27,935	37,900	105,319	97,874	111,885	69,596	30,000	118,737
21	.....1930..	35,420	23,345	34,250	48,715	104,942	138,699	85,893	24,750	51,150
22	.....1920..	21,025	.....	9,693	.....	9,100	² 87,789	66,836	² 8,737	53,472
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	.....	33,700	2,492	35,615	26,437	9,600	28,892	12,250	1,800
24	.....1930..	.....	.....	2,000	81,229	26,810	.....	29,822	100	21,069
25	.....1920..	.....	.....	9,408	.....	.....	.....	18,189	7,569	.....
26	Other unimproved land.....acres.....1940..	66,570	3,268	12,117	1,400	1,778	41,823	100	1,550	6,244
27	.....1930..	20,800	.....	8,250	.....	575	800	7,000	23,609	29,020
28	.....1920..	24,562	.....	9,407	.....	.....	34,201	17,490	12,987	1,548
29	Land in occupied farms.....acres.....1940..	30,000	63,672	32,350	95,500	89,394	94,456	59,457	10,000	114,930
30	.....1930..	45,900	23,345	44,500	104,000	130,176	138,699	80,893	19,877	52,150
31	Increase or decrease (-), 1930-1940.....acres.....	-15,900	40,327	-12,150	-8,500	-40,782	-44,243	-21,436	-9,877	62,780
32	.....percent.....	-34.6	172.7	-27.3	-8.2	-31.3	-31.9	-26.5	-49.7	120.4
33	Land in planted crops.....acres.....1940..	11,800	20,891	13,400	52,500	59,300	62,320	26,600	3,000	57,705
34	.....1930..	27,320	14,250	32,000	45,144	94,153	71,699	61,200	10,077	51,150
35	Increase or decrease (-), 1930-1940.....acres.....	-15,720	6,641	-18,600	7,356	-34,853	-9,379	-34,600	-7,077	6,555
36	.....percent.....	-57.1	46.6	-58.1	16.3	-37.0	-13.1	-56.5	-70.2	12.8
37	Land idle.....acres.....1940..	10,450	7,584	5,550	12,000	35,115	15,000	21,589	17,750	5,427
38	.....1930..	9,400	8,795	8,250	80,362	25,807	50,800	42,222	28,582	50,089
39	Increase or decrease (-), 1930-1940.....acres.....	1,050	-1,241	-2,700	-71,362	9,308	-35,800	-20,633	-10,832	-44,662
40	.....percent.....	11.2	-14.1	-32.7	-85.6	36.1	-70.5	-48.9	-37.9	-89.2
41	Land available for settlement.....acres.....1940..	500	.....	.....	11,000	17,199	.....	7,000	19,000	4,500
42	.....1930..	.....	.....	.....	9,500	1,361	.....	34,722	27,698	22,349
43	Increase or decrease (-), 1930-1940.....acres.....	500	.....	.....	1,500	15,838	.....	-27,722	-8,698	-17,849
44	.....percent.....	.....	.....	.....	15.8	(¹)	.....	-79.8	-31.4	-79.9
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	70,860	52,676	52,509	142,334	126,089	163,308	98,588	.....	119,118
46	Length of these ditches.....miles.....	28.5	136.7	44.5	113.0	275.1	181.0	122.0	.....	161.0
47	Part protected by levees of an outside agency.....acres.....	.....	43,590	52,509	142,334	.....	7,645	98,588	.....	.....
48	Land drained by open ditches and own levees.....acres.....	25,200	12,227	.....	.....	.....	.....	.....	.....	9,663
49	Length of these ditches.....miles.....	51.0	34.0	.....	.....	.....	.....	.....	.....	17.0
50	Length of these levees.....miles.....	39.5	15.8	.....	.....	.....	.....	.....	.....	7.0
51	Part protected by levees of an outside agency.....acres.....	.....	1,000	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	900	.....	.....	.....	.....	.....	.....	43,800	.....
69	Length of open ditches owned by these enterprises.....miles.....	4.5	.....	.....	.....	.....	.....	.....	153.0	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	1.0	.....
71	Length of levees owned by these enterprises.....miles.....	5.0	.....	.....	.....	.....	.....	.....	54.5	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	43,800	.....

¹Percent not shown when more than 1,000.

²Office estimate; the reported figures exceeded the improved acreage in all farms in the parish as determined by the Federal Census of Agriculture.

³Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—LOUISIANA

PARISH TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Lafayette	Lafourche	La Salle ¹	Morehouse ¹	Plaquemines	Pointe Coupee	St. Landry
LAND AREA								
1	Approximate land area.....acres....1940..	181,120	740,480	406,320	514,560	629,760	360,960	595,200
2	Drainage enterprises.....number...1940..	6	13	1	1	5	115	96
3	Land in enterprises.....acres....1940..	93,927	118,724	12,470	18,462	25,678	190,519	304,818
4	.....1930..	103,673	62,942	12,000	17,000	14,793	184,642	294,801
5	.....1920..	77,990	51,147	5,000	18,075	21,839	173,880	.....
6	Area of all enterprises, overlapping included.....acres....1940..	93,927	143,300	12,470	18,462	25,678	231,615	383,547
7	Amount of overlapping.....acres....1940..	.....	24,576	.....	.....	.....	41,096	78,729
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	91,177	62,127	10,970	16,462	24,178	144,525	237,479
9	.....1930..	103,673	47,424	1,000	13,000	11,338	122,099	197,727
10	Increase or decrease (-), 1930-1940.....acres.....	-12,496	14,703	9,970	3,462	12,840	22,426	39,752
11	.....percent.....	-12.0	31.0	997.0	26.6	113.2	18.4	20.1
12	Land undrained, unfit for any crop.....acres....1940..	1,150	46,958	1,000	500	500	14,452	43,482
13	.....1930..	.....	13,558	3,000	2,000	1,880	22,750	31,332
14	Increase or decrease (-), 1930-1940.....acres.....	1,150	33,300	-2,000	-1,500	-1,380	-8,298	12,150
15	.....percent.....	.....	245.6	-66.7	-75.0	-73.4	-36.5	38.8
16	Land partly drained, for partial crop.....acres....1940..	1,600	9,739	500	1,500	1,000	31,542	23,857
17	.....1930..	.....	1,960	8,000	2,000	1,575	39,793	65,742
18	Increase or decrease (-), 1930-1940.....acres.....	1,600	7,779	-7,500	-500	-575	-8,251	-41,885
19	.....percent.....	.....	396.9	-93.8	-25.0	-36.5	-20.7	-63.7
20	Improved land.....acres....1940..	90,977	60,250	1,500	14,962	10,978	91,068	237,953
21	.....1930..	103,673	41,225	1,000	13,000	12,738	107,702	209,453
22	.....1920..	75,490	30,075	500	14,460	14,999	.....	.....
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	1,100	29,375	10,970	3,500	12,200	83,817	61,370
24	.....1930..	.....	16,661	10,000	2,000	100	76,616	75,729
25	.....1920..	.....	6,867	4,500	3,615	5,985	77,358	.....
26	Other unimproved land.....acres....1940..	1,850	29,099	.....	.....	2,500	15,634	5,485
27	.....1930..	.....	5,056	1,000	2,000	1,955	324	9,619
28	.....1920..	2,500	14,205	.....	.....	855	.....	.....
29	Land in occupied farms.....acres....1940..	86,146	76,480	7,000	15,000	20,621	99,313	256,634
30	.....1930..	103,673	51,840	2,000	15,000	7,866	182,861	273,635
31	Increase or decrease (-), 1930-1940.....acres.....	-17,527	24,640	5,000	.....	12,755	-83,548	-17,001
32	.....percent.....	-16.9	47.5	250.0	.....	162.2	-45.7	-6.2
33	Land in planted crops.....acres....1940..	62,681	37,177	1,200	10,000	4,096	37,500	162,500
34	.....1930..	100,500	31,493	1,000	12,000	4,510	100,072	184,585
35	Increase or decrease (-), 1930-1940.....acres.....	-37,819	5,684	200	-2,000	-414	-62,572	-22,085
36	.....percent.....	-37.6	18.0	20.0	-16.7	-9.2	-62.5	-12.0
37	Land idle.....acres....1940..	1,800	18,625	.....	2,000	3,045	96,392	67,183
38	.....1930..	.....	26,359	10,500	.....	8,723	75,900	35,559
39	Increase or decrease (-), 1930-1940.....acres.....	1,800	-7,734	-10,500	2,000	-5,678	20,492	31,624
40	.....percent.....	.....	-29.3	-100.0	.....	-65.1	27.0	86.9
41	Land available for settlement.....acres....1940..	500	.....	.....	1,000	2,545	200	.....
42	.....1930..	.....	.....	7,000	.....	5,447	781	2,309
43	Increase or decrease (-), 1930-1940.....acres.....	500	.....	-7,000	1,000	-2,902	-681	-2,309
44	.....percent.....	.....	.....	-100.0	.....	-53.3	-74.4	-100.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	93,927	62,892	12,470	18,462	.....	190,519	304,818
46	Length of these ditches.....miles.....	208.0	60.4	7.0	17.5	.....	1,160.2	1,172.6
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	18,462	.....	156,403	165,712
48	Land drained by open ditches and own levees.....acres.....	.....	19,561	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	17.0	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	5.0	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	19,561	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ².....acres.....	.....	36,271	.....	.....	25,678	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	252.9	.....	.....	83.0	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	5.0	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	72.1	.....	.....	28.5	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	25,678	.....	.....

¹For parishes having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—LOUISIANA

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PARISH TABLE 1—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	St. Martin	St. Mary	Tangipahoa ¹	Terrebonne	Vermilion	West Baton Rouge	Other parishes ²	
LAND AREA								
1	Approximate land area.....acres....1940..	472,320	387,200	513,920	890,240	783,360	128,640	5,559,040
2	Drainage enterprises.....number...1940..	5	7	2	5	18	6	15
3	Land in enterprises.....acres....1940..	82,803	63,193	77,855	94,158	438,433	52,973	851,705
4	.....1930..	77,032	55,676	63,000	75,652	428,748	89,383	536,807
5	.....1920..	.....	58,615	.....	35,400	338,771	136,960	459,699
6	Area of all enterprises, overlapping included.....acres....1940..	95,851	71,282	77,855	107,595	592,189	70,731	855,548
7	Amount of overlapping.....acres....1940..	13,048	3,089	.....	13,437	153,756	17,758	3,843
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	60,895	55,691	73,813	50,631	280,414	49,693	554,934
9	.....1930..	56,032	42,300	63,000	33,000	251,250	67,885	265,951
10	Increase or decrease (-), 1930-1940.....acres.....	4,863	13,391	10,813	17,631	29,164	-18,192	288,983
11	.....percent.....	8.7	31.6	17.2	53.4	11.6	-26.8	108.7
12	Land undrained, unfit for any crop.....acres....1940..	12,217	6,380	1,917	23,198	133,185	470	219,754
13	.....1930..	10,000	12,436	.....	33,000	168,300	18,498	256,156
14	Increase or decrease (-), 1930-1940.....acres.....	2,217	-6,056	1,917	-9,802	-35,115	-18,028	-46,402
15	.....percent.....	22.2	-48.7	.....	-29.7	-20.9	-37.4	-17.4
16	Land partly drained, for partial crop.....acres....1940..	9,691	1,122	2,125	20,329	24,894	2,810	77,017
17	.....1930..	11,000	940	.....	9,662	9,198	3,000	4,700
18	Increase or decrease (-), 1930-1940.....acres.....	-1,309	182	2,125	10,677	15,696	-190	72,317
19	.....percent.....	-11.9	19.4	.....	110.6	170.0	-6.3	(3)
20	Improved land.....acres....1940..	59,917	54,471	30,000	39,675	283,093	42,249	289,698
21	.....1930..	56,032	39,000	30,000	42,186	251,098	62,627	264,107
22	.....1920..	.....	42,363	.....	26,550	186,912	38,337	133,477
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	18,258	3,103	35,000	22,815	7,196	10,338	347,112
24	.....1930..	16,000	3,736	33,000	12,500	13,500	23,801	87,135
25	.....1920..	.....	4,055	.....	8,850	17,231	98,623	197,307
26	Other unimproved land.....acres....1940..	4,628	5,619	12,855	31,668	148,144	386	214,895
27	.....1930..	5,000	12,940	.....	20,966	164,150	2,955	185,565
28	.....1920..	.....	12,197	.....	.....	134,628	.....	228,915
29	Land in occupied farms.....acres....1940..	57,870	55,200	28,000	48,699	251,500	39,213	292,080
30	.....1930..	56,032	36,000	30,000	42,186	255,898	63,030	247,657
31	Increase or decrease (-), 1930-1940.....acres.....	1,838	19,200	-2,000	6,513	-4,398	-23,817	44,423
32	.....percent.....	3.3	53.3	-6.7	15.4	-1.7	-37.8	17.9
33	Land in planted crops.....acres....1940..	29,000	34,750	19,500	24,350	118,200	23,543	153,491
34	.....1930..	52,500	35,000	21,000	31,000	205,650	39,450	175,164
35	Increase or decrease (-), 1930-1940.....acres.....	-23,500	-250	-1,500	-6,650	-87,450	-15,907	-21,673
36	.....percent.....	-44.8	-0.7	-7.1	-21.4	-42.5	-40.3	-12.4
37	Land idle.....acres....1940..	16,941	3,300	36,200	10,472	26,600	5,200	120,000
38	.....1930..	21,000	19,640	42,000	20,000	187,100	21,613	282,665
39	Increase or decrease (-), 1930-1940.....acres.....	-4,059	-16,340	-5,800	-9,528	-160,500	-16,413	-162,665
40	.....percent.....	-19.3	-83.2	-13.8	-47.6	-85.8	-75.9	-57.5
41	Land available for settlement.....acres....1940..	.....	.....	8,000	.....	.....	400	54,500
42	.....1930..	.....	6,500	12,000	466	2,700	1,500	176,534
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-6,500	-4,000	-466	-2,700	-1,100	-122,034
44	.....percent.....	.....	-100.0	-33.3	-100.0	-100.0	-73.3	-69.1
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	82,803	58,754	77,855	71,972	426,433	52,973	312,027
46	Length of these ditches.....miles.....	147.5	63.5	205.0	38.5	466.5	53.0	187.5
47	Part protected by levees of an outside agency.....acres.....	82,803	.....	.....	30,858	.....	52,973	189,682
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	22,186	12,000	.....	505,450
49	Length of these ditches.....miles.....	.....	.....	.....	18.0	14.0	.....	325.1
50	Length of these levees.....miles.....	.....	.....	.....	6.0	9.0	.....	305.0
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	22,186	.....	.....	200,000
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	.....	4,439	.....	.....	.....	.....	34,228
69	Length of open ditches owned by these enterprises.....miles.....	.....	9.0	.....	.....	.....	.....	75.0
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	9.0	.....	.....	.....	.....	69.0
72	Part protected by levees of an outside agency.....acres.....	.....	4,439	.....	.....	.....	.....	28,228

¹ For parishes having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² Includes Caddo, De Soto, Madison, Natchitoches, Orleans, Ouachita, Rapides, Red River, St. Bernard, St. Charles, St. Tammany, and Tensas Parishes in 1940; Caddo, Madison, Orleans, Rapides, St. Bernard, St. Charles, St. Tammany, and Tensas Parishes in 1930; and Caddo, Madison, Orleans, Rapides, St. Bernard, St. Charles, and St. Tammany Parishes in 1920.
³ Percent not shown when more than 1,000.
⁴ Office estimate; the reported figures exceeded the improved acreage in all farms in the parish as determined by the Federal Census of Agriculture.
⁵ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — LOUISIANA

PARISH TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Acadia	Allen ¹	Ascension	Assumption	Avoyelles	Bossier	Calcasieu
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	2 511	57	1	4	5	7	3	10
2 Open ditches:								
3 Completed.....miles.....1940..	7,105.5	549.0	40.0	89.5	28.5	107.5	108.0	280.5
4	1930..	7,701.2	1,000.1	40.0	154.5	41.0	72.3	161.0
5	1920..	1,771.6	147.0	15.0	61.5	19.0	9.9	92.5
6 Additional length authorized.....miles.....1940..	190.5							
7 Tile drains:								
8 Completed.....miles.....1940..	6.0							
9	1930..	2.0			2.0			
10	1920..	0.2			0.2			
11 Additional length authorized.....miles.....1940..								
12 Levees and dikes:								
13 Completed.....miles.....1940..	624.4	1.0					3.0	
14	1930..	576.3			1.0			
15	1920..	440.7						
16 Additional length authorized.....miles.....1940..	10.0							
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	11,041							
19	1930..	6,495						
20	1920..	7,665						
21 Pump capacity.....gal. per min.....1940..	5,055,600							
22	1930..	2,936,500						
23	1920..	5,245,150						
24 Land served by pumps.....acres.....1940..	123,066							
25	1930..	123,163						
26	1920..	140,809						
27 Wells pumped for drainage.....number.....1940..								
28	1930..							
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	23,361,758	761,081	80,000	426,000	175,500	571,500	697,000	1,076,189
30	1930..	20,752,645	629,665	80,000	419,122	392,800	645,300	882,000
31	1920..	9,021,991	379,500	80,000	346,740	99,800	56,500	197,500
32 Estimated cost when completed.....dollars.....1940..	23,642,158	783,131	80,000	426,000	175,500	571,500	697,000	1,076,189
33	1930..	20,976,245	629,665	80,000	419,122	392,800	645,300	882,000
34	1920..	9,990,788	388,000	80,000	357,740	99,800	71,500	260,000
35 Average cost per acre when completed.....dollars.....1940..	5.60	3.10	2.34	5.00	6.08	4.70	5.41	4.78
36	1930..	5.74	2.36	2.34	4.63	3.90	4.33	0.60
37	1920..	4.41	2.44	6.40	3.79	1.87	1.29	0.55
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	13,118,904	683,131	80,000	426,000	175,500	571,500	447,000	1,076,189
40 Average amount per acre.....dollars..	3.85	3.23	2.34	5.00	6.08	4.70	3.96	4.78
41 Enterprises having open ditches and levees.....dollars..	3,615,751	100,000					250,000	
42 Average amount per acre.....dollars..	5.45	2.44					15.62	
43 Enterprises having tile only.....dollars..								
44 Average amount per acre.....dollars..								
45 Enterprises having tile and levees.....dollars..								
46 Average amount per acre.....dollars..								
47 Enterprises having open ditches and tile.....dollars..								
48 Average amount per acre.....dollars..								
49 Enterprises having ditches, tile, and levees.....dollars..								
50 Average amount per acre.....dollars..								
51 Enterprises operating pumping plants ².....dollars..	6,907,503							
52 Average amount per acre.....dollars..	47.53							
MAINTENANCE AND OPERATION								
53 Cost of maintenance and operation in 1939:								
54 By enterprises operating pumping plants.....dollars..	141,109							
55 Enterprises reporting.....number.....	21							
56 Land in these enterprises.....acres.....	144,016							
57 Average cost per acre.....dollars..	0.98							
58 By enterprises not operating pumping plants.....dollars..	233,794	16,204	4,252	7,189	1,623	3,696	3,256	6,335
59 Enterprises reporting.....number.....	294	17	1	3	5	5	3	7
60 Land in these enterprises.....acres.....	3,261,026	218,381	34,189	61,975	28,850	116,200	128,840	207,986
61 Average cost per acre.....dollars..	0.07	0.07	0.12	0.12	0.06	0.03	0.02	0.03
62 Federal aid in maintenance:								
63 Enterprises reporting.....number.....	99	1	1	1	5	1	2	6
64 Land in these enterprises.....acres.....	1,765,417	(⁴)	34,189	(⁴)	28,850	(⁴)	(⁴)	171,644
FINANCIAL CONDITION								
65 Drainage taxes collected in 1939.....dollars..	1,117,208	56,457	7,283	(⁴)	14,680	30,307	45,483	71,376
66 Enterprises reporting.....number.....	146	9	1	1	5	6	3	6
67 Land in these enterprises.....acres.....	3,137,182	213,217	34,189	(⁴)	28,850	118,720	128,840	175,106
68 Average amount collected per acre.....dollars..	0.36	0.26	0.21	(⁴)	0.51	0.26	0.35	0.41
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	78,168		500		(⁴)	2,027	(⁴)	2,480
70 Enterprises reporting.....number.....	43		1		1	3	1	4
71 Land in these enterprises.....acres....	1,097,757		34,189		(⁴)	76,020	(⁴)	74,470
72 Portion delinquent in these enterprises.....percent.....	7.1		1.5		(⁴)	2.7	(⁴)	3.3
73 Total indebtedness, Dec. 31, 1939.....dollars..	10,797,537	299,613	49,000	(⁴)	(⁴)	287,700	(⁴)	517,600
74 Enterprises reporting.....number.....	140	8	1	1	2	6	2	6
75 Land in these enterprises.....acres....	3,077,448	203,805	34,189	(⁴)	(⁴)	118,720	(⁴)	175,106
76 Average indebtedness per acre.....dollars..	3.51	1.47	1.43	(⁴)	(⁴)	2.42	(⁴)	2.96
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	666,198					75,700		
78 Enterprises reporting.....number.....	21					4		
79 Land in these enterprises.....acres....	517,040					78,720		
80 Average arrearage per acre.....dollars..	1.29					0.96		
81 Reduction of debt by refinancing, prior to 1940.....dollars..	2,162,706			(⁴)		(⁵)		(⁵)
82 Enterprises reporting.....number.....	28			1		1		1
83 Land in these enterprises.....acres....	⁶ 349,313			(⁴)		(⁵)		(⁵)
84 Average reduction per acre.....dollars..	⁶ 6.19			(⁴)		(⁵)		(⁵)

¹For parishes having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²An interparish enterprise is counted in each parish in which a part is located. The number of separate enterprises in the State is 495.
³Data in lines 46 and 47 are not included in lines 34 to 45.
⁴Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.
⁵Amount of reduction not reported.
⁶Omitting 183,734 acres in 8 enterprises reporting reduction of debt but not the amount thereof.

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PARISH TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Cameron	Concordia	East Baton Rouge	East Carroll	Evangeline	Iberia	Iberville	Jefferson	Jefferson Davis
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	8	21	4	5	55	12	9	4	11
2 Open ditches:									
3 Completed.....miles.....1940..	84.0	170.7	44.5	113.0	275.1	181.0	122.0	153.0	178.0
4 1930..	44.8	252.0	46.0	132.0	708.0	123.0	96.5	145.0	97.0
5 1920..	30.1	.....	10.0	.....	3.6	72.6	93.4	72.9	90.7
6 Additional length authorized.....miles.....1940..	.....	7.0	.....	.....	.....	.....	.....	10.0	5.0
7 Tile drains:									
8 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	1.0	.....
9 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:									
13 Completed.....miles.....1940..	38.5	15.8	.....	.....	.....	.....	.....	54.5	7.0
14 1930..	9.0	.....	.....	.....	.....	.....	.....	26.6	.....
15 1920..	21.0	.....	.....	.....	.....	.....	9.0	20.6	10.0
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	10.0	.....
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..	90	.....	.....	.....	.....	.....	.....	5,195	.....
19 1930..	30	.....	.....	.....	.....	.....	.....	850	.....
20 1920..	25	.....	.....	.....	.....	.....	.....	2,120	.....
21 Pump capacity.....gal. per min.....1940..	30,000	.....	.....	.....	.....	.....	.....	2,615,000	.....
22 1930..	4,500	.....	.....	.....	.....	.....	.....	452,000	.....
23 1920..	3,000	.....	.....	.....	.....	.....	.....	945,000	.....
24 Land served by pumps.....acres.....1940..	900	.....	.....	.....	.....	.....	.....	42,050	.....
25 1930..	500	.....	.....	.....	.....	.....	.....	45,575	.....
26 1920..	200	.....	.....	.....	.....	.....	.....	21,045	.....
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
29 Capital invested to January 1.....dollars.....1940..	148,600	73,300	108,000	855,000	352,716	519,454	483,540	3,627,000	590,143
30 1930..	209,000	16,000	116,000	840,000	326,820	764,500	446,412	3,124,800	478,200
31 1920..	86,000	.....	20,000	.....	10,000	150,375	447,070	524,100	253,820
32 Estimated cost when completed.....dollars.....1940..	148,600	76,300	108,000	855,000	352,716	519,454	483,540	3,770,000	597,643
33 1930..	209,000	16,000	116,000	840,000	326,820	764,500	446,412	3,124,800	478,200
34 1920..	203,000	.....	20,000	.....	18,000	150,375	464,974	585,400	257,820
35 Average cost per acre when completed.....dollars.....1940..	1.53	1.18	2.08	6.01	2.80	3.18	4.90	86.07	4.64
36 1930..	3.72	0.69	2.61	6.46	2.47	5.48	3.64	64.48	4.72
37 1920..	4.45	.....	0.70	.....	1.98	1.23	4.54	20.33	4.69
38 Invested in and required for completion, 1940:									
39 Enterprises having open ditches only.....dollars..	71,000	39,800	109,000	855,000	352,716	519,454	433,540	.....	490,643
40 Average amount per acre.....dollars.....	1.00	0.76	2.08	6.01	2.80	3.18	4.90	.....	4.12
41 Enterprises having open ditches and levees.....dollars..	52,600	36,500	.....	.....	.....	.....	.....	.....	107,000
42 Average amount per acre.....dollars.....	2.09	2.98	.....	.....	.....	.....	.....	.....	11.07
43 Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45 Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises having open ditches and tile.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51 Enterprises operating pumping plants.....dollars.....	25,000	.....	.....	.....	.....	.....	.....	3,770,000	.....
52 Average amount per acre.....dollars.....	27.78	.....	.....	.....	.....	.....	.....	86.07	.....
MAINTENANCE AND OPERATION									
53 Cost of maintenance and operation in 1939:									
54 By enterprises operating pumping plants.....dollars..	(2)	.....	.....	.....	.....	.....	.....	75,708	.....
55 Enterprises reporting.....number.....	1	.....	.....	.....	.....	.....	.....	4	.....
56 Land in these enterprises.....acres.....	(2)	.....	.....	.....	.....	.....	.....	43,800	.....
57 Average cost per acre.....dollars.....	(2)	.....	.....	.....	.....	.....	.....	1.73	.....
58 By enterprises not operating pumping plants.....dollars..	3,094	5,775	.....	4,052	9,126	2,518	2,210	.....	4,358
59 Enterprises reporting.....number.....	5	21	.....	5	47	7	3	.....	8
60 Land in these enterprises.....acres.....	58,860	64,903	.....	142,334	119,147	120,190	47,184	.....	105,260
61 Average cost per acre.....dollars.....	0.05	0.09	.....	0.03	0.08	0.02	0.05	.....	0.04
62 Federal aid in maintenance:									
63 Enterprises reporting.....number.....	.....	4	.....	.....	13	4	3	4	6
64 Land in these enterprises.....acres.....	.....	11,870	.....	.....	40,068	99,380	53,068	43,800	77,080
FINANCIAL CONDITION									
65 Drainage taxes collected in 1939.....dollars..	(3)	.....	.....	50,693	27,706	29,577	(3)	97,543	45,136
66 Enterprises reporting.....number.....	2	.....	.....	5	11	9	2	4	8
67 Land in these enterprises.....acres.....	(3)	.....	.....	142,334	91,277	122,181	(3)	43,800	100,399
68 Average amount collected per acre.....dollars.....	(3)	.....	.....	0.36	0.30	0.24	(3)	2.23	0.45
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres...	.....	.....	.....	(3)	.....	(3)	.....	19,555	6,132
70 Enterprises reporting.....number.....	.....	.....	.....	2	.....	2	.....	3	3
71 Land in these enterprises.....acres.....	.....	.....	.....	(3)	.....	(3)	.....	40,000	34,314
72 Portion delinquent in these enterprises.....percent.....	.....	.....	.....	(3)	.....	(3)	.....	48.9	17.9
73 Total indebtedness, Dec. 31, 1939.....dollars.....	(3)	.....	.....	388,380	250,483	233,600	(3)	2,918,310	215,100
74 Enterprises reporting.....number.....	2	.....	.....	5	11	9	2	4	8
75 Land in these enterprises.....acres.....	(3)	.....	.....	142,334	91,277	122,181	(3)	43,800	100,399
76 Average indebtedness per acre.....dollars.....	(3)	.....	.....	2.73	2.74	1.91	(3)	66.63	2.14
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	(3)	15,284	.....	.....	(3)	(3)
78 Enterprises reporting.....number.....	.....	.....	.....	2	3	.....	.....	1	2
79 Land in these enterprises.....acres.....	.....	.....	.....	(3)	20,719	.....	.....	(3)	(3)
80 Average arrearage per acre.....dollars.....	.....	.....	.....	(3)	0.74	.....	.....	(3)	(3)
81 Reduction of debt by refinancing, prior to 1940.....dollars..	(4)	.....						

CENSUS OF DRAINAGE - LOUISIANA

PARISH TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Lafayette	LaFourche	La Salle ¹	Morehouse ¹	Plaquemines	Pointe Coupee	St. Landry
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	6	13	1	1	5	115	96
Open ditches:							
2 Completed.....miles.....1940..	208.0	330.3	7.0	17.5	83.0	1,160.2	1,172.6
3	1930..	168.0	312.5	5.0	12.0	1,472.5	1,264.5
4	1920..	86.9	89.9	6.4	22.5	42.0	.....
5 Additional length authorized.....miles.....1940..	.....	1.5	.....	.....	.....	165.0	.....
Tile drains:							
6 Completed.....miles.....1940..	.....	.....	.....	.....	5.0	.....	.....
7 .....	.....	.....	.....	.....	.....	.....	.....
8 .....	.....	.....	.....	.....	.....	.....	.....
9 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:							
10 Completed.....miles.....1940..	.....	77.1	.....	.....	29.5	.....	.....
11 .....	.....	.....	.....	.....	.....	.....	.....
12	20.0	181.0	.....	.....	17.0	.....	.....
13 Additional length authorized.....miles.....1940..	.....	86.3	.....	1.0	8.8	.....	.....
Pumping plants:							
14 Engine capacity.....horsepower.....1940..	.....	1,565	.....	.....	751	.....	.....
15 .....	.....	1,510	.....	.....	1,530	.....	.....
16 .....	.....	2,040	.....	.....	345	.....	.....
17 Pump capacity.....gal. per min.....1940..	.....	769,000	.....	.....	340,000	.....	.....
18 .....	.....	517,000	.....	.....	740,000	.....	.....
19 .....	.....	1,713,400	.....	.....	136,250	.....	.....
20 Land served by pumps.....acres.....1940..	.....	16,271	.....	.....	25,178	.....	.....
21 .....	.....	17,101	.....	.....	13,193	.....	.....
22 .....	.....	23,673	.....	.....	21,639	.....	.....
23 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....
24 .....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	245,250	922,000	3,500	26,000	1,086,911	384,289	1,583,407
26	1930..	246,000	1,211,000	5,000	20,000	603,500	984,815
27	1920..	107,000	1,087,077	2,500	35,000	443,800	.....
28 Estimated cost when completed.....dollars.....1940..	245,250	928,900	3,500	26,000	1,141,911	431,139	1,583,407
29	1930..	246,000	1,218,000	5,000	20,000	603,500	986,915
30	1920..	141,500	1,162,077	3,100	35,000	530,550	.....
31 Average cost per acre when completed.....dollars.....1940..	2.61	7.82	0.28	1.41	44.47	2.26	5.19
32	1930..	2.37	19.35	0.42	1.18	40.80	3.35
33	1920..	1.81	22.72	0.62	1.94	24.29	0.96
Invested in and required for completion, 1940:							
34 Enterprises having open ditches only.....dollars..	245,250	198,900	3,500	26,000	.....	431,139	1,583,407
35 Average amount per acre.....dollars..	2.61	3.16	0.28	1.41	.....	2.26	5.19
36 Enterprises having open ditches and levees.....dollars..	.....	87,500	.....	.....	.....	.....	.....
37 Average amount per acre.....dollars..	.....	4.47	.....	.....	.....	.....	.....
38 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....
39 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
40 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
41 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
42 Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	.....
43 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
44 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
46 Enterprises operating pumping plants ².....dollars..	.....	642,500	.....	.....	1,141,911	.....	.....
47 Average amount per acre.....dollars..	.....	17.71	.....	.....	44.47	.....	.....
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48 By enterprises operating pumping plants.....dollars..	.....	21,733	.....	.....	24,108	.....	.....
49 Enterprises reporting.....number.....	.....	7	.....	.....	4	.....	.....
50 Land in these enterprises.....acres.....	.....	36,271	.....	.....	24,378	.....	.....
51 Average cost per acre.....dollars..	.....	0.60	.....	.....	0.99	.....	.....
52 By enterprises not operating pumping plants.....dollars..	1,616	2,430	.....	659	.....	27,693	7,060
53 Enterprises reporting.....number.....	6	5	.....	1	.....	87	17
54 Land in these enterprises.....acres.....	93,927	52,995	.....	18,462	.....	153,457	242,254
55 Average cost per acre.....dollars..	0.02	0.04	.....	0.04	.....	0.18	0.03
Federal aid in maintenance:							
56 Enterprises reporting.....number.....	5	5	.....	1	.....	2	8
57 Land in these enterprises.....acres.....	88,427	32,676	.....	18,462	(³)	.....	93,215
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..	15,040	29,442	.....	.....	31,400	.....	81,649
59 Enterprises reporting.....number.....	5	7	.....	.....	3	.....	15
60 Land in these enterprises.....acres.....	69,327	81,695	.....	.....	20,878	.....	240,778
61 Average amount collected per acre.....dollars..	0.22	0.36	.....	.....	1.50	.....	0.34
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	1,680	.....	.....	.....	(³)	.....	3,950
63 Enterprises reporting.....number.....	4	.....	.....	.....	2	.....	7
64 Land in these enterprises.....acres.....	62,337	.....	.....	.....	(³)	.....	97,487
65 Portion delinquent in these enterprises.....percent..	2.7	.....	.....	.....	(³)	.....	4.0
66 Total indebtedness, Dec. 31, 1939.....dollars..	78,700	191,050	.....	.....	250,500	.....	941,350
67 Enterprises reporting.....number.....	5	7	.....	.....	4	.....	15
68 Land in these enterprises.....acres.....	69,327	81,695	.....	.....	24,378	.....	240,778
69 Average indebtedness per acre.....dollars..	1.14	2.34	.....	.....	10.28	.....	3.91
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	.....	.....	(³)
71 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	2
72 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	(³)
73 Average arrearage per acre.....dollars..	.....	.....	.....	.....	.....	.....	(³)
74 Reduction of debt by refinancing, prior to 1940.....dollars..	.....	(³)	.....	.....	(⁴)	.....	115,200
75 Enterprises reporting.....number.....	.....	1	.....	.....	3	.....	5
76 Land in these enterprises.....acres.....	.....	(³)	.....	.....	(⁴)	.....	68,016
77 Average reduction per acre.....dollars..	.....	(³)	.....	.....	(⁴)	.....	1.69

¹ For parishes having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.² Data in lines 46 and 47 are not included in lines 34 to 45.³ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.⁴ Amount of reduction reported for only 1 enterprise in Plaquemines Parish.

CENSUS OF DRAINAGE - LOUISIANA

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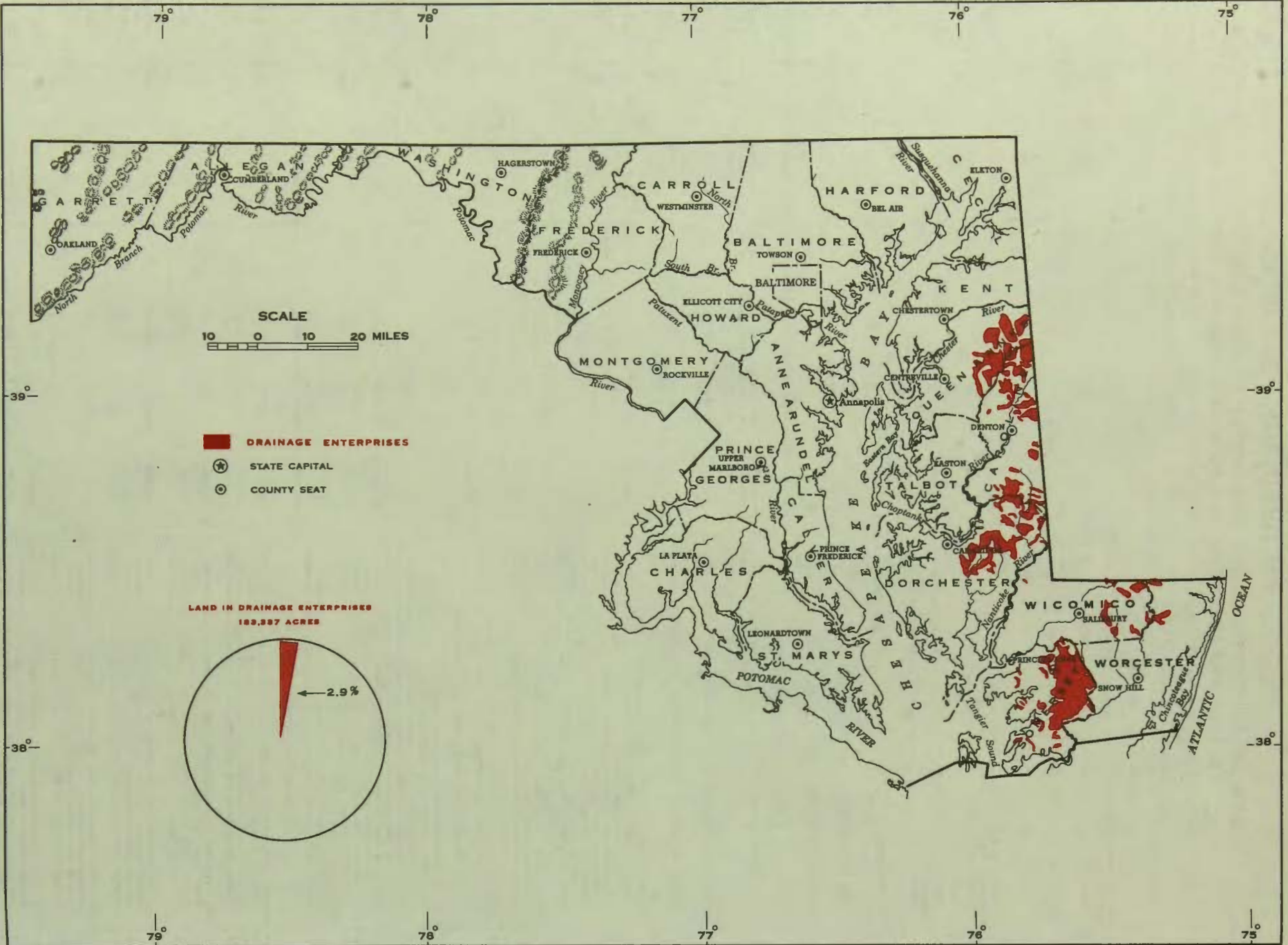
PARISH TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	St. Martin	St. Mary	Tangipahoa ¹	Terrebonne	Vermillion	West Baton Rouge	Other parishes ²
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	5	7	2	5	18	6	15
Open ditches:							
2 Completed.....miles.....1940..	147.5	72.5	205.0	56.5	480.5	53.0	587.6
3 1930..	103.0	63.5	110.0	71.0	466.0	63.5	422.5
4 1920..		71.0		35.0	313.5	45.2	256.0
5 Additional length authorized.....miles.....1940..					2.0		
Tile drains:							
6 Completed.....miles.....1940..							
7 1930..							
8 1920..							
9 Additional length authorized.....miles.....1940..							
Levees and dikes:							
10 Completed.....miles.....1940..		9.0		6.0	9.0		374.0
11 1930..		19.0		6.0	12.0		284.7
12 1920..		30.0		7.6	101.0		145.4
13 Additional length authorized.....miles.....1940..							
Pumping plants:							
14 Engine capacity.....horsepower.....1940..		190					3,250
15 1930..		1,100			185		1,290
16 1920..		860		125	525		1,625
17 Pump capacity.....gal. per min.....1940..		66,600					1,235,000
18 1930..		690,000			90,000		463,000
19 1920..		1,230,000		84,000	272,500		861,000
20 Land served by pumps.....acres.....1940..		4,439					34,228
21 1930..		22,000			4,000		20,794
22 1920..		20,725		4,200	11,564		37,363
23 Wells pumped for drainage.....number.....1940..							
24 1930..							
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	514,875	418,000	890,000	191,000	1,311,600	257,160	4,971,743
26 1930..	710,000	883,500	550,000	188,000	1,478,500	322,672	3,983,734
27 1920..		756,625		192,225	958,082	213,750	2,393,527
28 Estimated cost when completed.....dollars.....1940..	514,875	418,000	890,000	191,000	1,312,700	257,160	4,976,743
29 1930..	710,000	888,000	660,000	188,000	1,478,500	322,672	4,083,734
30 1920..		756,625		205,000	1,158,600	226,750	2,625,977
31 Average cost per acre when completed.....dollars.....1940..	6.22	6.61	11.43	2.03	2.99	4.85	5.84
32 1930..	9.22	15.95	10.48	2.49	3.45	3.61	
33 1920..		12.91		5.79	3.42	1.66	
Invested in and required for completion, 1940:							
34 Enterprises having open ditches only.....dollars..	514,875	288,000	890,000	103,500	1,137,700	257,160	1,059,000
35 Average amount per acre.....dollars..	6.22	4.90	11.43	1.44	2.67	4.85	3.39
36 Enterprises having open ditches and levees.....dollars..				87,500	175,000		2,719,651
37 Average amount per acre.....dollars..				3.94	14.58		5.38
38 Enterprises having tile only.....dollars..							
39 Average amount per acre.....dollars..							
40 Enterprises having tile and levees.....dollars..							
41 Average amount per acre.....dollars..							
42 Enterprises having open ditches and tile.....dollars..							
43 Average amount per acre.....dollars..							
44 Enterprises having ditches, tile, and levees.....dollars..							
45 Average amount per acre.....dollars..							
46 Enterprises operating pumping plants ³.....dollars..		130,000					1,198,092
47 Average amount per acre.....dollars..		29.28					35.00
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48 By enterprises operating pumping plants.....dollars..		(4)					4 19,560
49 Enterprises reporting.....number..		1					4
50 Land in these enterprises.....acres..		(4)					4 39,567
51 Average cost per acre.....dollars..		(4)					4 0.49
52 By enterprises not operating pumping plants.....dollars..	4,623	11,098	2,769	1,560	9,556	3,381	87,661
53 Enterprises reporting.....number..	4	5	2	4	12	4	10
54 Land in these enterprises.....acres..	82,803	52,877	77,855	79,233	272,733	43,170	637,201
55 Average cost per acre.....dollars..	0.06	0.21	0.04	0.02	0.04	0.08	0.14
Federal aid in maintenance:							
56 Enterprises reporting.....number..	2	4	2	2	9	2	6
57 Land in these enterprises.....acres..	(5)	39,055	77,855	(5)	223,163	(5)	275,325
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..	22,047	31,379	61,451	(5)	40,433	16,752	256,818
59 Enterprises reporting.....number..	5	5	2	2	13	4	13
60 Land in these enterprises.....acres..	82,803	35,236	77,855	(5)	274,993	43,170	824,549
61 Average amount collected per acre.....dollars..	0.27	0.89	0.79	(5)	0.15	0.39	0.31
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	4,810		500		(5)		24,403
63 Enterprises reporting.....number..	3		1		1		5
64 Land in these enterprises.....acres..	69,755		63,680		(5)		398,273
65 Portion delinquent in these enterprises.....percent..	6.9		0.8		(5)		6.1
66 Total indebtedness, Dec. 31, 1939.....dollars..	331,800	120,737	783,000	(5)	329,884	84,500	1,836,530
67 Enterprises reporting.....number..	5	5	2	2	13	3	12
68 Land in these enterprises.....acres..	82,803	35,236	77,855	(5)	265,788	34,784	810,549
69 Average indebtedness per acre.....dollars..	4.01	3.43	10.06	(5)	1.24	2.43	2.26
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..					8,362		484,132
71 Enterprises reporting.....number..					3		4
72 Land in these enterprises.....acres..					26,580		263,285
73 Average arrearage per acre.....dollars..					0.31		1.84
74 Reduction of debt by refinancing, prior to 1940.....dollars..	143,500		6 10,000		(5)		(5)
75 Enterprises reporting.....number..	5		2		1		1
76 Land in these enterprises.....acres..	82,803		6 14,175		(5)		(5)
77 Average reduction per acre.....dollars..	1.73		0.71		(5)		(5)

¹For parishes having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ²Includes Caddo, De Soto, Madison, Natchitoches, Orleans, Ouachita, Rapides, Red River, St. Bernard, St. Charles, St. Tammany, and Tensas Parishes in 1940; Caddo, Madison, Orleans, Rapides, St. Bernard, St. Charles, St. Tammany, and Tensas Parishes in 1930; and Caddo, Madison, Orleans, Rapides, St. Bernard, St. Charles, and St. Tammany Parishes in 1920. ³Data in lines 46 and 47 are not included in lines 34 to 45. ⁴Data for Cameron and St. Mary Parishes included with those for "other parishes" named in footnote 2. ⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1. ⁶Data for 1 enterprise; other did not report amount of reduction.

MARYLAND

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE—MARYLAND

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940¹

ITEM (See definitions in Introduction)	Amount	Percent of land in enterprises	ITEM (See definitions in Introduction)	Amount	Percent of land in enterprises
Approximate land area of State.....acres..	6,327,680		Land in drainage enterprises—Continued		
Land in drainage enterprises.....acres..	183,337	100.0	In occupied farms.....acres....	181,891	99.2
Improved.....acres..	133,622	72.9	In planted crops.....acres....	118,871	64.8
Unimproved:			Idle.....acres....	63,067	34.4
Timber and cut-over.....acres..	48,250	26.3	Available for settlement.....acres..		
Other.....acres..	1,465	0.8	Open ditches, completed.....miles....	461.3	
Drainage sufficient for normal crop.....acres..	172,747	94.3	Tile drains, completed.....miles....		
Partly drained, for partial crop.....acres..	7,600	4.1	Capital invested in enterprises.....dollars..	43,914	
Unfit to raise any crop for lack of drainage..acres..	2,990	1.6	Average per acre.....dollars..	0.24	

¹ Maryland was not included in prior censuses of drainage enterprises.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940

SIZE	Area of enterprises ¹		Land in enterprises ² 1940	SIZE	Area of enterprises ¹		Land in enterprises ² 1940
	Acres	Percent			Acres	Acres		Percent
All enterprises.....	190,922	100.0	183,337	500 to 999 acres.....	25,675	13.4	24,679
Less than 100 acres.....	99	0.1	99	1,000 to 1,999 acres.....	40,662	21.3	36,370
100 to 199 acres.....	1,102	0.6	1,102	2,000 to 4,999 acres.....	87,745	46.0	85,448
200 to 499 acres.....	10,003	5.2	10,003	5,000 to 9,999 acres.....	25,636	13.4	25,636

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	183,337	100.0	43,914	100.0
Drainage districts.....	183,337	100.0	43,914	100.0
Other, or not reported.....				

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940

TYPE OF DRAINAGE	Land in enterprises		Capital invested in enterprises	
	Acres	Percent	Dollars	Percent
All enterprises.....	183,337	100.0	43,914	100.0
Gravity drainage only by—				
Open ditches.....	183,337	100.0	43,914	100.0
All or part by pumping.....				

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises		Capital invested		Area delinquent Acres ⁽¹⁾
	Acres	Percent	Dollars	Percent	
All enterprises.....	183,337	100.0	43,914	100.0	(1)
Enterprises in arrears.....					
Enterprises not in arrears.....	183,337	100.0	43,914	100.0	(1)
With some delinquent land.....	(2)	(2)	(2)	(2)	(1)
With no delinquent land.....	(2)	(2)	(2)	(2)	
Enterprises not reporting on arrearage.....					

¹ Where there are less than 3 enterprises reporting in the State, data are not shown.

² Where there are less than 3 enterprises reporting, data are included in totals only.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes	Drainage taxes collected in 1939
	Acres	Dollars					
All enterprises.....	183,337	43,914				(1)	1,601
Enterprises in debt.....							
Enterprises not in debt.....	183,337	43,914				(1)	
Collecting drainage taxes in 1939.....	15,975	2,891				(1)	1,601
No collections reported.....	167,362	41,023					
Enterprises not reporting as to debt.....							

¹ Where there are less than 3 enterprises reporting in the State, data are not shown.

CENSUS OF DRAINAGE—MARYLAND

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	183,337	100.0	43,914	100.0
Improvement of land already in farms.....	183,337	100.0	43,914	100.0
Removal of alkali or seepage from irrigation.....				

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	183,337	100.0	190,922	7,585	43,914	100.0
1880-1889.....	980	0.5	1,976	996	1,125	2.6
1890-1899.....	204	0.1	1,822	1,618	363	0.8
1900-1904.....	158	0.1	158		152	0.3
1905-1909.....	2,913	1.6	5,210	2,297	2,141	4.9
1910-1914.....	2,977	1.6	5,651	2,674	1,995	4.5
1915-1919.....	18,037	9.8	18,037		6,276	14.3
1920-1924.....	19,429	10.6	19,429		10,861	24.7
1925-1929.....	12,774	7.0	12,774		4,431	10.1
1935-1939.....	125,865	68.7	125,865		16,570	37.8

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION				DEVELOPMENT				USE OF LAND				
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other un-improved land	In occupied farms		In planted crops	Idle	Land available for settlement
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	183,337	172,747	94.2	7,600	2,990	133,622	72.9	48,250	1,465	181,891	99.2	118,871	63,067	
1880-1889.....	980	980	100.0			686	70.0	294		980	100.0	500	480	
1890-1899.....	204	204	100.0			150	73.5	54		204	100.0	150	54	
1900-1904.....	158	158	100.0			158	100.0			158	100.0	158		
1905-1909.....	2,913	2,190	75.2	423	300	2,133	73.2	780		2,913	100.0	1,363	1,550	
1910-1914.....	2,977	2,727	91.6	250		2,081	69.9	896		2,977	100.0	1,373	1,601	
1915-1919.....	18,037	17,637	97.8	400	400	14,635	81.1	3,302	100	18,037	100.0	13,011	5,026	
1920-1924.....	19,429	19,185	98.7	244	244	14,972	77.1	4,148	309	19,374	99.7	13,346	4,714	
1925-1929.....	12,774	12,011	94.0	763	763	9,491	74.3	2,520	763	12,752	99.8	8,541	4,233	
1935-1939.....	125,865	117,655	93.5	6,927	1,283	89,316	71.0	36,256	293	124,496	98.9	80,429	45,406	

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Dollars	Dollars	Dollars	
All enterprises.....	183,337	183,337	15,199	168,138	1,540	0.01	0.01
Gravity drainage only:							
Open ditches only.....	183,337	183,337	15,199	168,138	1,540	0.01	0.01
Pumping for all or part of drainage.....							

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	183,337	100.0	43,914	100.0
Method:				
By district forces.....	17,794	9.7	3,396	7.7
"None," or not reporting.....	166,543	90.3	40,518	92.3
Whether systematic:				
Reporting "yes".....	17,794	9.7	3,396	7.7
Reporting "no".....	160,807	87.7	40,098	91.3
Not reporting.....	4,736	2.6	420	1.0

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Title	Levees
			Miles	Miles	Miles
All enterprises reporting Federal aid received.....	178,106	39,978	443.0		
Civilian Conservation Corps.....	178,106	39,978	443.0		
Other kind or combination.....					

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE,
AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Caroline	Dorchester	Queen Annes	Somerset	Other counties ¹
LAND AREA						
1 Approximate land area.....acres.....1940..	6,327,680	204,800	371,200	238,720	212,480	552,320
2 Drainage enterprises.....number.....1940..	126	33	26	17	40	10
3 Land in enterprises.....acres.....1940..	183,337	37,709	36,420	34,003	61,757	13,448
4 Area of all enterprises, overlapping included.....acres.....1940..	190,922	40,006	36,420	34,003	61,757	18,736
5 Amount of overlapping.....acres.....1940..	7,585	2,297	.....	.....	.....	5,288
CONDITION AND USE OF LAND						
6 Land with drainage sufficient for normal crop.....acres.....1940..	172,747	34,739	33,247	33,547	60,057	11,157
7 Land undrained, unfit for any crop.....acres.....1940..	2,990	700	.....	190	1,700	400
8 Land partly drained, for partial crop.....acres.....1940..	7,600	2,270	3,173	266	.....	1,891
9 Improved land.....acres.....1940..	133,622	26,579	20,848	29,526	46,971	9,698
Unimproved land:						
10 Woodland and cut-over land.....acres.....1940..	48,250	11,130	15,572	4,477	13,321	3,750
11 Other unimproved land.....acres.....1940..	1,465	.....	.....	.....	1,465	.....
12 Land in occupied farms.....acres.....1940..	181,891	37,709	35,051	34,003	61,680	13,448
13 Land in planted crops.....acres.....1940..	118,871	23,845	18,186	27,706	42,015	7,119
14 Land idle.....acres.....1940..	63,067	13,864	16,855	6,277	19,742	6,329
15 Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940						
16 Land drained by open ditches only.....acres.....	183,337	37,709	36,420	34,003	61,757	13,448
17 Length of these ditches.....miles.....	461.3	124.2	109.1	72.7	117.2	38.1
18 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
19 Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
20 Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....
21 Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
22 Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....
23 Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
24 Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....

¹Includes Wicomico and Worcester Counties.

²No intercounty enterprises reported. The number of schedules tabulated is 131.

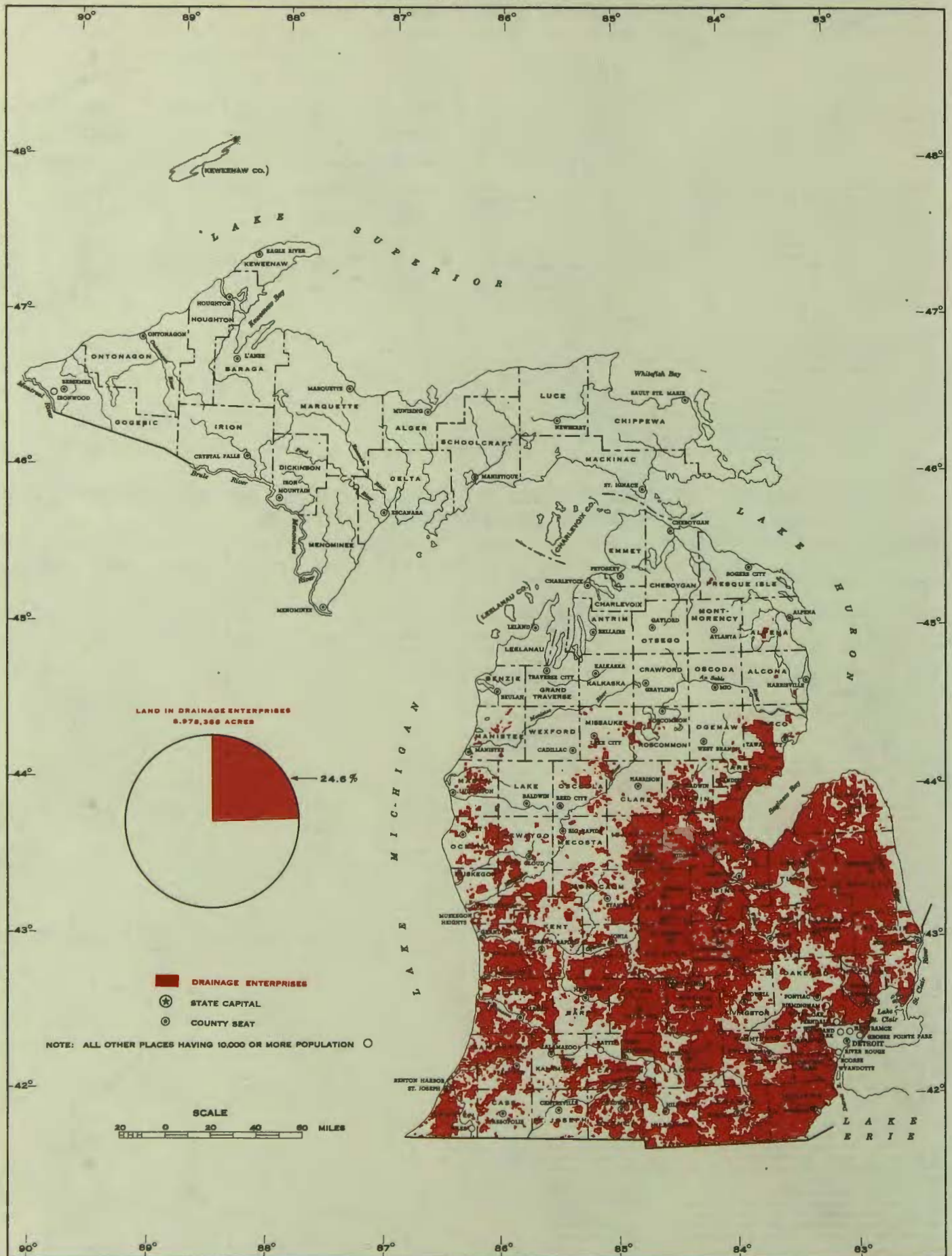
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, AND MAINTENANCE
AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Caroline	Dorchester	Queen Annes	Somerset	Other counties ¹
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	126	33	26	17	40	10
2 Open ditches:						
3 Completed.....miles.....1940..	461.3	124.2	109.1	72.7	117.2	38.1
4 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
5 Tile drains:						
6 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....
7 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
8 Levees and dikes:						
9 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....
10 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
11 Pumping plants:						
8 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....
9 Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....
10 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....
11 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED						
12 Capital invested to January 1.....dollars.....1940..	43,914	5,808	2,345	5,817	24,115	5,829
13 Estimated cost when completed.....dollars.....1940..	43,914	5,808	2,345	5,817	24,115	5,829
14 Average cost per acre when completed.....dollars.....1940..	0.24	0.15	0.06	0.17	0.39	0.43
Invested in and required for completion, 1940:						
15 Enterprises having open ditches only.....dollars.....	43,914	5,808	2,345	5,817	24,115	5,829
16 Average amount per acre.....dollars.....	0.24	0.15	0.06	0.17	0.39	0.43
17 Enterprises having open ditches and levees.....dollars.....	.....	.....	.....	.....	.....	.....
18 Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....
19 Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....
20 Enterprises having open ditches and tile.....dollars.....	.....	.....	.....	.....	.....	.....
21 Enterprises having ditches, tile, and levees.....dollars.....	.....	.....	.....	.....	.....	.....
22 Enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION						
Cost of maintenance and operation in 1939:						
23 By enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....
24 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....
25 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....
26 Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....
27 By enterprises not operating pumping plants.....dollars.....	1,540	(³)	.....	(⁴)	.....	.....
28 Enterprises reporting.....number.....	5	1	.....	4	.....	.....
29 Land in these enterprises.....acre.....	15,199	(³)	.....	(⁴)	.....	.....
30 Average cost per acre.....dollars.....	0.10	(³)	.....	(⁴)	.....	.....
Federal aid in maintenance:						
31 Enterprises reporting.....number.....	121	32	25	17	40	7
32 Land in these enterprises.....acres.....	178,106	37,505	35,440	34,003	61,757	9,401
FINANCIAL CONDITION						
33 Drainage taxes collected in 1939.....dollars.....	1,601	(³)	.....	(⁴)	.....	.....
34 Enterprises reporting.....number.....	6	2	.....	4	.....	.....
35 Land in these enterprises.....acres.....	15,975	(³)	.....	(⁴)	.....	.....
36 Average amount collected per acre.....dollars.....	0.10	(³)	.....	(⁴)	.....	.....
37 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	(⁵)	.....	.....	(⁵)	.....	.....
38 Enterprises reporting.....number.....	1	.....	.....	1	.....	.....
39 Land in these enterprises.....acres.....	(⁵)	.....	.....	(⁵)	.....	.....
40 Portion delinquent in these enterprises.....percent.....	(⁵)	.....	.....	(⁵)	.....	.....
41 Total indebtedness, Dec. 31, 1939.....dollars.....	.....	.....	.....	.....	.....	.....
42 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	.....	.....	.....	.....	.....	.....
43 Reduction of debt by refinancing, prior to 1940.....dollars.....	.....	.....	.....	.....	.....	.....

¹See footnote 1, County table I. ²See footnote 2, County table I. ³Where there are less than 3 enterprises reporting in a county, data are shown in State totals only. ⁴Data included in State totals only. ⁵Where there are less than 3 enterprises reporting in the State, data are not shown.

MICHIGAN

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — MICHIGAN

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	36,494,080	36,787,200	36,787,200				
Land in drainage enterprises.....acres.....	8,978,386	9,180,851	9,729,171	-202,465	-2.2	-548,320	-5.6
Improved.....acres.....	7,921,202	7,663,256	7,182,352	257,946	3.4	480,904	6.7
Unimproved:							
Timber and cut-over.....acres.....	681,044	980,846	2,195,562	-299,802	-30.6	-1,214,716	-55.3
Other.....acres.....	376,140	536,749	351,257	-160,609	-29.9	185,492	52.8
Drainage sufficient for normal crop.....acres.....	8,456,953	7,581,151	(1)	875,802	11.6		
Partly drained, for partial crop.....acres.....	273,237	1,068,246	(1)	-795,009	-74.4		
Unfit to raise any crop for lack of drainage.....acres.....	248,196	531,454	21,020,207	-283,258	-53.3	-488,753	-47.9
In occupied farms.....acres.....	7,796,979	8,826,265	(1)	-1,029,286	-11.7		
In planted crops.....acres.....	4,317,989	6,462,936	(1)	-2,144,947	-33.2		
Idle.....acres.....	1,082,024	1,041,456	(1)	40,568	3.9		
Available for settlement.....acres.....	5,882	50,237	(1)	-44,355	-88.3		
Open ditches, completed.....miles.....	19,608.6	17,188.5	16,023.8	2,420.1	14.1	1,164.7	7.3
Tile drains, completed.....miles.....	3,229.5	3,490.2	2,173.9	-260.7	-7.5	1,316.3	60.6
Drainage pumping plants, capacity.....horsepower.....	17	275	1,065	-258	-93.8	-790	-74.2
.....gal. per min.....	6,000	36,340	62,000	-30,340	-83.5	-26,660	-41.4
Capital invested in enterprises.....dollars.....	40,412,251	37,677,084	24,683,715	2,735,167	7.2	12,993,369	52.6
Average per acre.....dollars.....	4.50	4.10	2.54	0.40	9.8	1.56	61.4

¹Not available.

²Reported as "Swampy or subject to overflow".

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	1940
	Acres	Acres	Acres	Acres
All enterprises.....	16,070,273	15,032,692	15,766,478	8,978,386
Less than 100 acres.....	46,784	38,582		32,125
100 to 199 acres.....	199,401	158,023	155,089	141,453
200 to 499 acres.....	1,208,251	1,076,140	967,221	792,320
500 to 999 acres.....	2,073,240	1,866,876	1,849,136	1,324,952
1,000 to 1,999 acres.....	2,601,894	5,193,743	7,902,624	1,551,002
2,000 to 4,999 acres.....	3,221,981			
5,000 to 9,999 acres.....	1,951,253	1,743,097	3,251,318	976,868
10,000 to 19,999 acres.....	1,538,807	3,281,204	1,072,885	766,139
20,000 to 49,999 acres.....	1,511,306			
50,000 to 99,999 acres.....	769,674	445,530	568,205	422,641
100,000 to 199,999 acres.....	687,042	1,229,497		269,393
200,000 to 499,999 acres.....	200,640			112,046

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	8,978,386	100.0	40,412,251	100.0
County drains.....	8,970,826	99.9	40,402,851	99.9
Individually owned projects.....	7,560	0.1	9,400	0.1

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES							
	1940		1930		1920		1940		1930		1920			
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent		
All enterprises.....	8,978,386	100.0	9,180,851	100.0	9,729,171	100.0	40,412,251	100.0	37,677,084	100.0	24,683,715	100.0		
Gravity drainage only by—														
Open ditches.....	7,624,801	84.9	7,552,846	82.3	9,718,471	99.9	29,213,061	72.3	25,970,317	68.9	24,513,276	99.3		
Tile drains.....	503,806	5.6	586,050	6.4			5,780,401	14.3	4,408,439	11.7				
Open ditches and tile drains.....	848,979	9.5	1,032,185	11.2			5,408,048	13.4	6,898,828	18.3				
All drained by pumping by—														
Open ditches.....	800	(2)	770	(2)	1,100	(2)	10,741	(2)	49,500	0.2	22,139	0.1		
Tile drains.....														
Open ditches and tile drains.....														
Part only by pumping by—														
Open ditches.....			9,000	0.1	9,600	0.1			350,000	0.9	148,300	0.6		
Tile drains.....														
Open ditches and tile drains.....														
Total area served by pumps.....	800	(2)	8,270	0.1	10,100	0.1								

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

²Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE — MICHIGAN

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY				Land served	KIND OF POWER	Enter-prises	CAPACITY				Land served
		Engine or motor		Pump	G. p. m.				Engine or motor		Pump	G. p. m.	
		Number	Hp.						Percent	Number				Hp.	Percent
All pumping enterprises.....	1940..	2	17	100.0	6,000	800	Electric.....	1940..	1	7	41.2	1,000	450
	1930..	2	275	100.0	36,340	8,270		1930..	1	25	9.1	3,000	770
	1920..	3	1,065	100.0	62,000	10,100		1920..	.....	.....	.....	.....	.....
Steam.....	1940..	.....	.....	.....	.....	.....	Internal combustion.....	1940..	1	10	58.8	5,000	350
	1930..	.....	.....	.....	.....	.....		1930..	1	250	90.9	33,340	7,500
	1920..	3	1,065	100.0	62,000	10,100		1920..	.....	.....	.....	.....	.....

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity	Land served
		Capacity			
		G. p. m.	Percent		
All pumping enterprises.....	1940..	2	6,000	100.0	800
	1930..	3	36,340	100.0	8,270
Centrifugal.....	1940..	2	6,000	100.0	800
	1930..	3	36,340	100.0	8,270

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	8,978,386	100.0	9,180,851	100.0	40,412,251	100.0	37,677,084	100.0	37,026	324,945
Enterprises in arrears.....	64,770	0.7	630,065	6.9	882,102	2.2	1,499,121	4.0	10,574	292,814
With some delinquent land.....	47,327	0.6	590,703	6.5	738,023	1.8	1,260,440	3.4	10,574	292,814
With no delinquent land.....	15,703	0.2	2,000	(²)	108,329	0.3	13,960	(²)	.....	.....
With no report on delinquency.....	1,740	(²)	37,392	0.4	35,750	0.1	224,721	0.6	.....	.....
Enterprises not in arrears.....	8,865,361	98.7	8,550,756	93.1	39,393,323	97.5	36,177,963	96.0	26,452	32,131
With some delinquent land.....	187,232	2.1	75,165	0.8	962,452	2.4	1,113,608	2.9	26,452	32,131
With no delinquent land.....	8,576,340	95.5	8,331,430	91.4	38,103,502	94.3	34,697,174	92.1	.....	.....
With no report on delinquency.....	101,789	1.1	81,161	0.9	327,369	0.8	367,181	1.0	.....	.....
Enterprises not reporting on arrearage.....	48,255	0.5	.....	.....	136,826	0.3	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no delinquent land.....	11,449	0.1	.....	.....	59,279	0.1	.....	.....	.....	.....
With no report on delinquency.....	36,806	0.4	.....	.....	77,547	0.2	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.
² Less than one-tenth of 1 percent.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	8,978,386	40,412,251	809,579	156,741	1,250	37,026	233,665
Enterprises in debt.....	574,776	4,192,760	809,579	156,741	1,250	18,834	116,059
In arrears, amount of arrearage stated.....	64,770	883,142	173,788	156,741	1,250	10,574	39,409
Collecting drainage taxes in 1939.....	28,836	512,151	91,662	77,536	1,250	4,867	39,409
No collections reported.....	35,934	370,991	82,126	79,205	.....	5,707	.....
Not in arrears.....	510,006	3,309,618	635,791	.....	.....	8,260	76,650
Collecting drainage taxes in 1939.....	118,716	888,492	123,074	.....	.....	4,909	76,650
No collections reported.....	391,290	2,421,126	512,717	.....	.....	3,351	.....
Enterprises not in debt.....	8,347,884	36,010,385	.....	.....	.....	18,112	116,454
Collecting drainage taxes in 1939.....	679,774	2,640,758	.....	.....	.....	12,696	116,454
No collections reported.....	7,668,110	33,369,627	.....	.....	.....	5,416	.....
Enterprises not reporting as to debt.....	55,726	209,106	.....	.....	.....	80	1,152
Collecting drainage taxes in 1939.....	986	4,975	.....	.....	.....	80	1,152
No collections reported.....	54,730	204,131	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

CENSUS OF DRAINAGE - MICHIGAN

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	8,978,386	100.0	40,412,251	100.0	Reclamation of swamp land not previously in farms.....	97,469	1.1	246,711	0.6
Improvement of land already in farms....	8,872,732	98.8	40,115,649	99.3	Protection against overflow.....	8,185	0.1	49,891	0.1

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	8,978,386	100.0	16,070,273	7,091,887	40,412,251	100.0
Before 1870.....	2,225	0.1	6,602	4,377	21,226	0.1
1870-1879.....	380	(³)	1,434	1,054	1,889	(³)
1880-1889.....	11,565	0.1	27,396	16,831	59,734	0.1
1890-1899.....	398,889	4.4	1,175,296	776,407	1,968,647	4.9
1900-1904.....	1,375,416	15.3	3,822,142	2,446,726	6,264,488	15.5
1905-1909.....	1,204,860	13.4	2,594,916	1,390,058	5,358,641	13.2
1910-1914.....	1,288,142	14.3	2,215,369	927,227	5,334,384	13.2
1915-1919.....	1,865,166	20.8	2,773,859	908,693	8,973,550	22.2
1920-1924.....	994,702	11.1	1,308,982	314,280	5,024,864	12.4
1925-1929.....	1,135,169	12.7	1,334,678	199,509	5,079,557	12.6
1930-1934.....	281,162	3.1	357,281	76,119	1,245,258	3.1
1935-1939.....	420,710	4.7	452,318	31,608	1,080,013	2.7

¹Land included in more than 1 enterprise is tabulated only in the last organized.
²The sum of the areas of the individual enterprises.
³Less than one-tenth of 1 percent.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement		
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	8,978,386	8,456,953	94.2	273,237	248,196	7,921,202	88.2	681,044	376,140	7,796,979	86.8	4,317,969	1,082,024	5,882
Before 1870.....	2,225	2,225	100.0	.....	.....	2,042	91.8	182	1	2,027	91.1	1,218	1	.....
1870-1879.....	380	375	98.7	.....	5	340	89.5	35	5	343	90.3	208	.....	.....
1880-1889.....	11,565	11,367	98.3	80	118	11,200	96.8	340	25	10,448	90.3	6,687	560	.....
1890-1899.....	398,889	379,647	95.2	11,469	7,773	360,444	90.4	26,942	11,503	352,010	88.2	201,457	35,223	40
1900-1904.....	1,375,416	1,293,758	94.1	49,307	32,351	1,216,029	88.4	116,220	43,167	1,210,052	88.0	667,739	155,479	1,188
1905-1909.....	1,204,860	1,135,993	94.3	39,018	29,849	1,066,554	88.5	91,431	46,875	1,054,863	87.6	586,994	131,040	260
1910-1914.....	1,288,142	1,215,895	94.4	36,497	35,750	1,124,850	87.3	117,353	45,939	1,114,305	86.5	611,309	156,431	1,482
1915-1919.....	1,865,166	1,729,556	92.7	74,517	61,093	1,632,060	87.5	143,138	89,968	1,600,275	85.8	872,057	244,195	180
1920-1924.....	994,702	919,745	92.5	32,299	42,658	883,510	86.8	64,591	66,601	832,717	83.7	459,533	144,208	69
1925-1929.....	1,135,169	1,104,026	97.2	16,815	14,328	1,025,522	90.3	82,706	26,941	1,003,284	88.4	567,127	124,719	2,183
1930-1934.....	281,162	269,776	96.0	2,581	8,805	255,872	91.0	10,275	15,015	248,084	88.2	142,728	27,647	.....
1935-1939.....	420,710	394,590	93.8	10,654	15,466	362,779	86.2	27,831	30,100	368,571	87.6	200,932	62,521	480

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	8,978,386	8,900,800	753,859	8,146,941	179,318	0.02	0.24
Gravity drainage only.....	8,977,586	8,900,000	753,409	8,146,591	178,778	0.02	0.24
Open ditches only.....	7,620,741	7,549,379	608,938	6,940,441	125,472	0.02	0.21
Open ditches and levees.....	4,060	2,730	.....	2,730	.....	.....	.....
Tile drains only.....	503,303	501,002	56,887	444,115	31,566	0.06	0.55
Tile drains and levees.....	503	503	.....	503	.....	.....	.....
Open ditches and tile drains.....	848,539	845,946	87,584	758,362	21,740	0.02	0.25
Open ditches, tile drains, and levees.....	440	440	.....	440	.....	.....	.....
Pumping for all or part of drainage: All drainage by pumping.....	800	800	450	350	540	0.68	1.20

CENSUS OF DRAINAGE — MICHIGAN

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	8,978,386	100.0	40,412,251	100.0
Method:				
By district forces.....	2,056,227	22.9	9,919,675	24.5
By contract.....	6,430,482	71.6	29,045,256	71.9
Work apportioned to landowners.....	102,940	1.1	211,711	0.5
"None," or not reporting.....	388,737	4.4	1,235,609	3.1
Whether systematic:				
Reporting "yes".....	6,333,246	70.5	29,877,578	73.9
Reporting "no".....	2,578,264	28.7	10,210,770	25.3
Not reporting.....	66,876	0.8	323,903	0.8

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	8,978,386	49,289	0.5
Capital invested.....dollars..	40,412,251	194,199	0.5
Drainage works:			
Open ditches.....miles....	19,608.6	96.9	0.5
Tile drains.....miles....	3,229.5	11.8	0.4
Levees.....miles....	13.6		

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	2,256,968	9,356,645	5,307.1	481.8	1.2
Work Projects Administration.....	2,152,911	9,004,694	5,136.9	480.7	1.2
W.P.A. and C.C.C.....	260	6,850	4.1		
Other kind or combination ¹	103,797	345,101	164.1	1.1	

¹Includes 17 enterprises reporting Federal aid received but not the agency giving it.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Allegan *	Alpena	Arenac	Barry	
LAND AREA						
1	Approximate land area.....acres....1940..	36,494,080	530,560	363,520	235,520	351,360
2	Drainage enterprises.....number....1940..	1 8,130	382	5	117	97
3	Land in enterprises.....acres....1940..	8,978,386	286,951	6,960	145,399	115,767
4	.....1930..	9,180,851	278,454	5,460	132,343	154,722
5	.....1920..	9,729,171	312,915	(2)	143,734	143,508
6	Area of all enterprises, overlapping included.....acres....1940..	16,070,273	405,077	6,960	197,275	198,798
7	Amount of overlapping.....acres....1940..	7,091,887	118,126	.....	51,876	83,031
CONDITION AND USE OF LAND						
8	Land with sufficient drainage for normal crop.....acres....1940..	8,456,953	283,026	6,860	125,475	106,900
9	.....1930..	7,581,151	276,511	3,980	122,080	133,476
10	Increase or decrease (-), 1930-1940.....acres.....	875,802	6,515	2,880	3,395	-26,576
11	.....percent.....	11.6	2.4	72.4	2.8	-19.9
12	Land unirrigated, unfit for any crop.....acres....1940..	248,196	1,250	100	7,414	4,788
13	.....1930..	531,454	1,143	1,080	2,611	10,678
14	Increase or decrease (-), 1930-1940.....acres.....	-283,258	107	-980	4,803	-5,890
15	.....percent.....	-53.3	9.4	-90.7	184.0	-55.2
16	Land partly drained, for partial crop.....acres....1940..	273,237	2,675	.....	12,510	1,079
17	.....1930..	1,068,246	800	400	7,652	10,568
18	Increase or decrease (-), 1930-1940.....acres.....	-795,009	1,875	-400	4,858	-6,489
19	.....percent.....	-74.4	234.4	-100.0	63.5	-61.4
20	Improved land.....acres....1940..	7,921,202	243,676	6,860	91,414	100,372
21	.....1930..	7,663,256	273,000	2,980	95,306	133,780
22	.....1920..	7,182,352	298,943	(2)	58,386	116,347
Unimproved land:						
23	Woodland and cut-over land.....acres....1940..	681,044	42,325	.....	40,478	11,381
24	.....1930..	980,846	3,270	1,680	34,266	20,192
25	.....1920..	2,195,562	14,072	(2)	85,348	16,729
26	Other unimproved land.....acres....1940..	376,140	950	100	13,507	4,014
27	.....1930..	536,749	2,184	800	2,771	750
28	.....1920..	351,257	.....	(2)	.....	10,432
29	Land in occupied farms.....acres....1940..	7,796,979	226,000	6,960	97,400	109,600
30	.....1930..	8,826,265	277,773	2,980	105,472	153,520
31	Increase or decrease (-), 1930-1940.....acres.....	-1,029,286	-51,773	3,980	-8,072	-43,920
32	.....percent.....	-11.7	-18.6	133.6	-7.6	-28.6
33	Land in planted crops.....acres....1940..	4,317,989	109,100	6,174	38,700	53,400
34	.....1930..	6,462,936	250,374	1,460	59,225	99,172
35	Increase or decrease (-), 1930-1940.....acres.....	-2,144,947	-141,274	4,714	-20,525	-45,772
36	.....percent.....	-33.2	-56.4	322.9	-34.6	-46.2
37	Land idle.....acres....1940..	1,082,024	102,828	.....	71,663	17,440
38	.....1930..	1,041,456	14,776	2,560	33,802	24,537
39	Increase or decrease (-), 1930-1940.....acres.....	40,568	88,052	-2,560	37,861	-7,197
40	.....percent.....	3.9	595.9	-100.0	112.0	-29.2
41	Land available for settlement.....acres....1940..	5,882	.....	.....	.....	.....
42	.....1930..	50,237	400	1,000	10,640	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-44,355	-400	-1,000	-10,640	.....
44	.....percent.....	-86.3	-100.0	-100.0	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940						
45	Land drained by open ditches only.....acres.....	7,620,741	272,425	6,960	143,829	85,424
46	Length of these ditches.....miles.....	18,015.9	575.0	13.0	283.1	107.7
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	4,060	.....	.....	560	985
49	Length of these ditches.....miles.....	21.2	.....	.....	2.0	0.2
50	Length of these levees.....miles.....	10.5	.....	.....	0.1	2.8
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	503,303	4,989	.....	.....	9,728
53	Length of these tile.....miles.....	2,128.0	12.4	.....	.....	34.1
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	503	.....	.....	.....	.....
56	Length of these tile.....miles.....	1.1	.....	.....	.....	.....
57	Length of these levees.....miles.....	2.1	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	848,539	9,537	.....	1,010	19,630
60	Length of these open ditches.....miles.....	1,569.4	17.4	.....	2.5	33.9
61	Length of these tile.....miles.....	1,099.6	13.0	.....	0.7	34.6
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	440	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	1.1	.....	.....	.....	.....
65	Length of these tile.....miles.....	0.8	.....	.....	.....	.....
66	Length of these levees.....miles.....	0.8	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	5,800	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	1.0	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	0.2	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 7,632.

²Included in "Other counties."

³Office estimate; reported figures exceed acreage in all farms as determined by the Census of Agriculture.

⁴Data in lines 68 to 72 are not included in lines 45 to 67.

⁵Includes data not distributed by counties.

CENSUS OF DRAINAGE — MICHIGAN

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Clinton	Eaton	Genesee	Gladwin	Gratiot	Hillsdale	
LAND AREA							
1	Approximate land area.....acres.....1940..	365,440	362,880	412,160	321,920	362,240	384,640
2	Drainage enterprises.....number.....1940..	226	249	316	127	478	196
3	Land in enterprises.....acres.....1940..	309,676	280,191	216,856	102,688	338,828	178,599
4	.....1930..	263,358	321,576	231,171	98,008	315,491	188,410
5	.....1920..	272,709	347,032	188,943	124,029	324,969	197,849
6	Area of all enterprises, overlapping included.....acres.....1940..	540,757	911,262	287,229	106,428	553,099	248,618
7	Amount of overlapping.....acres.....1940..	231,061	631,071	70,373	3,730	214,271	70,019
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres.....1940..	285,837	249,330	216,441	71,540	290,903	171,312
9	.....1930..	224,494	277,129	170,502	97,903	182,739	100,852
10	Increase or decrease (-), 1930-1940.....acres.....	61,343	-27,799	45,939	-26,363	108,164	70,460
11	.....percent.....	27.3	-10.0	26.9	-26.9	59.2	68.9
12	Land undrained, unfit for any crop.....acres.....1940..	10,308	8,250	250	29,358	9,433	2,399
13	.....1930..	12,866	12,968	23,191	.....	20,202	23,112
14	Increase or decrease (-), 1930-1940.....acres.....	-2,558	-4,718	-22,941	29,358	-10,769	-20,713
15	.....percent.....	-19.9	-36.5	-98.9	.....	-53.3	-89.6
16	Land partly drained, for partial crop.....acres.....1940..	13,531	22,611	165	1,900	38,492	4,888
17	.....1930..	25,998	31,459	37,478	105	112,550	64,446
18	Increase or decrease (-), 1930-1940.....acres.....	-12,467	-8,848	-37,313	1,655	-74,058	-59,558
19	.....percent.....	-48.0	-28.1	-99.6	(1)	-65.8	-92.4
20	Improved land.....acres.....1940..	286,501	247,177	211,174	68,740	280,866	162,572
21	.....1930..	224,501	270,022	196,129	79,993	263,400	129,635
22	.....1920..	187,269	261,989	136,149	68,182	249,338	185,366
Unimproved land:							
23	Woodland and cut-over land.....acres.....1940..	11,549	16,736	3,750	8,660	52,274	11,909
24	.....1930..	26,006	51,442	20,436	18,015	42,404	21,594
25	.....1920..	85,440	85,043	52,443	55,947	75,631	6,889
26	Other unimproved land.....acres.....1940..	11,626	16,276	1,932	25,298	5,688	4,118
27	.....1930..	12,851	112	14,606	.....	9,687	37,181
28	.....1920..	.....	.....	351	.....	.....	5,594
29	Land in occupied farms.....acres.....1940..	300,400	269,500	184,400	59,200	315,200	178,146
30	.....1930..	263,332	318,683	231,063	82,853	286,588	170,991
31	Increase or decrease (-), 1930-1940.....acres.....	37,068	-49,183	-46,663	-23,653	28,612	7,155
32	.....percent.....	14.1	-15.4	-20.2	-28.5	10.0	4.2
33	Land in planted crops.....acres.....1940..	169,200	141,600	101,800	20,400	184,200	105,519
34	.....1930..	104,832	215,202	194,996	74,247	257,395	102,412
35	Increase or decrease (-), 1930-1940.....acres.....	64,368	-73,602	-93,196	-53,847	-73,195	3,107
36	.....percent.....	61.4	-51.8	-91.5	-72.5	-28.4	3.0
37	Land idle.....acres.....1940..	16,745	15,835	1,705	33,958	2,699	21,095
38	.....1930..	29,284	37,493	336	14,450	35,006	25,255
39	Increase or decrease (-), 1930-1940.....acres.....	-12,539	-21,658	1,369	19,508	-32,307	-4,160
40	.....percent.....	-42.8	-57.8	407.4	135.0	-92.3	-16.5
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	14,615	9,461	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	-14,615	-9,461	.....
44	.....percent.....	.....	.....	.....	-100.0	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	254,872	156,197	137,452	102,348	195,578	87,399
46	Length of these ditches.....miles.....	449.2	325.8	340.0	269.5	581.2	117.3
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	16,835	39,366	30,502	350	58,255	35,172
53	Length of these tile.....miles.....	80.8	223.2	108.5	1.5	229.9	140.8
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	503	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	1.1	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	2.1	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	37,969	84,628	48,399	.....	84,645	56,028
60	Length of these open ditches.....miles.....	78.7	134.4	81.3	.....	154.0	59.2
61	Length of these tile.....miles.....	60.1	135.6	68.0	.....	90.0	69.6
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - MICHIGAN

COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Huron	Ingham	Ionia	Iosco	Isabella	Jackson
LAND AREA							
1	Approximate land area.....acres....1940..	526,080	357,760	368,000	350,080	366,080	451,200
2	Drainage enterprises.....number...1940..	178	237	137	19	281	65
3	Land in enterprises.....acres....1940..	309,524	263,980	166,479	91,458	218,992	253,462
4	.....1930..	339,544	308,856	155,890	39,988	247,472	290,909
5	.....1920..	430,219	222,114	286,153	31,974	307,024	76,139
6	Area of all enterprises, overlapping included.....acres....1940..	613,293	403,377	284,282	95,618	390,121	430,955
7	Amount of overlapping.....acres....1940..	303,769	139,397	117,803	4,160	171,129	177,493
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	309,524	214,069	148,840	65,066	203,384	241,614
9	.....1930..	289,439	235,070	133,347	33,783	220,581	231,879
10	Increase or decrease (-), 1930-1940.....acres.....	20,085	-21,001	15,493	28,283	-17,197	9,735
11	.....percent.....	6.9	-7.4	11.6	76.9	-7.8	4.2
12	Land undrained, unfit for any crop.....acres....1940..	.....	24,485	13,268	26,083	1,865	6,433
13	.....1930..	8,849	26,450	8,998	811	1,015	11,814
14	Increase or decrease (-), 1930-1940.....acres.....	-8,849	-1,965	4,270	25,272	850	-5,381
15	.....percent.....	-100.0	-7.4	47.4	(¹)	83.7	-45.5
16	Land partly drained, for partial crop.....acres....1940..	.....	25,426	4,371	309	13,743	5,415
17	.....1930..	41,256	47,336	13,545	2,394	25,876	47,216
18	Increase or decrease (-), 1930-1940.....acres.....	-41,256	-21,910	-9,174	-2,085	-12,133	-41,801
19	.....percent.....	-100.0	-46.3	-67.7	-87.1	-46.9	-88.5
20	Improved land.....acres....1940..	309,524	217,655	146,529	63,628	206,956	237,135
21	.....1930..	283,861	239,030	136,744	28,792	220,437	231,935
22	.....1920..	² 357,924	177,928	228,743	14,348	² 201,061	51,747
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	.....	27,109	5,894	4,151	3,220	3,620
24	.....1930..	38,953	30,040	11,602	10,390	27,035	45,690
25	.....1920..	72,295	9,905	43,188	14,731	105,963	4,273
26	Other unimproved land.....acres....1940..	.....	19,215	13,066	23,679	8,816	12,707
27	.....1930..	16,730	39,780	7,544	806	.....	13,284
28	.....1920..	.....	34,281	14,222	2,895	.....	10,119
29	Land in occupied farms.....acres....1940..	286,100	199,324	161,485	30,700	185,249	229,372
30	.....1930..	336,273	308,260	155,890	31,990	247,302	290,909
31	Increase or decrease (-), 1930-1940.....acres.....	-50,173	-108,936	5,595	-1,290	-62,053	-61,537
32	.....percent.....	-14.9	-35.3	3.6	-4.0	-25.1	-21.2
33	Land in planted crops.....acres....1940..	174,200	111,000	91,397	9,330	97,000	87,900
34	.....1930..	197,473	175,075	132,954	19,994	204,243	219,334
35	Increase or decrease (-), 1930-1940.....acres.....	-23,273	-64,075	-41,557	-10,664	-107,243	-131,434
36	.....percent.....	-11.8	-36.6	-31.2	-53.3	-52.5	-59.9
37	Land idle.....acres....1940..	.....	22,142	49,504	26,295	69,918	28,382
38	.....1930..	43,056	6,900	101	9,996	15	34,042
39	Increase or decrease (-), 1930-1940.....acres.....	-43,056	15,242	49,403	16,299	69,903	-5,660
40	.....percent.....	-100.0	220.9	(¹)	163.0	(¹)	-16.6
41	Land available for settlement.....acres....1940..	.....	.....	2,222	.....	.....	.....
42	.....1930..	.....	430	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-430	2,222	.....	.....	.....
44	.....percent.....	.....	-100.0	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	302,484	203,165	78,347	91,458	108,431	241,938
46	Length of these ditches.....miles.....	976.1	379.4	138.6	46.9	243.4	153.2
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	6,220	39,235	20,911	.....	45,863	3,540
53	Length of these tile.....miles.....	8.4	142.0	92.3	.....	211.4	14.7
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	820	21,580	67,221	.....	64,698	7,984
60	Length of these open ditches.....miles.....	5.3	44.7	88.2	.....	130.2	14.5
61	Length of these tile.....miles.....	4.0	26.6	56.6	.....	152.2	9.1
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹ Percent not shown when more than 1,000.

² Office estimate; reported figures exceed acreage in all farms as determined by the Census of Agriculture.

CENSUS OF DRAINAGE - MICHIGAN

COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Monroe	Montcalm	Muskegon	Newaygo	Oakland	Oceana	Ogemaw	Osceola
LAND AREA									
1	Approximate land area.....acres....1940..	359,680	455,680	322,560	548,480	561,280	343,040	367,360	371,840
2	Drainage enterprises.....number....1940..	351	118	83	115	101	60	7	44
3	Land in enterprises.....acres....1940..	322,000	127,316	82,178	115,593	155,451	78,112	9,800	46,240
4	.....1930..	320,305	133,884	95,248	105,578	183,650	81,259	5,960	49,000
5	.....1920..	251,387	153,513	85,919	116,695	179,541	84,587	.....	48,829
6	Area of all enterprises, overlapping included.....acres....1940..	712,573	162,634	109,468	149,829	319,984	113,180	9,800	52,173
7	Amount of overlapping.....acres....1940..	390,573	35,318	27,290	34,236	164,533	35,068	.....	5,933
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	321,987	114,287	71,034	105,433	151,918	47,330	8,176	38,082
9	.....1930..	312,563	94,965	90,713	99,348	153,933	51,840	5,482	44,915
10	Increase or decrease (-), 1930-1940.....acres.....	9,424	19,302	-19,679	6,085	-2,015	-4,510	2,694	-6,833
11	.....percent.....	3.0	20.3	-21.7	6.1	-1.3	-8.7	49.1	-15.2
12	Land undrained, unfit for any crop.....acres....1940..	.....	8,182	11,144	3,542	460	1,670	1,554	2,319
13	.....1930..	4,370	18,202	303	1,630	6,701	14,070	130	1,010
14	Increase or decrease (-), 1930-1940.....acres.....	-4,370	-10,020	10,841	1,912	-6,241	-12,400	1,424	1,309
15	.....percent.....	-100.0	-55.0	(⁴)	117.3	-93.1	-88.1	(⁴)	129.6
16	Land partly drained, for partial crop.....acres....1940..	13	4,947	.....	6,618	3,073	29,112	70	5,839
17	.....1930..	3,372	20,697	4,232	4,600	23,016	15,349	348	3,075
18	Increase or decrease (-), 1930-1940.....acres.....	-3,359	-15,850	-4,232	2,018	-19,943	13,763	-278	2,764
19	.....percent.....	-99.6	-76.6	-100.0	43.9	-86.6	89.7	-79.9	89.9
20	Improved land.....acres....1940..	257,429	96,735	71,134	81,660	147,545	46,798	7,921	30,347
21	.....1930..	302,464	100,264	81,555	84,964	166,024	56,980	4,291	33,440
22	.....1920..	215,029	110,816	77,417	81,258	132,131	37,116	.....	33,214
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	2,380	27,325	.....	31,638	527	29,644	1,032	8,155
24	.....1930..	12,033	6,552	7,480	20,404	2,614	21,695	1,546	15,365
25	.....1920..	32,314	39,894	8,146	35,437	47,410	47,063	.....	15,615
26	Other unimproved land.....acres....1940..	62,191	3,256	11,044	2,295	7,379	1,670	847	7,738
27	.....1930..	5,808	27,068	6,213	210	15,012	2,584	123	195
28	.....1920..	4,044	2,603	356	.....	408	.....	.....	.....
29	Land in occupied farms.....acres....1940..	267,000	122,555	80,278	94,900	120,171	76,372	7,944	30,347
30	.....1930..	316,760	133,784	93,725	93,503	183,169	72,499	4,794	35,880
31	Increase or decrease (-), 1930-1940.....acres.....	-49,760	-11,229	-13,447	1,397	-62,998	3,873	3,150	-5,533
32	.....percent.....	-15.7	-8.4	-14.3	1.5	-34.4	5.3	65.7	-15.4
33	Land in planted crops.....acres....1940..	172,500	92,687	27,100	42,100	87,569	46,120	7,560	26,799
34	.....1930..	290,535	78,750	63,550	68,488	122,141	46,485	3,010	29,884
35	Increase or decrease (-), 1930-1940.....acres.....	-118,035	13,937	-36,450	-26,388	-34,572	-365	4,550	-3,085
36	.....percent.....	-40.6	17.7	-57.4	-38.5	-28.3	-0.8	151.2	-10.3
37	Land idle.....acres....1940..	80,698	1,395	.....	38,306	22,914	27,012	1,740	7,070
38	.....1930..	16,241	41,130	17,308	23,852	10,483	25,820	1,100	3,675
39	Increase or decrease (-), 1930-1940.....acres.....	64,457	-39,735	-17,308	14,454	12,431	1,192	640	3,395
40	.....percent.....	396.9	-96.6	-100.0	60.6	118.6	4.6	58.2	92.4
41	Land available for settlement.....acres....1940..	.....	160	.....	.....	744	.....	.....	.....
42	.....1930..	.....	.....	1,000	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	160	-1,000	.....	744	.....	.....	.....
44	.....percent.....	.....	.....	-100.0	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	300,533	94,542	75,541	111,850	133,113	75,864	9,800	43,338
46	Length of these ditches.....miles.....	1,075.4	167.3	151.0	194.1	236.3	95.5	12.5	54.3
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	680	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	1.5	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	0.3	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	13,242	3,901	3,807	865	3,762	128	.....	.....
53	Length of these tile.....miles.....	43.6	11.4	14.9	3.2	22.2	0.3	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	7,775	28,873	2,150	2,878	18,576	2,120	.....	2,902
60	Length of these open ditches.....miles.....	14.5	79.6	5.0	8.2	34.7	3.5	.....	9.2
61	Length of these tile.....miles.....	5.6	15.5	0.7	3.9	13.5	1.7	.....	4.7
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁶.....acres.....	450	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	0.8	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² Includes Alcona and Benzie Counties in 1940; Alcona, Benzie, Charlevoix, Luce, and Presque Isle Counties in 1930; and Alcona, Alpena, Benzie, Charlevoix, Emmett, Grand Traverse, Luce, and Presque Isle Counties in 1920.
³ Included in "Other counties."

CENSUS OF DRAINAGE — MICHIGAN

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

Ottawa	Presque Isle ¹	Roscommon	Saginaw	St. Clair	St. Joseph	Sanilac	Shiawassee	Tuscola	Van Buren	Washtenaw	Wayne	Other counties ²	
360,960	418,560	333,440	519,680	473,600	323,120	615,040	345,600	522,240	388,480	458,240	388,480	635,520	1
194	1	8	252	184	40	153	296	176	182	150	291	3	2
190,587	1,800	12,220	366,116	234,481	29,966	439,293	268,253	350,716	183,815	202,098	197,000	3,200	3
183,845	(³)	14,340	357,850	250,288	36,000	386,701	280,982	365,589	182,653	257,903	127,382	45,642	4
282,628	(³)	8,360	444,570	194,825	31,151	540,607	281,166	487,423	173,508	191,586	259,667	59,128	5
277,477	1,800	12,220	849,199	304,514	42,414	1,043,349	427,942	1,001,742	311,047	436,716	381,046	3,200	6
86,880	.....	.....	483,083	70,033	12,448	604,056	159,579	661,026	127,232	234,618	184,046	.....	7
190,587	1,800	10,296	366,057	223,316	29,089	436,403	265,053	349,816	136,278	199,639	196,880	1,650	8
182,885	(³)	11,064	347,910	238,686	27,450	313,986	258,213	247,419	114,774	225,500	100,554	32,766	9
7,702	.....	-768	18,147	-15,370	1,839	122,417	6,840	102,497	21,504	-25,951	96,326	-31,116	10
4.2	.....	-6.9	5.2	-6.4	6.0	39.0	2.6	41.4	18.7	-11.5	95.8	-95.0	11
.....	.....	754	.....	7,155	708	2,838	.....	800	20,625	55	.....	1,550	12
285	(³)	1,733	1,500	3,899	4,333	23,480	8,438	69,822	12,070	20,541	12,302	7,470	13
-285	.....	-979	-1,800	3,256	-3,625	-20,642	-8,483	-69,122	8,555	-20,886	-12,302	-5,820	14
-100.0	.....	-56.5	-100.0	835	-83.7	-87.9	-100.0	-98.8	70.9	-99.7	-100.0	-79.2	15
.....	.....	1,170	59	4,010	169	52	3,210	.....	26,912	2,404	120	.....	16
775	(³)	1,543	8,440	7,703	4,217	49,235	14,276	48,248	55,812	11,772	14,526	5,406	17
-775	.....	-373	-8,381	-3,693	-4,048	-49,183	-11,066	-48,248	-28,900	-9,368	-14,406	-5,406	18
-100.0	.....	-24.2	-99.3	-47.9	-96.0	-99.9	-77.5	-100.0	-51.8	-79.6	-99.2	-100.0	19
190,537	1,200	8,834	347,526	202,719	29,084	389,517	241,347	344,560	126,754	188,453	162,354	1,650	20
175,281	(³)	8,107	335,150	220,433	23,346	336,763	241,077	253,197	138,686	222,796	100,226	31,181	21
5215,456	(³)	820	300,819	142,705	21,426	436,414	199,941	331,924	137,308	164,291	162,850	34,441	22
50	600	3,266	18,190	21,177	609	47,253	24,042	5,583	36,509	10,749	34,646	300	23
8,654	(³)	4,498	10,098	25,097	6,142	32,087	15,825	63,896	41,322	19,207	17,235	12,717	24
37,472	(³)	2,436	143,751	52,120	7,730	103,128	80,925	143,874	4,561	26,615	47,167	21,150	25
.....	.....	120	400	10,585	273	2,523	2,874	573	20,552	2,896	.....	1,250	26
10	(³)	1,735	12,602	4,698	6,512	17,851	24,080	48,496	2,648	15,900	9,921	1,744	27
.....	.....	5,104	.....	.....	1,995	1,065	300	11,625	31,639	690	49,650	3,537	28
174,900	1,800	11,996	326,600	207,600	28,998	406,300	251,400	310,400	149,416	169,500	130,200	1,250	29
183,845	(³)	8,672	355,850	249,644	35,967	360,744	280,932	297,796	179,793	256,794	100,352	35,344	30
-8,945	.....	3,324	-29,250	-42,044	-6,969	47,556	-29,532	12,604	-30,377	-87,294	2,848	-34,094	31
-4.9	.....	38.3	-8.2	-16.8	-19.2	13.2	-10.5	4.2	-16.9	-34.0	2.2	-96.5	32
103,300	1,000	7,082	191,500	113,800	21,070	232,200	136,500	196,200	70,500	90,800	71,700	1,250	33
160,461	(³)	5,430	323,280	190,013	20,140	274,994	220,395	205,822	91,928	210,783	99,227	25,437	34
-57,161	.....	1,652	-131,780	-76,213	930	-42,794	-63,995	-9,622	-21,428	-129,983	-27,527	-24,187	35
-35.6	.....	30.4	-40.8	-40.1	4.6	-15.6	-38.1	-4.7	-23.3	-61.7	-27.7	-95.1	36
50	800	4,962	18,519	31,399	1,872	83,426	34,045	1,155	40,247	12,395	95	1,550	37
805	(³)	6,780	19,443	22,376	13,735	49,107	8,924	82,971	44,358	13,700	14,774	15,677	38
-755	.....	-1,818	-924	9,023	-11,863	34,310	25,121	-61,816	-4,111	-1,305	-14,579	-14,127	39
-93.8	.....	-26.8	-4.8	40.3	-86.4	69.9	281.5	-98.2	-9.3	-9.5	-99.4	-90.1	40
.....	.....	.....	.....	.....	.....	2,656	.....	.....	.....	100	.....	.....	41
.....	.....	2,120	2,000	.....	110	.....	.....	1,560	110	53	.....	200	42
.....	.....	-2,120	-2,000	.....	-110	2,656	.....	-1,560	-110	47	.....	-200	43
.....	.....	-100.0	-100.0	.....	-100.0	.....	.....	-100.0	-100.0	88.7	.....	-100.0	44
188,687	1,800	12,220	356,429	233,647	26,903	436,985	238,089	346,485	158,624	161,118	188,627	3,200	45
395.3	3.0	16.6	1,024.3	473.0	91.2	1,307.4	564.1	1,146.8	369.1	311.0	932.3	4.2	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	650	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	7.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	7.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
.....	.....	.....	4,912	745	785	168	14,137	1,178	1,865	19,233	8,053	.....	52
.....	.....	.....	19.7	1.9	3.0	2.1	55.7	3.2	4.4	71.1	20.5	.....	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
1,900	.....	.....	3,685	89	2,378	2,140	16,087	3,053	23,306	21,747	320	.....	59
4.0	.....	.....	18.0	0.3	10.5	10.5	44.1	9.3	37.0	39.3	1.1	.....	60
1.6	.....	.....	7.5	0.1	4.0	2.1	26.6	8.3	19.2	21.8	0.4	.....	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	440	.....	.....	.....	.....	.....	.....	.....	.....	.....	63
.....	.....	.....	1.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	64
.....	.....	.....	0.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	65
.....	.....	.....	0.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	68
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72

¹Percent not shown when more than 1,000.
²Office estimate; reported figures exceed acreage in all farms as determined by the Census of Agriculture.
³Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — MICHIGAN

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930,

ITEM (See definitions in Introduction)		THE STATE	Allegan	Alpena	Arenac	Barry	Bay
DRAINAGE WORKS							
1	Drainage enterprises.....number.....1940..	1 8,130	382	5	117	97	175
2	Open ditches:						
3	Completed.....miles.....1940..	19,608.6	562.4	13.0	287.6	141.8	630.9
4	.....1930..	17,188.5	489.9	8.4	258.5	148.0	484.8
5	.....1920..	16,023.8	465.6	(²)	203.2	116.4	425.9
6	Additional length authorized.....miles.....1940..	26.5	.....	.....	2.0	.....	.....
7	Tile drains:						
8	Completed.....miles.....1940..	3,229.5	25.4	.....	0.7	68.7	3.8
9	.....1930..	3,490.2	16.7	.....	.....	50.1	6.6
10	.....1920..	2,173.9	13.2	(²)	0.3	44.3	1.1
11	Additional length authorized.....miles.....1940..	2.4	.....	.....	.....	.....	.....
12	Levees and dikes:						
13	Completed.....miles.....1940..	13.6	.....	.....	0.1	2.8	.....
14	.....1930..	34.6	.....	.....	.....	.....	.....
15	.....1920..	33.1	.....	.....	.....	.....	.....
16	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
17	Pumping plants:						
18	Engine capacity.....horsepower....1940..	³ 17	.....	.....	.....	.....	.....
19	.....1930..	275	.....	.....	.....	.....	.....
20	.....1920..	1,065	.....	.....	.....	.....	.....
21	Pump capacity.....gal. per min..1940..	³ 6,000	.....	.....	.....	.....	.....
22	.....1930..	36,340	.....	.....	.....	.....	.....
23	.....1920..	62,000	.....	.....	.....	.....	.....
24	Land served by pumps.....acres.....1940..	³ 800	.....	.....	.....	.....	.....
25	.....1930..	8,270	.....	.....	.....	.....	.....
26	.....1920..	10,100	.....	.....	.....	.....	.....
27	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....
28	.....1930..	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED							
29	Capital invested to January 1.....dollars.....1940..	40,412,251	722,361	6,800	791,832	276,433	981,807
30	.....1930..	37,677,084	579,751	4,629	775,693	253,946	1,102,968
31	.....1920..	24,683,715	414,461	(²)	473,012	197,771	500,910
32	Estimated cost when completed.....dollars.....1940..	40,479,644	722,361	6,800	793,332	276,433	981,807
33	.....1930..	37,778,560	580,182	4,629	775,693	253,946	1,102,968
34	.....1920..	25,048,980	416,121	(²)	476,212	198,350	500,910
35	Average cost per acre when completed.....dollars.....1940..	4.51	2.52	0.98	5.46	2.39	4.35
36	.....1930..	4.11	2.08	0.85	5.86	1.64	5.15
37	.....1920..	2.57	1.33	(²)	3.31	1.38	2.07
38	Invested in and required for completion, 1940:						
39	Enterprises having open ditches only.....dollars..	29,203,880	659,589	6,800	787,277	141,851	970,637
40	Average amount per acre.....dollars..	3.83	2.42	0.98	5.47	1.66	4.31
41	Enterprises having open ditches and levees.....dollars..	43,787	.....	.....	1,776	6,240	.....
42	Average amount per acre.....dollars..	10.78	.....	.....	3.17	6.34	.....
43	Enterprises having tile only.....dollars..	5,806,536	19,083	.....	.....	55,697	2,010
44	Average amount per acre.....dollars..	11.54	3.82	.....	.....	5.72	3.59
45	Enterprises having tile and levees.....dollars..	1,455	.....	.....	.....	.....	.....
46	Average amount per acre.....dollars..	2.89	.....	.....	.....	.....	.....
47	Enterprises having open ditches and tile.....dollars..	5,409,465	43,689	.....	4,279	72,645	9,160
48	Average amount per acre.....dollars..	6.38	4.58	.....	4.24	3.70	44.68
49	Enterprises having ditches, tile, and levees.....dollars..	3,780	.....	.....	.....	.....	.....
50	Average amount per acre.....dollars..	8.59	.....	.....	.....	.....	.....
51	Enterprises operating pumping plants.....dollars..	³ 10,741	.....	.....	.....	.....	.....
52	Average amount per acre.....dollars..	³ 13.43	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION							
53	Cost of maintenance and operation in 1939:						
54	By enterprises operating pumping plants.....dollars..	540	.....	.....	.....	.....	.....
55	Enterprises reporting.....number.....	1	.....	.....	.....	.....	.....
56	Land in these enterprises.....acres.....	460	.....	.....	.....	.....	.....
57	Average cost per acre.....dollars..	1.20	.....	.....	.....	.....	.....
58	By enterprises not operating pumping plants.....dollars..	178,778	5,727	.....	.....	1,702	.....
59	Enterprises reporting.....number.....	613	26	.....	.....	15	.....
60	Land in these enterprises.....acres.....	753,409	26,775	.....	.....	35,186	.....
61	Average cost per acre.....dollars..	0.24	0.21	.....	.....	0.05	.....
62	Federal aid in maintenance:						
63	Enterprises reporting.....number.....	2,596	.....	.....	92	.....	109
64	Land in these enterprises.....acres.....	2,256,968	.....	.....	97,379	.....	114,743
FINANCIAL CONDITION							
65	Drainage taxes collected in 1939.....dollars..	233,655	(⁵)	.....	(⁵)	2,314	6,826
66	Enterprises reporting.....number.....	534	1	.....	1	3	12
67	Land in these enterprises.....acres.....	828,322	(⁵)	.....	(⁵)	2,085	9,008
68	Average amount collected per acre.....dollars..	0.28	(⁵)	.....	(⁵)	1.11	0.76
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	37,026	850	.....	3,600	.....	3,895
70	Enterprises reporting.....number.....	198	8	.....	4	.....	11
71	Land in these enterprises.....acres.....	234,559	4,460	.....	17,717	.....	9,008
72	Portion delinquent in these enterprises.....percent..	15.8	19.0	.....	20.3	.....	43.2
73	Total indebtedness, Dec. 31, 1939.....dollars..	809,579	802	.....	53,625	9,140	12,941
74	Enterprises reporting.....number.....	673	8	.....	21	9	7
75	Land in these enterprises.....acres.....	574,776	4,460	.....	26,102	7,029	2,995
76	Average indebtedness per acre.....dollars..	1.41	0.18	.....	2.05	1.30	4.32
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..	156,741	708	.....	51,900	.....	.....
78	Enterprises reporting.....number.....	59	8	.....	6	.....	.....
79	Land in these enterprises.....acres.....	64,770	4,460	.....	19,144	.....	.....
80	Average arrearage per acre.....dollars..	2.42	0.16	.....	2.71	.....	.....
81	Reduction of debt by refinancing, prior to 1940.....dollars..	³ 1,250	.....	.....	.....	.....	.....
82	Enterprises reporting.....number.....	³ 1	.....	.....	.....	.....	.....
83	Land in these enterprises.....acres.....	³ 1,000	.....	.....	.....	.....	.....
84	Average reduction per acre.....dollars..	³ 1.25	.....	.....	.....	.....	.....

¹ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 7,692.

² Included in "Other counties."

³ Includes data not distributed by counties.

CENSUS OF DRAINAGE — MICHIGAN

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AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

Berrien	Branch	Calhoun	Cass	Clare	Clinton	Eaton	Genesee	Gladwin	Gratiot	Hillsdale	
302	167	118	44	41	226	249	316	127	478	196	1
283.0	295.9	327.1	101.7	48.7	527.9	460.2	421.3	269.5	735.4	176.5	2
298.8	214.7	302.0	85.3	54.1	596.7	470.4	370.1	243.9	797.9	163.0	3
217.7	257.4	245.0	81.0	43.0	546.7	447.5	342.6	224.4	798.5	174.1	4
									0.5		5
139.2	93.3	69.6	3.3	10.4	140.9	358.8	177.6	1.5	319.9	210.4	6
126.0	91.0	57.0	3.1	11.0	133.7	308.4	159.8	0.5	286.3	222.1	7
74.4	100.6	47.4	2.8	3.8	97.1	185.7	106.9	0.9	174.3	173.8	8
0.9		0.1							0.2		9
	0.1						2.1		0.2		10
	0.1										11
	0.1										12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
766,502	551,680	845,210	305,002	88,903	1,491,825	1,576,166	1,042,845	456,106	2,453,549	711,378	25
728,982	480,816	750,744	280,458	87,863	1,272,686	1,480,565	1,209,749	366,882	1,933,422	733,204	26
315,540	515,941	421,011	150,293	66,261	1,026,932	1,058,948	704,672	366,320	1,506,847	587,573	27
766,792	551,680	846,210	305,002	88,903	1,491,825	1,576,166	1,042,845	456,106	2,455,269	711,378	28
728,982	480,816	750,744	280,458	87,863	1,272,686	1,480,565	1,209,749	366,882	1,933,422	733,204	29
315,540	515,941	421,011	158,793	66,261	1,026,932	1,055,948	705,917	366,320	1,506,847	587,573	30
4.89	3.85	3.89	6.03	3.98	4.82	5.63	4.81	4.44	7.25	3.98	31
4.81	3.13	3.45	6.74	3.15	4.83	4.60	5.23	3.74	6.13	3.89	32
2.57	3.48	1.67	2.48	3.13	3.77	3.07	3.74	2.95	4.64	2.97	33
391,282	289,863	636,044	284,462	56,574	796,945	583,438	371,522	451,126	1,068,066	211,532	34
3.79	2.62	3.46	5.94	3.54	3.13	3.74	2.70	4.41	5.46	2.42	35
	20,740										36
	17.50										37
226,860	133,104	83,184	1,147		226,890	482,241	251,139	4,980	758,001	287,500	38
8.69	9.39	7.40	4.78		13.48	12.25	8.23	14.23	13.01	8.17	39
							1,455				40
							2.89				41
148,650	107,973	126,982	19,393	32,329	467,990	510,487	418,729		622,201	212,946	42
5.41	6.28	5.60	7.78	5.07	12.32	6.03	8.65		7.35	3.79	43
											44
											45
											46
											47
											48
											49
											50
18,840	1,853	5,460	(⁵)		981	4,031	15,484		2,897	4,382	51
169	7	14	(⁵)	2	5	62	48		58	17	52
67,714	3,036	64,112	(⁵)		6,758	44,735	33,995		47,156	16,442	53
0.28	0.61	0.08	(⁵)		0.14	0.09	0.46		0.06	0.27	54
											55
281		4	22	5	3	19	172	42	70	18	56
115,172		4,874	10,982	3,353	1,420	20,266	138,958	39,230	77,813	21,982	57
											58
10,873	1,007	6,916	1,635		4,027	39,020			6,688	9,744	59
46	3	25	3		14	22			120	18	60
27,219	487	76,322	1,707		18,272	28,856			112,071	14,301	61
0.40	2.07	0.09	0.96		0.22	1.35			0.06	0.66	62
3,508		8,647				(⁵)	(⁵)		6,022	(⁵)	63
25		24				1	1		59	1	64
19,157		32,549				(⁵)	(⁵)		60,845	(⁵)	65
18.3		26.6				(⁵)	(⁵)		9.9	(⁵)	66
9,604	2,746	1,397	(⁵)		1,533	37,436	36,934		18,138		67
41	4	7	(⁵)	1	7	110	86		33		68
19,280	1,298	6,824	(⁵)		7,958	79,856	69,477		24,210		69
0.51	2.12	0.20	(⁵)		0.19	0.47	0.53		0.75		70
3,852		(⁵)					(⁵)		(⁵)		71
9		1					1		1		72
2,291		(⁵)					(⁵)		(⁵)		73
1.68		(⁵)					(⁵)		(⁵)		74
											75
											76
											77

⁴Data in lines 46 and 47 are not included in lines 34 to 45.
⁵Where there are less than 3 enterprises reporting, data are included only in the State totals.

CENSUS OF DRAINAGE — MICHIGAN

COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND

ITEM (See definitions in Introduction)	Huron	Ingham	Ionia	Iosco	Isabella	Jackson
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	178	237	137	19	281	65
Open ditches:						
2 Completed.....miles.....1940..	981.4	424.1	226.8	46.9	373.6	167.7
3	1930..	666.2	396.1	273.0	476.8	148.9
4	1920..	651.1	322.1	243.4	32.1	289.5
5 Additional length authorized.....miles.....1940..						
6 Tile drains:						
7 Completed.....miles.....1940..	12.4	168.6	148.9		363.6	23.8
8	1930..	2.0	200.3	127.5	364.0	24.5
9	1920..		154.6	98.8	0.2	277.3
10 Additional length authorized.....miles.....1940..	0.3					
Levees and dikes:						
11 Completed.....miles.....1940..						
12	1930..					
13	1920..					
14 Additional length authorized.....miles.....1940..						
Pumping plants:						
15 Engine capacity.....horsepower.....1940..						
16	1930..					
17	1920..					
18 Pump capacity.....gal. per min.....1940..						
19	1930..					
20	1920..					
21 Land served by pumps.....acres.....1940..						
22	1930..					
23	1920..					
24 Wells pumped for drainage.....number.....1940..						
.....	1930..					
CAPITAL INVESTED						
25 Capital invested to January 1.....dollars.....1940..	2,380,994	1,303,090	652,057	116,400	1,169,434	799,793
26	1930..	1,393,836	1,446,968	551,063	1,236,945	760,650
27	1920..	1,180,924	875,515	539,859	65,428	785,943
28 Estimated cost when completed.....dollars.....1940..	2,405,994	1,303,090	652,057	116,400	1,169,434	799,793
29	1930..	1,393,836	1,446,968	551,063	1,236,280	760,650
30	1920..	1,211,974	875,515	539,859	65,428	785,943
31 Average cost per acre when completed.....dollars.....1940..	7.77	4.94	3.92	1.27	5.34	3.16
32	1930..	4.11	4.68	3.53	3.14	5.00
33	1920..	2.82	3.94	1.89	2.05	2.56
Invested in and required for completion, 1940:						
34 Enterprises having open ditches only.....dollars..	2,257,659	727,466	193,993	116,400	355,657	722,320
35 Average amount per acre.....dollars..	7.46	3.58	2.48	1.27	3.28	2.98
36 Enterprises having open ditches and levees.....dollars..						
37 Average amount per acre.....dollars..						
38 Enterprises having tile only.....dollars..	136,641	479,594	180,637		372,167	29,229
39 Average amount per acre.....dollars..	21.97	12.22	8.64		8.11	8.26
40 Enterprises having tile and levees.....dollars..						
41 Average amount per acre.....dollars..						
42 Enterprises having open ditches and tile.....dollars..	11,694	96,030	277,427		441,610	48,244
43 Average amount per acre.....dollars..	14.26	4.45	4.13		6.82	6.04
44 Enterprises having ditches, tile, and levees.....dollars..						
45 Average amount per acre.....dollars..						
46 Enterprises operating pumping plants.....dollars..						
47 Average amount per acre.....dollars..						
MAINTENANCE AND OPERATION						
Cost of maintenance and operation in 1939:						
48 By enterprises operating pumping plants.....dollars..						
49 Enterprises reporting.....number.....						
50 Land in these enterprises.....acres.....						
51 Average cost per acre.....dollars..						
52 By enterprises not operating pumping plants.....dollars..	23,417		248		1,194	1,910
53 Enterprises reporting.....number.....	14		3		43	3
54 Land in these enterprises.....acres.....	42,456		432		18,038	1,230
55 Average cost per acre.....dollars..	0.55		0.57		0.07	1.06
Federal aid in maintenance:						
56 Enterprises reporting.....number.....	38	5	36	11	33	4
57 Land in these enterprises.....acres.....	77,380	10,944	24,740	75,838	27,710	2,600
FINANCIAL CONDITION						
58 Drainage taxes collected in 1939.....dollars..	(¹)		13,774		3,474	
59 Enterprises reporting.....number.....	2		31		24	
60 Land in these enterprises.....acres.....	(¹)		28,653		15,656	
61 Average amount collected per acre.....dollars..	(¹)		0.48		0.22	
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	(¹)		2,139		2,360	
63 Enterprises reporting.....number.....	1		18		21	
64 Land in these enterprises.....acres.....	(¹)		15,386		42,700	
65 Portion delinquent in these enterprises.....percent..	(¹)		13.9		5.5	
66 Total indebtedness, Dec. 31, 1939.....dollars..	(¹)		41,759		4,559	
67 Enterprises reporting.....number.....	2		21		82	
68 Land in these enterprises.....acres.....	(¹)		12,707		47,893	
69 Average indebtedness per acre.....dollars..	(¹)		3.29		0.10	
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(¹)		1,420			
71 Enterprises reporting.....number.....	1		17			
72 Land in these enterprises.....acres.....	(¹)		15,514			
73 Average arrears per acre.....dollars..	(¹)		0.09			
74 Reduction of debt by refinancing, prior to 1940.....dollars..						
75 Enterprises reporting.....number.....						
76 Land in these enterprises.....acres.....						
77 Average reduction per acre.....dollars..						

¹Where there are less than 3 enterprises reporting, data are included only in the State totals.

CENSUS OF DRAINAGE — MICHIGAN

1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

Kalamazoo	Kent	Lapeer	Lenawee	Livingston	Macomb	Manistee	Mason	Mecosta	Midland	Missaukee	
79	180	162	302	141	191	16	66	27	179	21	1
171.3	260.3	483.4	684.2	162.4	508.1	32.5	105.9	47.6	614.5	60.9	2
160.1	235.8	485.5	453.3	211.8	309.8	27.2	92.3	34.3	674.0	67.2	3
145.5	206.2	372.2	465.6	245.2	346.2	29.8	94.3	41.4	608.1	60.7	4
.....	14.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
2.0	18.8	17.9	334.2	42.1	12.2	0.7	0.5	8.4	36.5	0.2	6
3.9	12.9	6.8	253.7	75.3	.....	0.5	.....	6.2	50.3	2.8	7
4.0	14.1	20.2	233.3	65.2	12.1	0.3	0.4	1.7	58.0	0.2	8
.....	0.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
.....	.....	.....	.....	.....	.....	.....	.....	1.0	.....	.....	11
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
192,194	494,272	764,961	1,340,722	329,458	1,047,021	38,978	161,379	107,834	767,638	58,689	25
205,045	459,392	681,201	889,157	498,860	675,127	43,791	117,762	76,704	1,469,236	64,973	26
167,351	241,543	566,317	923,653	487,860	396,849	23,610	88,803	54,863	994,167	61,698	27
192,194	520,646	764,961	1,340,722	329,458	1,047,021	38,978	161,379	107,834	767,638	58,689	28
205,045	459,392	681,201	889,157	498,860	675,127	43,791	117,762	76,704	1,469,236	64,973	29
178,098	271,543	573,742	946,798	487,860	396,849	31,610	88,803	54,863	1,029,181	64,498	30
2.53	2.87	2.63	4.56	3.22	5.66	3.39	3.58	3.79	3.57	1.89	31
3.15	30.3	2.25	2.87	3.57	4.93	4.93	2.34	2.76	5.53	1.97	32
2.24	1.87	2.41	3.44	2.29	1.55	2.61	3.37	2.39	3.15	2.41	33
182,368	400,148	694,296	700,731	207,553	897,557	30,313	159,376	66,331	535,150	57,789	34
2.46	2.53	2.54	3.06	2.58	4.96	2.80	3.60	2.92	3.24	1.88	35
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
589	15,005	15,392	428,708	77,418	51,060	3,665	.....	11,341	27,716	.....	38
2.10	5.90	14.33	11.84	5.90	56.36	73.30	.....	6.83	3.77	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
9,237	105,493	55,273	211,283	44,487	96,404	5,000	2,003	30,162	204,772	900	42
5.72	5.15	3.27	7.26	5.20	32.07	7.81	2.50	7.46	4.83	2.04	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
61	2.88	3.99	.....	.....	.....	.....	.....	.....	.....	.....	57
58,697	103,216	30,453	.....	61	145	.....	.....	4	67	.....	58
.....	.....	.....	.....	55,916	96,173	.....	(²)	4,280	76,920	.....	59
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	68
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70
.....	(¹)	.....	.....	.....	.....	.....	.....	.....	.....	.....	71
.....	(¹)	.....	.....	.....	.....	.....	.....	.....	.....	.....	72
.....	(¹)	.....	.....	.....	.....	.....	.....	.....	.....	.....	73
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	74
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	75
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	77

² Acreage of 1 enterprise in Mason County included in amount shown for 26 enterprises in Newaygo County.

CENSUS OF DRAINAGE — MICHIGAN

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND

	ITEM (See definitions in Introduction)	Monroe	Montcalm	Muskegon	Newaygo	Oakland	Oceana	Ogemaw	Osceola
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	351	118	83	115	101	60	7	44
2	Open ditches:								
3	Completed.....miles.....1940..	1,090.7	246.9	157.5	202.3	271.0	99.0	12.5	63.5
4	.....1930..	619.2	211.1	174.5	131.4	264.7	115.9	8.5	74.1
5	.....1920..	627.3	241.0	146.8	157.8	249.8	79.5		78.7
6	Additional length authorized.....miles.....1940..	1.8		5.0					
7	Tile drains:								
8	Completed.....miles.....1940..	49.2	26.9	15.6	7.1	35.7	2.0		4.7
9	.....1930..	562.5	22.8	1.5	11.7	14.8	2.4		4.7
10	.....1920..	24.1	10.7	2.5	6.1	17.4	3.5		0.9
11	Additional length authorized.....miles.....1940..	0.7							
12	Levees and dikes:								
13	Completed.....miles.....1940..			0.3					
14	.....1930..	11.5							
15	.....1920..								
16	Additional length authorized.....miles.....1940..								
17	Pumping plants:								
18	Engine capacity.....horsepower.....1940..	7							
19	.....1930..	25							
20	.....1920..								
21	Pump capacity.....gal. per min. 1940..	1,000							
22	.....1930..	3,000							
23	.....1920..								
24	Land served by pumps.....acres.....1940..	450							
25	.....1930..	770							
26	.....1920..								
27	Wells pumped for drainage.....number.....1940..								
28	.....1930..								
CAPITAL INVESTED									
29	Capital invested to January 1.....dollars.....1940..	1,168,981	337,886	193,646	272,283	775,935	150,593	35,467	79,704
30	.....1930..	1,473,321	355,548	153,049	281,137	576,535	161,919	56,417	103,018
31	.....1920..	479,737	276,104	90,748	155,830	371,331	93,641		84,744
32	Estimated cost when completed.....dollars.....1940..	1,170,553	337,886	198,685	272,283	775,935	150,593	35,467	79,704
33	.....1930..	1,473,321	355,548	153,049	281,137	576,535	161,919	56,417	103,018
34	.....1920..	479,937	276,104	92,498	155,830	382,647	93,641		84,744
35	Average cost per acre when completed.....dollars.....1940..	3.64	2.65	2.42	2.36	4.99	1.93	3.62	1.72
36	.....1930..	4.60	2.66	1.61	2.66	3.14	1.99	9.47	2.10
37	.....1920..	1.91	1.80	1.08	1.34	2.13	1.11		1.74
38	Invested in and required for completion, 1940:								
39	Enterprises having open ditches only.....dollars..	904,096	167,217	170,984	253,682	424,282	144,792	35,467	68,124
40	Average amount per acre.....dollars..	3.01	1.77	2.26	2.27	3.19	1.91	3.62	1.57
41	Enterprises having open ditches and levees.....dollars..			2,531					
42	Average amount per acre.....dollars..			3.72					
43	Enterprises having tile only.....dollars..	189,887	23,745	18,761	3,952	159,128	349		
44	Average amount per acre.....dollars..	14.34	6.09	4.93	4.57	42.30	2.73		
45	Enterprises having tile and levees.....dollars..								
46	Average amount per acre.....dollars..								
47	Enterprises having open ditches and tile.....dollars..	72,830	146,924	6,389	14,649	192,525	5,452		11,580
48	Average amount per acre.....dollars..	9.37	5.09	2.97	5.09	10.36	2.57		3.99
49	Enterprises having ditches, tile, and levees.....dollars..								
50	Average amount per acre.....dollars..								
51	Enterprises operating pumping plants ¹.....dollars..	3,740							
52	Average amount per acre.....dollars..	8.31							
MAINTENANCE AND OPERATION									
53	Cost of maintenance and operation in 1939:								
54	By enterprises operating pumping plants.....dollars..	5,540							
55	Enterprises reporting.....number.....	1							
56	Land in these enterprises.....acres.....	5,450							
57	Average cost per acre.....dollars.....	51.20							
58	By enterprises not operating pumping plants.....dollars..	(²)		41,806		(²)	(²)		
59	Enterprises reporting.....number.....	(²)		23		(²)	(²)		
60	Land in these enterprises.....acres.....	(²)		26,180		(²)	(²)		
61	Average cost per acre.....dollars.....	(²)		1.60		(²)	(²)		
62	Federal aid in maintenance:								
63	Enterprises reporting.....number.....	158	57	68	26	97		4	
64	Land in these enterprises.....acres.....	69,439	82,502	66,991	7,241,173	104,775		5,920	
FINANCIAL CONDITION									
65	Drainage taxes collected in 1939.....dollars..	24,070	4,609		(³)	(³)	(³)		
66	Enterprises reporting.....number.....	54	4		1	2	1		
67	Land in these enterprises.....acres.....	49,532	2,517		(³)	(³)	(³)		
68	Average amount collected per acre.....dollars..	0.48	1.83		(³)	(³)	(³)		
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	(³)				325			
70	Enterprises reporting.....number.....	(³)	1			4			
71	Land in these enterprises.....acres.....	(³)				3,627			
72	Portion delinquent in these enterprises.....percent..	(³)				9.0			
73	Total indebtedness, Dec. 31, 1939.....dollars..	77,854	6,286	(³)	9,355	34,500	(³)		
74	Enterprises reporting.....number.....	42	5	2	3	4	1		
75	Land in these enterprises.....acres.....	69,404	2,889	(³)	26,298	1,132	(³)		
76	Average indebtedness per acre.....dollars..	1.12	2.18	(³)	0.36	30.48	(³)		
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..	(³)		(³)		27,000	(³)		
78	Enterprises reporting.....number.....	(³)	1	(³)	1	3	1		
79	Land in these enterprises.....acres.....	(³)		(³)		802	(³)		
80	Average arrearage per acre.....dollars..	(³)		(³)		33.66	(³)		
81	Reduction of debt by refinancing, prior to 1940.....dollars..								
82	Enterprises reporting.....number.....								
83	Land in these enterprises.....acres.....								
84	Average reduction per acre.....dollars..								

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Includes Alcona and Benzie Counties in 1940; Alcona, Benzie, Charlevoix, Luce, and Presque Isle Counties in 1930; and Alcona, Alpena, Benzie, Charlevoix, Emmett, Grand Traverse, Luce, and Presque Isle Counties in 1920.

³Included in "Other counties."

CENSUS OF DRAINAGE—MICHIGAN

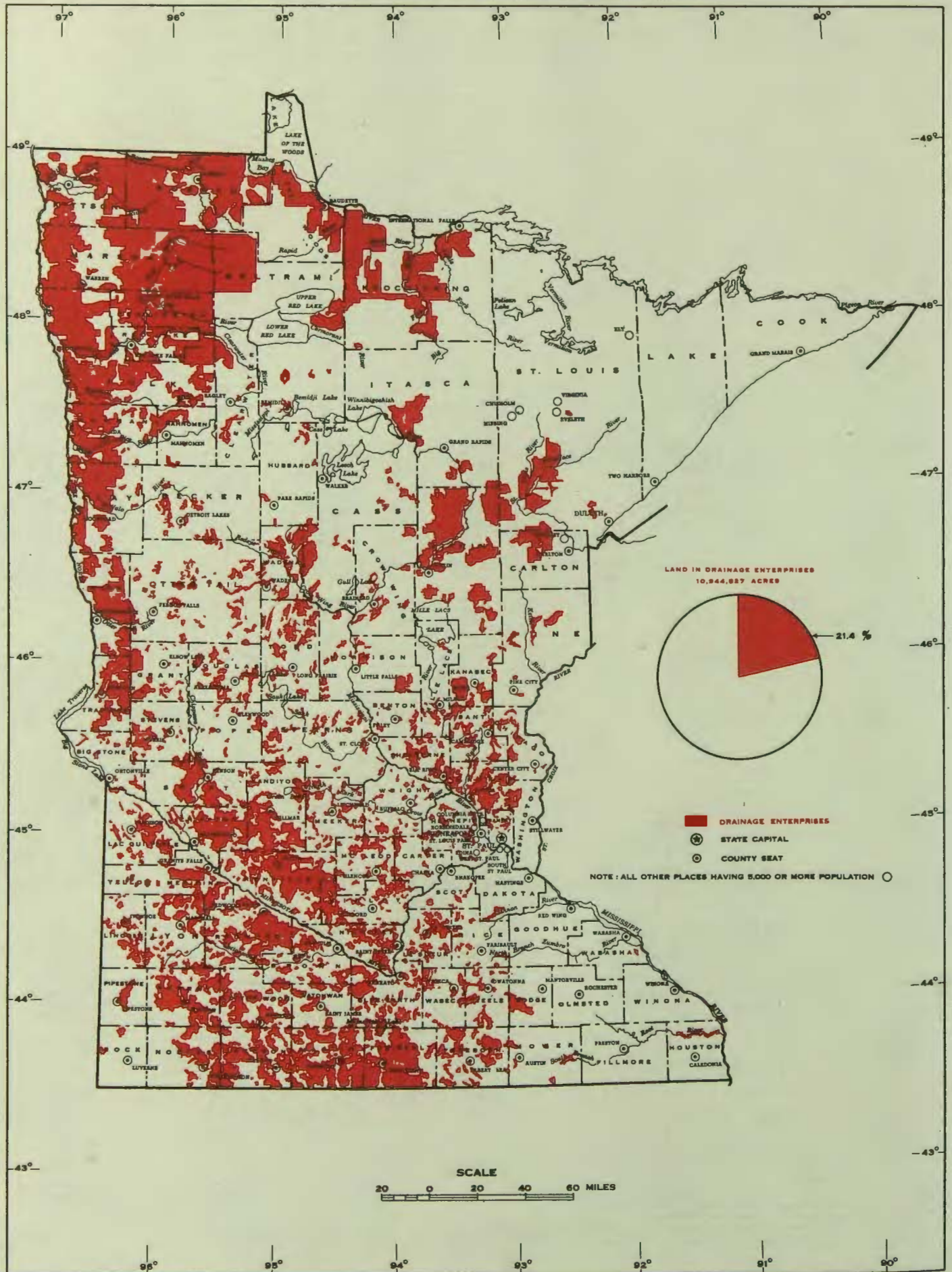
1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

Ottawa	Presque Isle ¹	Roscommon	Saginaw	St. Clair	St. Joseph	Sanilac	Shiawassee	Tuscola	Van Buren	Washtenaw	Wayne	Other counties ²	
194	1	8	252	184	40	183	296	176	182	150	291	3	1
399.3	3.0	16.6	1,050.6	473.3	101.7	1,317.9	608.2	1,156.1	406.1	350.3	933.4	4.2	2
386.4	(3)	17.7	966.1	535.7	112.1	1,197.0	559.6	901.3	307.6	299.0	406.0	68.9	3
388.9	(3)	14.4	975.9	410.3	104.8	1,156.9	501.4	736.0	266.7	267.3	644.8	113.5	4
.....	.....	.....	3.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
1.6	.....	.....	28.0	2.0	7.0	4.2	82.3	11.5	23.6	92.9	20.9	.....	6
2.2	.....	.....	42.6	2.1	3.8	1.3	101.1	1.7	24.9	76.3	10.8	.....	7
1.5	(3)	.....	8.2	.....	6.5	0.5	64.1	2.0	10.8	28.8	8.8	0.6	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
.....	.....	.....	8.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
.....	.....	.....	25.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
.....	.....	.....	33.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	.....	.....	250	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	1,060	.....	.....	.....	.....	.....	.....	.....	5	.....	15
.....	.....	.....	33,340	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
.....	.....	.....	60,000	.....	.....	.....	.....	.....	.....	.....	2,000	.....	17
.....	.....	.....	7,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
.....	.....	.....	10,000	.....	.....	.....	.....	.....	.....	.....	100	.....	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
395,153	3,000	12,588	2,439,687	781,486	188,693	2,578,359	1,389,448	2,183,911	500,111	1,166,674	957,242	8,091	25
432,100	(3)	14,655	2,742,200	829,110	229,025	2,024,19	1,339,006	1,856,742	642,451	1,045,249	537,768	82,397	26
285,666	(3)	11,425	1,525,615	395,198	149,348	1,372,961	917,107	1,301,398	380,957	383,280	408,146	124,576	27
395,153	3,000	12,588	2,444,585	781,486	188,693	2,578,359	1,389,448	2,183,911	500,111	1,166,674	957,242	8,091	28
432,100	(3)	14,655	2,778,754	829,110	229,325	2,024,919	1,351,862	1,906,742	642,451	1,045,249	537,768	82,397	29
285,763	(3)	14,925	1,547,635	408,033	149,348	1,374,641	917,107	1,428,963	380,957	394,502	411,151	124,976	30
2.07	1.67	1.03	6.67	3.33	6.30	5.87	5.18	6.23	2.72	5.77	4.86	2.53	31
2.35	(3)	1.02	7.77	3.31	6.37	5.24	4.81	5.22	3.52	4.05	4.22	1.80	32
1.13	(3)	1.79	3.48	2.09	4.79	2.54	3.26	2.93	2.20	2.06	1.58	2.11	33
385,070	3,000	12,588	2,285,594	762,014	166,487	2,548,839	1,123,967	2,160,752	420,158	385,452	761,109	8,091	34
2.04	1.67	1.03	6.41	3.26	6.21	5.83	4.72	6.24	2.65	2.39	4.03	2.53	35
.....	.....	.....	12,500	.....	.....	.....	.....	.....	.....	.....	.....	.....	36
.....	.....	.....	19,23	.....	.....	.....	.....	.....	.....	.....	.....	.....	37
.....	.....	.....	76,513	15,751	13,773	6,220	147,001	7,825	7,817	579,271	195,525	.....	38
.....	.....	.....	15.58	21.14	17.54	37.02	10.40	6.64	4.15	30.12	24.28	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
10,083	.....	.....	66,198	3,721	8,433	23,300	118,480	15,394	72,136	201,951	608	.....	41
5.31	.....	.....	17.96	41.81	3.55	10.89	7.39	5.02	3.10	9.29	1.90	.....	42
.....	.....	.....	3,780	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	8.59	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	1,523	.....	(6)	1,919	.....	31,490	.....	9,292	.....	.....	51
.....	.....	.....	6	.....	(6)	3	.....	39	.....	14	.....	.....	52
.....	.....	.....	3,167	.....	(6)	190,860	.....	57,671	.....	10,803	.....	.....	53
.....	.....	.....	0.48	.....	(6)	0.01	.....	0.55	.....	0.86	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
73	.....	.....	77	31	8	16	97	35	.....	142	277	.....	56
52,300	.....	.....	43,402	41,922	4,618	7,550	106,399	35,468	.....	179,659	140,311	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
.....	.....	.....	.....	.....	(6)	47,717	.....	4,490	(6)	.....	7,961	.....	59
.....	.....	.....	.....	.....	(6)	41	.....	5	(6)	2	4	.....	60
.....	.....	.....	.....	.....	(6)	272,287	.....	29,785	(6)	.....	4,621	.....	61
.....	.....	.....	.....	.....	(6)	0.18	.....	0.15	(6)	.....	1.72	.....	62
.....	.....	.....	.....	(6)	.....	.....	.....	.....	.....	.....	.....	.....	63
.....	.....	.....	.....	(6)	1	.....	.....	.....	.....	.....	.....	.....	64
.....	.....	.....	.....	(6)	.....	.....	.....	.....	.....	.....	.....	.....	65
1,090	.....	.....	(6)	.....	.....	62,225	(6)	(6)	.....	241,206	(6)	.....	66
3	.....	.....	.....	.....	.....	67	.....	.....	.....	16	.....	.....	67
2,540	.....	.....	(6)	.....	.....	53,576	(6)	(6)	.....	15,163	(6)	.....	68
0.43	.....	.....	(6)	.....	.....	1.16	(6)	(6)	.....	15.91	(6)	.....	69
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70
1,090	.....	.....	.....	.....	.....	2,525	.....	.....	.....	.....	.....	.....	71
3	.....	.....	.....	.....	.....	3	.....	.....	.....	.....	.....	.....	72
2,540	.....	.....	.....	.....	.....	3,020	.....	.....	.....	.....	.....	.....	73
0.43	.....	.....	.....	.....	.....	0.84	.....	.....	.....	.....	.....	.....	74
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	75
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	76
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	77

⁴Data in lines 46 and 47 are not included in lines 34 to 45.
⁵Shown by written permission of enterprise affected.
⁶Where there are less than 3 enterprises reporting, data are included only in the State totals, except as stated in footnotes 1 and 5.
⁷Acres of 1 enterprise in Mason County included in amount shown for 26 enterprises in Newaygo County.

MINNESOTA

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — MINNESOTA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	51,205,760	51,749,120	51,749,120				
Land in drainage enterprises.....acres.....	10,980,409	11,474,683	9,232,709	-484,274	-4.2	2,241,974	24.3
Improved.....acres.....	8,165,522	7,396,575	3,318,490	768,947	10.4	3,578,065	93.7
Unimproved:							
Timber and cut-over.....acres.....	1,926,442	2,046,799	1,370,023	-120,357	-5.9	676,776	49.4
Other.....acres.....	898,445	2,031,309	4,044,186	-1,132,864	-55.8	-2,012,887	-49.8
Drainage sufficient for normal crop.....acres.....	10,226,116	7,322,252	(1)	2,903,864	39.6		
Partly drained, for partial crop.....acres.....	341,037	2,114,950	(1)	-1,773,913	-83.9		
Unfit to raise any crop for lack of drainage.....acres.....	423,256	2,037,481	2,193,136	-1,614,225	-79.2	844,345	70.8
In occupied farms.....acres.....	8,367,566	8,782,323	(1)	-384,737	-4.4		
In planted crops.....acres.....	6,198,229	5,916,067	(1)	282,162	4.8		
Idle.....acres.....	2,742,854	3,747,912	(1)	-1,005,158	-26.8		
Available for settlement.....acres.....	966,728	1,346,207	(1)	-379,479	-28.2		
Open ditches, completed.....miles.....	15,956.7	14,477.6	14,657.0	1,379.1	9.5	-179.4	-1.2
Tile drains, completed.....miles.....	9,893.4	9,451.3	5,924.6	442.1	4.7	3,526.7	59.5
Drainage pumping plants, capacity.....horsepower.....	30	75		-45	-60.0	75	
gal. per min.....	10,000	12,700		-2,700	-21.2	12,700	
Capital invested in enterprises.....dollars.....	65,576,077	64,139,641	42,017,447	1,436,436	2.2	22,122,194	52.7
Average per acre.....dollars.....	5.97	5.59	4.55	0.38	6.8	1.04	22.9

¹ Not available.

² Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1930	1920	
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>		<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
All enterprises.....	14,702,196	14,681,505	9,974,662	10,980,409	5,000 to 9,999 acres.....	2,519,891	2,388,231	1,250,804	1,796,235
Less than 100 acres.....	1,436	3,423	36,177	1,236	10,000 to 19,999 acres.....	2,964,592	5,968,444	4,630,974	1,937,473
100 to 199 acres.....	6,121	14,236	5,461	5,461	20,000 to 49,999 acres.....	3,374,421			2,434,769
200 to 499 acres.....	82,583	116,324	191,751	75,442	50,000 to 99,999 acres.....	1,100,804	1,836,978	944,845	747,790
500 to 999 acres.....	386,722	356,396	307,812	345,942	100,000 to 199,999 acres.....	732,831			655,013
1,000 to 1,999 acres.....	1,064,817	944,836	944,836	944,836	200,000 to 499,999 acres.....	1,167,243	1,226,562		
2,000 to 4,999 acres.....	2,447,978	2,828,230	1,385,737	2,046,220	500,000 acres and over.....				

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	10,980,409	100.0	65,576,077	100.0
County drains.....	10,317,553	93.9	64,134,429	97.8
Township drains.....	17,240	0.2	56,741	0.1
State projects.....	619,886	5.6	1,299,400	2.0
Commercial developments:				
Incorporated.....	1,290	(1)	2,540	(1)
Unincorporated.....				
Individually owned projects.....	34,450	0.3	82,967	0.1

¹ Less than one-tenth of 1 percent.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	10,980,409	100.0	11,474,683	100.0	9,232,709	100.0	65,576,077	100.0	64,139,641	100.0	42,017,447	100.0
Gravity drainage only by—												
Open ditches.....	8,241,061	75.0	9,163,707	79.8	8,440,167	91.4	28,178,608	43.0	28,694,853	44.7	22,753,563	54.2
Tile drains.....	919,599	8.4	734,022	6.4	271,118	2.9	11,799,417	18.0	9,362,231	14.6	7,193,827	17.1
Open ditches and tile drains.....	1,828,505	16.6	1,574,856	13.7	521,424	5.6	25,504,934	38.9	25,961,632	40.5	12,070,057	28.7
All drained by pumping by—												
Open ditches.....	1,315	(2)					93,118	0.1				
Tile drains.....												
Open ditches and tile drains.....												
Part only by pumping by—												
Open ditches.....									120,925	0.2		
Tile drains.....			2,066	(2)								
Open ditches and tile drains.....												
Total area served by pumps.....	1,315	(2)	815	(2)								

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

² Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE — MINNESOTA

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises	CAPACITY			Land served Acres	
		Number	Engine or motor			Pump G. p. m.
			Hp.	Percent		
All pumping enterprises.....	1940.. 1 1930.. 2 1920.. ..	30 75	100.0 100.0	10,000 12,700	1,315 815	
Electric.....	1940.. .. 1930.. 2 1920.. ..	75	100.0	12,700	815	
Electric and internal combustion.....	1940.. 1 1930.. .. 1920.. ..	30	100.0	10,000	1,315	

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Enterprises	PUMPS			Land served Acres	
		Number	Capacity			Engine or motor capacity Hp.
			G. p. m.	Percent		
All pumping enterprises.....	1940.. 3 1930.. 5	10,000 12,700	100.0 100.0	30 75	1,315 815	
Centrifugal.....	1940.. 3 1930.. 5	10,000 12,700	100.0 100.0	30 75	1,315 815	

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	10,990,409	100.0	11,474,683	100.0	65,576,077	100.0	64,139,641	100.0	278,473	2,780,336
Enterprises in arrears.....	360,407	3.3	1,857,637	16.2	1,728,908	2.6	5,494,118	8.6	18,510	1,449,864
With some delinquent land.....	101,593	0.9	1,822,527	15.9	697,662	1.1	5,258,624	8.2	18,510	1,449,864
With no delinquent land.....	225,708	2.1	9,823	0.1	953,696	1.4	39,389	0.1	.....	.....
With no report on delinquency.....	33,106	0.3	25,287	0.2	77,550	0.1	196,105	0.3	.....	.....
Enterprises not in arrears.....	10,621,270	96.6	9,617,046	83.8	63,838,775	97.4	58,645,523	91.4	259,963	1,330,472
With some delinquent land.....	1,111,440	10.1	2,959,174	25.8	13,099,012	20.0	17,286,842	26.9	259,963	1,330,472
With no delinquent land.....	9,159,344	83.3	5,844,389	50.9	49,735,659	75.8	39,184,039	61.1	.....	.....
With no report on delinquency.....	350,486	3.2	813,483	7.1	1,004,104	1.5	2,174,642	3.4	.....	.....
Enterprises not reporting on arrearage.....	8,732	0.1	.....	.....	8,394	(²)	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	8,394	(²)	.....	.....	.....	.....
With no delinquent land.....	8,732	0.1	.....	.....	.....	.....	.....	.....	.....	.....
With no report on delinquency.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.
² Less than one-tenth of 1 percent.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	10,990,409	65,576,077	6,034,528	317,729	.....	278,473	1,114,425
Enterprises in debt.....	3,093,134	28,239,535	6,034,528	317,729	.....	141,600	805,760
In arrears, amount of arrearage stated.....	² 360,407	1,728,908	417,556	317,729	.....	18,510	20,027
Collecting drainage taxes in 1939.....	² 166,934	776,435	230,283	130,574	.....	15,502	20,027
No collections reported.....	193,473	952,473	187,273	187,155	.....	3,008	.....
Not in arrears.....	2,732,727	26,510,627	5,616,972	.....	.....	123,090	785,733
Collecting drainage taxes in 1939.....	1,641,136	20,695,485	4,790,844	.....	.....	94,454	785,733
No collections reported.....	1,091,591	5,825,142	826,128	.....	.....	28,636	.....
Enterprises not in debt.....	7,847,655	37,002,055	.....	.....	.....	130,359	293,998
Collecting drainage taxes in 1939.....	1,045,451	9,527,218	.....	.....	.....	70,760	293,998
No collections reported.....	6,802,204	27,474,837	.....	.....	.....	59,599	.....
Enterprises not reporting as to debt.....	49,620	394,487	.....	.....	.....	6,514	14,667
Collecting drainage taxes in 1939.....	23,643	273,392	.....	.....	.....	240	14,667
No collections reported.....	25,977	61,095	.....	.....	.....	6,274	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.
² Includes 1 enterprise not reporting amount of arrearage.

CENSUS OF DRAINAGE — MINNESOTA

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	10,990,409	100.0	65,576,077	100.0
Improvement of land already in farms.....	7,108,736	64.7	47,507,600	72.4
Reclamation of swamp land not previously in farms.....	3,849,536	35.0	17,701,226	27.0
Protection against overflow.....	32,137	0.3	367,251	0.6
Removal of alkali or seepage from irrigation.....				

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	10,990,409	100.0	14,702,196	3,711,787	65,576,077	100.0
1880-1899.....	21,277	0.2	44,752	23,475	68,329	0.1
1890-1899.....	173,030	1.6	537,474	304,444	575,657	0.9
1900-1904.....	505,232	4.6	1,141,204	635,922	1,663,500	2.5
1905-1909.....	2,069,336	18.8	3,504,924	1,435,588	7,411,316	11.3
1910-1914.....	3,090,918	28.1	3,824,110	733,192	12,793,449	19.5
1915-1919.....	3,485,901	31.7	3,894,201	408,300	25,952,769	39.4
1920-1924.....	1,378,494	12.6	1,479,103	100,009	15,666,747	24.0
1925-1929.....	192,787	1.8	203,044	10,257	1,201,646	1.8
1930-1934.....	49,941	0.4	49,941		129,819	0.2
1935-1939.....	23,443	0.2	23,443		212,845	0.3

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement		
	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	
All enterprises..	10,990,409	10,226,116	93.0	341,037	423,256	8,165,522	74.3	1,926,442	895,445	8,397,566	76.4	6,198,229	2,742,654	966,728
1880-1899.....	21,277	16,790	78.9	2,355	2,132	14,970	70.4	3,369	2,938	19,501	91.6	11,532	7,065	804
1890-1899.....	173,030	141,630	81.8	18,332	13,068	129,795	75.0	24,365	18,850	150,767	87.1	99,929	51,023	14,263
1900-1904.....	505,232	462,143	91.5	28,510	14,629	416,789	82.5	47,681	40,312	457,698	90.6	317,123	92,747	17,999
1905-1909.....	2,069,336	1,788,225	86.4	112,594	168,517	1,608,990	77.8	204,906	255,440	1,719,890	83.1	1,250,343	475,926	197,505
1910-1914.....	3,090,918	2,947,523	95.4	66,183	77,212	1,959,022	63.2	940,099	197,797	1,981,484	64.1	1,465,497	1,148,410	368,118
1915-1919.....	3,485,901	3,302,625	94.7	71,611	111,665	2,634,743	75.6	546,692	304,466	2,645,348	75.9	1,977,449	701,131	269,395
1920-1924.....	1,378,494	1,319,306	95.7	32,281	26,907	1,178,249	85.5	134,134	66,111	1,192,700	86.5	907,031	216,754	83,275
1925-1929.....	192,787	179,739	93.2	6,374	6,574	159,774	82.9	24,256	8,757	161,120	84.0	115,373	43,927	15,364
1930-1934.....	49,941	48,224	96.6	710	1,007	47,536	95.2	920	1,485	46,966	94.0	36,154	3,095	.....
1935-1939.....	23,443	19,911	84.9	2,087	1,445	21,654	92.4	.....	1,789	22,112	94.3	17,738	2,576	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	10,990,409	10,946,170	1,878,499	9,067,671	142,988	0.01	0.08
Gravity drainage only.....	10,989,094	10,944,855	1,877,184	9,067,671	142,237	0.01	0.08
Open ditches only.....	8,239,536	8,189,199	346,212	7,852,987	35,286	(1)	0.10
Open ditches and levees.....	2,495	2,495	.....	2,495	.....	.....	.....
Tile drains only.....	919,508	919,508	506,131	413,377	26,582	0.03	0.05
Open ditches and tile drains.....	1,826,025	1,821,173	1,022,361	798,512	79,857	0.04	0.08
Open ditches, tile drains, and levees.....	2,490	2,480	2,490	.....	512	0.21	0.21
Pumping for all or part of drainage: All drainage by pumping.....	1,315	1,315	1,315	.....	751	0.57	0.57

¹Less than one-tenth of 1 cent.

CENSUS OF DRAINAGE — MINNESOTA

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	10,990,409	100.0	65,576,077	100.0
Method:				
By district forces.....	5,950,988	54.1	40,962,564	62.5
By contract.....	1,300,622	11.8	7,302,435	11.1
Work apportioned to landowners.....	1,269,411	11.6	6,899,094	10.5
"None," or not reporting.....	2,469,388	22.5	10,411,964	15.9
Whether systematic:				
Reporting "yes".....	2,109,553	19.2	26,374,026	40.2
Reporting "no".....	8,648,847	78.7	38,030,142	58.0
Not reporting.....	1232,009	2.1	1,171,906	1.8

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	298,454	3,121,149	268.9	976.0	0.1
Work Projects Administration.....	215,947	2,160,947	205.0	682.0	0.1
Other kind or combination.....	82,507	960,202	63.9	294.0

CENSUS OF DRAINAGE — MINNESOTA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Aitkin	Anoka	Becker	Beltrami ¹	Benton	Big Stone	Blue Earth	
LAND AREA									
1	Approximate land area.....acres.....1940..	51,205,760	1,167,360	272,000	841,600	1,610,880	258,560	326,400	473,600
2	Drainage enterprises.....number.....1940..	2,732	33	55	17	20	11	18	83
3	Land in enterprises.....acres.....1940..	10,990,409	407,959	105,020	41,924	348,779	14,816	26,380	141,751
4	.....1930..	11,474,683	435,231	123,483	18,901	645,416	8,471	31,999	79,318
5	.....1920..	9,232,709	419,680	68,891	17,235	1,211,754	7,979	10,111	54,548
6	Area of all enterprises, overlapping included.....acres.....1940..	14,702,196	541,090	141,359	42,164	428,097	19,696	26,980	166,211
7	Amount of overlapping.....acres.....1940..	3,711,787	133,131	36,339	240	79,318	4,880	600	24,460
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	10,226,116	393,271	55,562	41,924	334,321	9,814	26,380	134,528
9	.....1930..	7,322,252	61,444	96,078	12,061	146,465	8,246	26,290	79,318
10	Increase or decrease (-), 1930-1940.....acres.....	2,903,864	331,827	-40,516	29,863	187,856	1,568	90	55,208
11	.....percent.....	39.6	540.0	-42.2	247.6	128.2	19.0	0.3	69.6
12	Land undrained, unfit for any crop.....acres.....1940..	423,256	9,792	22,403	.....	4,693	1,437	.....	1,445
13	.....1930..	2,037,481	137,547	12,340	1,965	385,470	125	2,197	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-1,614,225	-127,755	10,063	-1,965	-380,777	1,312	-2,197	1,445
15	.....percent.....	-79.2	-92.9	81.5	-100.0	-98.8	(³)	-100.0	.....
16	Land partly drained, for partial crop.....acres.....1940..	341,037	4,896	27,055	.....	9,765	3,565	.....	5,780
17	.....1930..	2,114,950	236,240	15,065	4,875	113,481	100	3,512	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-1,773,913	-231,344	11,990	-4,875	-103,716	3,468	-3,512	5,780
19	.....percent.....	-83.9	-97.9	79.6	-100.0	-91.4	(³)	-100.0	.....
20	Improved land.....acres.....1940..	8,165,522	98,262	49,311	41,924	123,130	8,844	26,380	133,661
21	.....1930..	7,396,575	54,459	91,104	13,805	150,447	8,130	27,955	79,318
22	.....1920..	3,818,490	*36,058	26,459	8,412	*37,604	4,310	5,918	49,638
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	1,926,442	283,059	33,773	.....	124,948	3,812	.....	2,644
24	.....1930..	2,046,799	299,254	14,947	2,205	494,959	265	306	.....
25	.....1920..	1,370,023	115,255	1,384	200	574,444	316	.....	.....
26	Other unimproved land.....acres.....1940..	898,445	26,638	21,936	.....	100,701	2,160	.....	5,446
27	.....1930..	2,031,309	81,518	17,432	2,891	10	76	4,638	.....
28	.....1920..	4,044,196	268,367	41,048	8,623	599,706	3,353	4,193	4,910
29	Land in occupied farms.....acres.....1940..	8,397,586	105,262	87,652	40,646	127,383	12,980	25,841	141,661
30	.....1930..	8,782,323	52,965	123,457	15,907	146,167	8,471	31,999	79,318
31	Increase or decrease (-), 1930-1940.....acres.....	-384,737	52,277	-35,805	24,739	-18,784	4,509	-6,158	62,343
32	.....percent.....	-4.4	98.7	-29.0	155.5	-12.8	53.2	-19.2	78.6
33	Land in planted crops.....acres.....1940..	6,196,229	56,235	42,996	33,553	45,750	7,979	21,860	131,554
34	.....1930..	5,916,067	21,729	76,583	9,677	107,750	7,694	25,553	73,352
35	Increase or decrease (-), 1930-1940.....acres.....	282,162	34,506	-33,587	23,876	-62,000	285	-3,673	58,202
36	.....percent.....	4.8	158.8	-43.8	246.7	-57.5	3.7	-14.4	79.3
37	Land idle.....acres.....1940..	2,742,654	307,126	62,024	.....	221,396	6,837	.....	8,884
38	.....1930..	3,747,812	356,701	44,570	4,909	398,329	341	4,119	.....
39	Increase or decrease (-), 1930-1940.....acres.....	-1,005,158	-49,575	17,454	-4,909	-176,933	6,496	-4,119	8,884
40	.....percent.....	-26.8	-13.9	39.2	-100.0	-44.4	(³)	-100.0	.....
41	Land available for settlement.....acres.....1940..	966,728	299,640	17,368	.....	61,891	1,836	.....	.....
42	.....1930..	1,346,207	249,020	.....	1,600	147,000	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-379,479	50,620	17,368	-1,600	-85,109	1,836	.....	.....
44	.....percent.....	-28.2	20.3	.....	.....	-57.9	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	8,238,586	407,959	102,173	41,924	348,779	14,816	12,000	16,424
46	Length of these ditches.....miles.....	13,874.4	589.4	359.8	86.9	610.6	58.9	36.0	45.9
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	2,495	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	4.2	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	0.1	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	919,508	.....	740	.....	.....	.....	2,220	95,331
53	Length of these tile.....miles.....	3,929.3	.....	9.0	.....	.....	.....	10.0	366.8
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,826,025	.....	2,107	.....	.....	.....	12,160	29,996
60	Length of these open ditches.....miles.....	1,977.8	.....	3.6	.....	.....	.....	17.3	31.0
61	Length of these tile.....miles.....	5,935.7	.....	9.5	.....	.....	.....	25.0	89.6
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	2,480	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	0.3	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	10.0	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	0.3	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁶.....acres.....	1,315	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	18.4	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Part taken to form Lake of the Woods in 1922.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 2,498.

³Percent not shown when more than 1,000.

⁴Office estimate; the reported figures exceeded the improved acreage in all farms in the county as determined by the Census of Agriculture.

⁵Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - MINNESOTA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Brown	Carlton	Carver	Cass	Chippewa	Chisago	Clay	Clear- water	Cotton- wood
LAND AREA										
1	Approximate land area.....acres.....1940..	392,320	550,400	229,120	1,313,920	372,480	268,160	672,000	643,200	409,600
2	Drainage enterprises.....number.....1940..	55	4	11	21	44	16	34	6	73
3	Land in enterprises.....acres.....1940..	83,720	63,082	18,902	86,260	149,866	34,905	268,335	57,415	139,984
4	.....1930..	91,203	78,282	6,285	81,530	66,749	45,168	309,396	78,720	45,554
5	.....1920..	27,538	42,500	6,282	71,871	50,782	17,368	379,975	.....	33,524
6	Area of all enterprises, overlapping included.....acres.....1940..	90,196	66,282	19,062	90,250	161,629	35,185	466,471	72,235	180,264
7	Amount of overlapping.....acres.....1940..	6,476	3,200	160	3,990	11,743	280	198,136	14,820	40,380
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	77,248	20,622	15,173	86,260	149,866	20,190	268,335	57,415	139,154
9	.....1930..	91,203	26,882	5,535	24,162	54,842	30,924	304,351	56,900	42,727
10	Increase or decrease (-), 1930-1940.....acres.....	-13,955	-6,260	9,638	62,098	95,044	-10,734	-36,016	515	96,427
11	.....percent.....	-15.3	-23.3	174.1	257.0	173.3	-34.7	-11.8	0.9	225.7
12	Land undrained, unfit for any crop.....acres.....1940..	1,906	42,460	2,280	.....	.....	4,060	.....	.....	730
13	.....1930..	.....	51,400	195	13,154	1,428	5,801	2,100	5,300	429
14	Increase or decrease (-), 1930-1940.....acres.....	1,906	-8,940	2,085	-13,154	-1,428	-1,741	-2,100	-5,300	301
15	.....percent.....	.....	-17.4	(¹)	-100.0	-100.0	-30.0	-100.0	-100.0	70.2
16	Land partly drained, for partial crop.....acres.....1940..	4,566	.....	1,449	.....	.....	10,655	.....	.....	.....
17	.....1930..	.....	.....	555	44,214	10,479	8,443	2,945	16,520	2,398
18	Increase or decrease (-), 1930-1940.....acres.....	4,566	.....	894	-44,214	-10,479	2,212	-2,945	-16,520	-2,398
19	.....percent.....	.....	.....	161.1	-100.0	-100.0	26.2	-100.0	-100.0	-100.0
20	Improved land.....acres.....1940..	80,023	14,980	15,346	41,212	149,866	13,500	256,282	33,087	134,559
21	.....1930..	91,065	12,438	5,258	18,668	66,719	31,768	305,901	36,400	44,825
22	.....1920..	15,310	6,326	3,140	14,137	39,329	8,782	248,830	.....	26,121
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	897	3,380	1,276	45,048	.....	15,453	12,053	24,328	.....
24	.....1930..	138	32,000	133	46,129	.....	8,540	.....	10,300	.....
25	.....1920..	33	5,381	99	23,900	.....	3,054	4,092	.....	.....
26	Other unimproved land.....acres.....1940..	2,800	44,722	2,280	.....	.....	5,952	.....	.....	5,325
27	.....1930..	.....	33,844	894	16,733	30	4,860	3,495	32,020	729
28	.....1920..	12,195	30,793	3,043	33,834	11,453	5,532	127,053	.....	7,403
29	Land in occupied farms.....acres.....1940..	83,088	14,289	18,902	40,374	149,866	21,936	266,447	29,048	139,684
30	.....1930..	91,203	17,400	6,285	81,530	66,749	45,168	309,396	63,440	45,554
31	Increase or decrease (-), 1930-1940.....acres.....	-8,115	-3,111	12,617	-41,156	83,137	-23,230	-42,949	-34,392	94,130
32	.....percent.....	-8.9	-17.9	200.7	-50.5	124.6	-51.4	-13.9	-54.2	206.6
33	Land in planted crops.....acres.....1940..	76,102	2,948	12,256	22,296	128,144	11,207	218,472	14,940	119,600
34	.....1930..	56,273	9,400	5,258	17,441	54,175	23,935	257,447	32,040	39,791
35	Increase or decrease (-), 1930-1940.....acres.....	19,829	-6,452	6,998	4,855	73,969	-12,728	-38,975	-17,100	79,809
36	.....percent.....	35.2	-68.6	133.1	27.8	136.5	-53.2	-15.1	-53.4	200.6
37	Land idle.....acres.....1940..	7,120	50,062	6,646	45,048	.....	23,698	10,953	24,328	5,565
38	.....1930..	.....	54,400	147	46,233	6,744	16,360	600	33,300	1,007
39	Increase or decrease (-), 1930-1940.....acres.....	7,120	-4,338	6,499	-1,185	-6,744	7,318	10,353	-8,972	4,556
40	.....percent.....	.....	-8.0	(¹)	-2.6	-100.0	44.7	(¹)	-26.9	452.6
41	Land available for settlement.....acres.....1940..	.....	5,802	.....	45,048	.....	12,967	.....	22,408	.....
42	.....1930..	.....	9,000	.....	.....	.....	.....	.....	14,400	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-3,198	.....	45,048	.....	12,967	.....	8,008	.....
44	.....percent.....	.....	-35.5	.....	.....	.....	.....	.....	55.6	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	31,119	63,082	17,089	86,260	45,327	34,905	268,335	57,415	5,289
46	Length of these ditches.....miles.....	103.2	102.0	53.4	161.7	101.9	74.9	312.6	72.2	12.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	37,285	.....	641	.....	10,672	.....	.....	.....	37,420
53	Length of these tile.....miles.....	225.7	.....	3.0	.....	57.5	.....	.....	.....	166.6
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	15,316	.....	1,172	.....	93,887	.....	.....	.....	97,175
60	Length of these open ditches.....miles.....	25.1	.....	5.2	.....	161.8	.....	.....	.....	24.0
61	Length of these tile.....miles.....	40.2	.....	1.0	.....	133.3	.....	.....	.....	419.6
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....

¹ Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — MINNESOTA

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COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Crow Wing	Dakota ¹	Dodge	Douglas	Faribault	Freeborn	Grant	Hennepin	
LAND AREA									
1	Approximate land area.....acres....1940..	539,360	365,440	278,400	407,680	456,320	449,280	356,480	361,600
2	Drainage enterprises.....number....1940..	14	2	5	19	76	39	24	36
3	Land in enterprises.....acres....1940..	40,843	7,945	23,908	68,832	258,575	122,537	61,550	36,562
4	.....1930..	41,615	(²)	14,421	24,605	252,519	123,815	62,415	29,614
5	.....1920..	24,402	(²)	13,902	30,677	118,685	19,084	60,365	13,375
6	Area of all enterprises, overlapping included.....acres....1940..	41,600	7,945	24,468	73,545	273,418	146,544	69,190	37,256
7	Amount of overlapping.....acres....1940..	757	.....	560	4,713	14,843	24,007	7,640	694
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	40,843	7,605	23,908	68,832	258,275	115,537	61,550	15,346
9	.....1930..	29,644	(²)	13,501	22,179	251,244	111,517	60,726	14,494
10	Increase or decrease (-), 1930-1940.....acres.....	11,199	(²)	10,407	46,653	7,031	4,020	824	852
11	.....percent.....	37.8	(²)	77.1	210.3	2.8	3.6	1.4	5.9
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	.....	.....	300	4,000	.....	10,594
13	.....1930..	3,550	.....	600	520	875	12,060	400	1,645
14	Increase or decrease (-), 1930-1940.....acres.....	-3,550	.....	-600	-520	-375	-8,060	-400	8,949
15	.....percent.....	-100.0	.....	-100.0	-100.0	-65.7	-66.9	-100.0	544.0
16	Land partly drained, for partial crop.....acres....1940..	.....	250	.....	.....	3,000	.....	.....	10,622
17	.....1930..	8,421	.....	320	1,906	400	218	1,289	4,475
18	Increase or decrease (-), 1930-1940.....acres.....	-8,421	250	-320	-1,906	-400	2,782	-1,289	6,147
19	.....percent.....	-100.0	.....	-100.0	-100.0	-100.0	(³)	-100.0	137.4
20	Improved land.....acres....1940..	24,095	7,945	23,908	68,832	258,275	115,561	61,550	25,815
21	.....1930..	17,374	(²)	13,941	21,754	252,219	123,815	61,932	17,799
22	.....1920..	12,551	(²)	7,028	16,752	101,504	11,403	60,365	8,030
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	16,748	.....	.....	.....	1,793	.....	.....	.....
24	.....1930..	20,424	.....	.....	1,350	.....	.....	100	474
25	.....1920..	2,789	(²)	.....	.....	.....	236	.....	1,292
26	Other unimproved land.....acres....1940..	.....	.....	.....	.....	300	5,183	.....	10,747
27	.....1930..	3,817	.....	480	1,501	300	.....	383	2,941
28	.....1920..	9,062	(²)	6,874	13,925	17,161	7,445	.....	4,053
29	Land in occupied farms.....acres....1940..	24,095	7,945	23,908	66,206	258,575	121,172	59,743	34,642
30	.....1930..	26,056	(²)	14,101	24,605	252,519	123,815	62,415	20,264
31	Increase or decrease (-), 1930-1940.....acres.....	-1,961	(²)	9,807	41,601	6,056	-2,643	-2,672	14,378
32	.....percent.....	-7.5	(²)	69.5	169.1	2.4	-2.1	-4.3	71.0
33	Land in planted crops.....acres....1940..	20,273	6,950	18,862	54,614	218,380	100,000	48,817	17,025
34	.....1930..	15,500	(²)	11,179	21,455	226,280	103,749	60,535	15,381
35	Increase or decrease (-), 1930-1940.....acres.....	4,773	(²)	7,683	33,159	-7,900	-3,749	-11,718	1,644
36	.....percent.....	30.8	(²)	68.7	154.6	-3.5	-3.6	-19.4	10.7
37	Land idle.....acres....1940..	16,748	95	896	1,016	11,995	7,556	.....	19,452
38	.....1930..	16,121	.....	320	362	40	660	1,117	1,347
39	Increase or decrease (-), 1930-1940.....acres.....	627	95	576	654	11,955	6,896	-1,117	18,105
40	.....percent.....	3.9	.....	180.0	180.7	(³)	(³)	-100.0	(³)
41	Land available for settlement.....acres....1940..	16,748	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	11,769	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	4,979	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	42.3	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	40,843	7,945	.....	65,111	21,000	32,981	45,387	29,144
46	Length of these ditches.....miles.....	105.6	18.5	.....	148.4	51.7	89.6	55.7	85.1
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	2,495	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	4.2	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	0.1	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	4,754	.....	66,540	12,922	4,205	2,175
53	Length of these tile.....miles.....	.....	.....	15.5	.....	235.8	48.9	21.7	34.7
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	19,154	3,721	171,035	74,139	11,858	3,928
60	Length of these open ditches.....miles.....	.....	.....	30.4	2.6	145.6	86.3	10.4	5.5
61	Length of these tile.....miles.....	.....	.....	22.9	13.0	488.0	126.6	26.0	40.1
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	.....	.....	.....	.....	.....	.....	1,315
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	18.4
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Percent not shown when more than 1,000.

⁴Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - MINNESOTA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Lac qui Parle	Lake of the Woods ¹	Le Sueur	Lincoln	Lyon	McLeod	Mahnomon	Marshall	
LAND AREA									
1	Approximate land area.....acres....1940..	494,720	837,120	262,240	345,600	456,320	318,720	367,360	1,152,000
2	Drainage enterprises.....number....1940..	50	8	42	39	73	43	4	46
3	Land in enterprises.....acres....1940..	85,984	203,378	64,034	56,254	105,204	54,686	44,420	812,517
4	.....".....1930..	81,397	676,335	16,220	56,303	94,148	57,229	50,331	819,305
5	.....".....1920..	26,567	.....	16,721	14,490	31,765	14,072	36,724	771,421
6	Area of all enterprises, overlapping included.....acres....1940..	88,884	255,848	77,104	60,845	117,016	60,886	45,190	1,292,751
7	Amount of overlapping.....acres....1940..	2,880	52,470	13,070	4,591	11,812	6,200	760	480,234
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	85,936	203,378	63,244	56,254	105,084	51,974	44,420	805,042
9	.....".....1930..	81,397	305,000	3,063	56,303	79,832	57,229	29,601	439,594
10	Increase or decrease (-), 1930-1940.....acres.....	4,539	-101,622	60,181	-49	25,152	-5,255	14,819	365,448
11	.....percent.....	5.6	-33.3	(²)	-0.1	31.5	-9.2	50.1	83.1
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	80	.....	120	390	.....	5,686
13	.....".....1930..	.....	224,335	3,347	.....	4,819	.....	1,650	74,286
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-224,335	-3,267	.....	-4,699	390	-1,650	-68,600
15	.....percent.....	.....	-100.0	-97.6	.....	-97.5	.....	-100.0	-92.3
16	Land partly drained, for partial crop.....acres....1940..	48	.....	710	.....	.....	2,322	.....	1,789
17	.....".....1930..	.....	147,000	9,810	.....	9,397	.....	19,060	305,425
18	Increase or decrease (-), 1930-1940.....acres.....	48	-147,000	-9,100	.....	-9,397	2,322	-19,060	-303,636
19	.....percent.....	.....	-100.0	-92.8	.....	-100.0	.....	-100.0	-99.4
20	Improved land.....acres....1940..	81,685	52,944	48,675	56,254	105,036	51,890	24,529	788,067
21	.....".....1930..	81,397	315,000	4,710	56,303	84,602	57,229	19,550	443,941
22	.....".....1920..	20,109	.....	10,711	11,128	22,507	7,834	16,031	³ 487,137
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	650	150,434	15,289	.....	168	165	.....	8,150
24	.....".....1930..	.....	328,256	.....	.....	.....	.....	.....	153,002
25	.....".....1920..	.....	.....	.....	.....	.....	233	.....	154,858
26	Other unimproved land.....acres....1940..	3,649	.....	70	.....	.....	2,631	.....	16,300
27	.....".....1930..	.....	33,079	11,610	.....	9,546	.....	30,781	222,362
28	.....".....1920..	6,458	.....	6,010	3,362	.....	6,005	19,245	129,426
29	Land in occupied farms.....acres....1940..	82,545	52,565	62,512	56,254	104,564	54,686	15,604	508,929
30	.....".....1930..	81,397	319,000	16,220	56,303	93,788	57,229	50,331	565,769
31	Increase or decrease (-), 1930-1940.....acres.....	1,148	-266,435	46,292	-49	10,776	-2,543	-34,727	-56,840
32	.....percent.....	1.4	-83.5	285.4	-0.1	11.5	-4.4	-69.0	-10.0
33	Land in planted crops.....acres....1940..	73,700	17,200	33,356	48,726	93,871	46,241	13,507	359,137
34	.....".....1930..	73,236	256,000	2,327	50,619	84,497	51,516	10,400	301,749
35	Increase or decrease (-), 1930-1940.....acres.....	464	-238,800	31,029	-1,893	9,374	-3,275	3,107	57,388
36	.....percent.....	0.6	-93.3	(²)	-3.7	11.1	-6.4	29.9	19.0
37	Land idle.....acres....1940..	6,265	94,224	6,023	2,398	10,803	6,445	23,456	12,148
38	.....".....1930..	.....	315,016	3,966	.....	.....	.....	28,080	254,131
39	Increase or decrease (-), 1930-1940.....acres.....	6,265	-220,792	2,157	2,398	10,803	6,445	-4,624	-241,983
40	.....percent.....	.....	-70.1	55.8	.....	.....	.....	-16.5	-95.2
41	Land available for settlement.....acres....1940..	.....	93,934	.....	.....	.....	.....	3,565	8,058
42	.....".....1930..	.....	211,547	.....	.....	.....	.....	.....	154,240
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-117,613	.....	.....	.....	.....	3,565	-146,182
44	.....percent.....	.....	-55.6	.....	.....	.....	.....	.....	-94.8
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	34,028	203,378	61,846	11,194	17,678	20,347	44,420	812,517
46	Length of these ditches.....miles.....	140.7	148.0	187.0	32.2	52.9	84.9	60.0	1,387.6
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	14,797	.....	.....	5,160	62,300	11,660	.....	.....
53	Length of these tile.....miles.....	82.9	.....	.....	24.3	281.5	36.5	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	37,159	.....	2,188	39,900	25,226	22,679	.....	.....
60	Length of these open ditches.....miles.....	74.8	.....	5.6	99.2	23.2	46.4	.....	.....
61	Length of these tile.....miles.....	71.2	.....	0.5	79.8	111.7	52.1	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Organized from part of Beltrami in 1922.

² Percent not shown when more than 1,000.

³ Office estimate; the reported figures exceeded the improved acreage in all farms in the county as determined by the Census of Agriculture.

CENSUS OF DRAINAGE - MINNESOTA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Martin	Meeker	Mille Lacs	Morrison	Nower	Murray	Nicollet	Nobles	Norman
LAND AREA										
1	Approximate land area.....acres.....1940..	452,480	396,800	363,520	727,040	449,920	453,120	293,760	455,880	566,400
2	Drainage enterprises.....number.....1940..	131	41	11	22	6	86	46	28	40
3	Land in enterprises.....acres.....1940..	274,921	55,984	18,412	61,357	16,951	177,490	84,435	107,375	258,297
4	.....1930..	297,350	65,723	19,774	61,676	17,100	202,020	89,065	104,098	346,680
5	.....1920..	67,965	21,227	7,172	33,080	4,771	44,984	28,666	16,734	280,024
6	Area of all enterprises, overlapping included.....acres.....1940..	307,975	60,225	18,412	62,924	16,951	233,582	102,585	112,635	526,573
7	Amount of overlapping.....acres.....1940..	33,054	4,241	.....	1,567	.....	56,092	18,150	4,960	268,276
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	274,921	51,106	18,412	61,357	16,911	177,164	80,210	97,446	258,297
9	.....1930..	297,350	40,154	8,030	30,399	12,221	181,860	72,080	90,608	233,326
10	Increase or decrease (-), 1930-1940.....acres.....	-22,429	10,952	10,382	30,958	4,690	-4,696	8,130	6,838	24,971
11	.....percent.....	-7.5	27.3	129.3	101.8	38.4	-2.6	11.3	7.5	10.7
12	Land undrained, unfit for any crop.....acres.....1940..	.....	2,377	.....	.....	40	50	.....	5,428	.....
13	.....1930..	.....	17,562	7,222	10,290	2,110	7,778	3,353	5,115	38,639
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-15,185	-7,222	-10,290	-2,070	-7,728	-3,353	313	-38,639
15	.....percent.....	.....	-86.5	-100.0	-100.0	-98.1	-99.4	-100.0	6.1	-100.0
16	Land partly drained, for partial crop.....acres.....1940..	.....	2,501	.....	.....	.....	276	4,225	4,801	.....
17	.....1930..	.....	8,007	4,522	20,987	2,769	12,352	13,632	8,375	74,715
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-5,506	-4,522	-20,987	-2,769	-12,106	-9,407	-3,574	-74,715
19	.....percent.....	.....	-68.8	-100.0	-100.0	-100.0	-97.8	-69.0	-42.7	-100.0
20	Improved land.....acres.....1940..	269,671	52,215	17,151	61,357	16,911	172,773	75,131	101,355	245,413
21	.....1930..	297,350	42,206	5,425	24,679	15,260	166,979	86,565	92,533	245,931
22	.....1920..	53,351	14,268	4,153	20,362	1,670	35,225	16,053	12,069	166,386
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	1,750	1,144	.....	.....	.....	1,420	8,463	.....	11,704
24	.....1930..	.....	600	9,778	16,043	200	140	1,117	.....	.....
25	.....1920..	.....	189	578	2,309	48	.....	337	.....	.....
26	Other unimproved land.....acres.....1940..	3,500	2,625	1,261	.....	40	3,297	841	6,320	1,180
27	.....1930..	.....	22,917	4,571	20,954	1,640	34,901	1,891	11,565	100,749
28	.....1920..	14,614	6,770	2,441	10,409	3,053	9,759	12,276	4,665	113,638
29	Land in occupied farms.....acres.....1940..	274,921	55,959	16,984	61,015	16,951	163,782	84,435	106,835	252,689
30	.....1930..	297,350	65,723	19,774	53,926	16,720	201,836	86,565	100,508	344,039
31	Increase or decrease (-), 1930-1940.....acres.....	-22,429	-9,764	-2,790	7,089	231	-38,054	-4,130	6,327	-91,350
32	.....percent.....	-7.5	-14.8	-14.1	13.1	1.4	-18.8	-4.7	6.3	-26.6
33	Land in planted crops.....acres.....1940..	220,000	49,700	14,717	53,321	13,322	132,400	67,730	94,879	201,428
34	.....1930..	267,704	32,277	3,817	23,080	13,213	164,481	67,348	89,801	180,270
35	Increase or decrease (-), 1930-1940.....acres.....	-47,704	17,423	10,900	30,241	109	-32,081	382	5,078	21,158
36	.....percent.....	-17.8	54.0	285.6	131.0	0.8	-19.5	0.6	5.6	11.7
37	Land idle.....acres.....1940..	5,000	5,809	1,261	.....	669	13,708	16,641	12,796	.....
38	.....1930..	.....	.....	9,686	15,524	320	11,566	247	.....	106,367
39	Increase or decrease (-), 1930-1940.....acres.....	5,000	5,809	-8,625	-15,524	349	2,142	16,394	12,796	-106,367
40	.....percent.....	.....	.....	-87.2	-100.0	109.1	18.5	(¹)	.....	-100.0
41	Land available for settlement.....acres.....1940..	.....	.....	1,261	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	1,261	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	7,116	50,718	17,219	61,357	.....	21,196	67,666	6,360	256,854
46	Length of these ditches.....miles.....	14.3	104.6	46.9	92.8	.....	48.4	159.9	15.5	337.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	102,211	1,997	.....	.....	7,291	52,197	12,879	35,153	1,443
53	Length of these tile.....miles.....	367.0	9.0	.....	.....	33.6	316.0	41.0	95.0	0.5
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	165,594	3,269	1,193	.....	9,660	101,617	3,890	66,162	.....
60	Length of these open ditches.....miles.....	110.7	2.8	1.5	.....	7.0	35.2	8.4	22.0	.....
61	Length of these tile.....miles.....	636.1	10.3	7.1	.....	17.2	457.8	11.5	226.3	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	2,480	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	0.3	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	10.0	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	0.3	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....

¹ Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — MINNESOTA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Otter Tail	Fennington	Pine	Pipestone ¹	Folk	Pope	Ramsey	Red Lake	
LAND AREA									
1	Approximate land area.....acres.....1940..	1,280,000	398,080	903,680	296,960	1,287,080	435,840	102,400	276,480
2	Drainage enterprises.....number.....1940..	61	49	9	1	121	19	20	30
3	Land in enterprises.....acres.....1940..	112,253	335,950	36,463	22,514	716,745	33,860	12,942	118,756
4	.....1930..	53,157	322,483	37,428	21,801	761,913	40,795	4,178	159,062
5	.....1920..	50,555	349,624	16,227	14,834	837,251	11,402	4,172	145,649
6	Area of all enterprises, overlapping included.....acres.....1940..	118,009	589,723	36,463	22,514	1,553,515	34,880	13,552	197,701
7	Amount of overlapping.....acres.....1940..	5,753	253,763	.....	.....	836,770	1,020	610	78,945
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	111,046	288,833	36,035	22,514	580,257	33,860	12,691	102,285
9	.....1930..	33,938	160,274	11,230	21,601	643,025	40,595	2,955	138,916
10	Increase or decrease (-), 1930-1940.....acres.....	77,108	128,559	24,805	713	37,232	-6,735	9,733	-36,631
11	.....percent.....	227.2	80.2	220.9	3.3	5.8	-16.6	329.5	-26.4
12	Land undrained, unfit for any crop.....acres.....1940..	.....	6,065	250	.....	15,488	.....	251	8,710
13	.....1930..	5,030	13,928	6,460	.....	10,791	200	899	3,790
14	Increase or decrease (-), 1930-1940.....acres.....	-5,030	-7,863	-6,210	.....	4,697	-200	-848	4,920
15	.....percent.....	-100.0	-56.4	-95.1	.....	43.5	-100.0	-72.1	129.8
16	Land partly drained, for partial crop.....acres.....1940..	1,210	41,052	178	.....	21,000	.....	.....	7,761
17	.....1930..	14,189	148,281	19,738	.....	108,097	.....	324	16,356
18	Increase or decrease (-), 1930-1940.....acres.....	-12,979	-107,229	-19,560	.....	-87,097	.....	-324	-8,595
19	.....percent.....	-91.5	-72.3	-99.1	.....	-80.6	.....	-100.0	-52.5
20	Improved land.....acres.....1940..	111,696	242,999	13,836	22,514	602,162	33,860	12,508	81,023
21	.....1930..	36,524	172,432	6,070	21,801	694,716	39,875	3,164	140,489
22	.....1920..	25,384	² 186,319	8,636	14,092	557,509	7,676	1,866	77,468
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	560	51,772	9,235	.....	61,253	.....	123	18,375
24	.....1930..	.....	57,755	21,790	.....	18,814	.....	.....	6,360
25	.....1920..	1,961	22,173	1,075	.....	28,336	208	231	5,802
26	Other unimproved land.....acres.....1940..	.....	41,179	13,392	.....	53,330	.....	251	19,358
27	.....1930..	16,633	92,296	9,568	.....	48,383	920	1,014	12,213
28	.....1920..	23,210	141,132	6,516	742	251,416	3,518	2,075	63,379
29	Land in occupied farms.....acres.....1940..	109,215	324,620	15,384	22,514	695,568	31,672	12,942	118,756
30	.....1930..	46,393	222,849	37,428	21,801	761,913	39,875	4,178	154,886
31	Increase or decrease (-), 1930-1940.....acres.....	62,822	101,771	-22,044	713	-66,345	-8,203	8,764	-36,130
32	.....percent.....	135.4	45.7	-58.9	3.3	-8.7	-20.6	209.8	-23.3
33	Land in planted crops.....acres.....1940..	93,062	166,000	11,089	19,464	463,441	27,378	12,105	64,518
34	.....1930..	32,489	103,960	5,485	19,000	534,830	35,235	2,137	104,280
35	Increase or decrease (-), 1930-1940.....acres.....	60,573	62,040	5,604	464	-71,389	-7,857	9,968	-39,762
36	.....percent.....	186.4	59.7	102.2	2.4	-13.3	-22.3	466.4	-38.1
37	Land idle.....acres.....1940..	2,645	134,944	22,627	300	117,604	900	837	27,826
38	.....1930..	15,786	116,550	30,148	.....	187,390	.....	1,246	22,740
39	Increase or decrease (-), 1930-1940.....acres.....	-13,141	18,394	-7,521	300	-69,786	900	-409	5,086
40	.....percent.....	-83.2	15.8	-24.9	.....	-37.2	.....	-32.8	22.4
41	Land available for settlement.....acres.....1940..	.....	3,250	.....	.....	12,909	.....	.....	.....
42	.....1930..	1,122	63,010	.....	.....	920	.....	.....	3,000
43	Increase or decrease (-), 1930-1940.....acres.....	-1,122	-59,760	.....	.....	12,909	-920	.....	-3,000
44	.....percent.....	-100.0	-94.8	.....	.....	-100.0	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	105,297	335,950	36,463	.....	710,298	32,380	10,991	118,756
46	Length of these ditches.....miles.....	256.9	439.7	61.3	.....	1,105.3	61.9	39.6	124.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	2,913	.....	.....	.....	1,379	1,280	.....	.....
53	Length of these tile.....miles.....	10.3	.....	.....	.....	7.0	4.1	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	4,046	.....	.....	22,514	5,068	200	1,951	.....
60	Length of these open ditches.....miles.....	5.6	.....	.....	14.0	12.0	0.8	5.2	.....
61	Length of these tile.....miles.....	12.2	.....	.....	72.0	5.0	0.3	1.5	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²Office estimate; the reported figures exceeded the improved acreage in all farms in the county as determined by the Census of Agriculture.

CENSUS OF DRAINAGE — MINNESOTA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Redwood	Renville	Rice	Roseau	St. Louis	Scott	Sherburne	Sibley	Stearns
LAND AREA										
1	Approximate land area.....acres....1940..	559,360	627,200	316,800	1,072,640	4,019,940	225,280	280,320	371,940	867,840
2	Drainage enterprises.....number...1940..	90	85	17	33	16	7	31	61	38
3	Land in enterprises.....acres....1940..	229,608	279,347	24,220	754,101	224,622	11,443	63,998	96,814	67,178
4	.....1930..	212,506	296,493	15,338	899,518	252,657	11,614	76,378	18,371	68,535
5	.....1920..	65,146	89,579	4,909	1,036,824	217,689	(¹)	20,597	21,357	26,283
6	Area of all enterprises, overlapping included.....acres....1940..	296,135	447,090	24,940	910,610	257,999	12,455	74,530	107,970	69,858
7	Amount of overlapping.....acres....1940..	66,527	167,743	720	156,509	33,377	1,012	10,632	11,156	2,680
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	219,261	279,247	18,830	614,416	217,626	10,818	36,476	65,251	56,265
9	.....1930..	164,416	257,143	9,301	359,341	250,072	11,614	59,992	18,371	68,535
10	Increase or decrease (-), 1930-1940.....acres.....	54,835	22,104	9,529	255,075	-32,446	-796	-21,516	66,880	-12,270
11	.....percent.....	33.4	8.6	102.4	71.0	-13.0	-6.8	-35.9	364.0	-17.9
12	Land undrained, unfit for any crop.....acres....1940..	1,873	.....	2,090	102,220	4,664	625	15,597	3,312	3,692
13	.....1930..	9,200	20,950	1,190	257,479	2,527	.....	6,518	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-7,327	-20,950	900	-155,259	2,137	625	9,079	3,312	3,692
15	.....percent.....	-79.6	-100.0	75.6	-60.3	84.6	.....	139.3	.....	.....
16	Land partly drained, for partial crop.....acres....1940..	8,484	100	3,300	37,465	2,332	.....	9,925	8,251	7,221
17	.....1930..	38,890	18,400	4,847	282,698	58	.....	9,868	.....	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-30,406	-18,300	-1,547	-245,233	2,274	.....	57	8,251	7,221
19	.....percent.....	-78.2	-99.4	-31.9	-86.7	(²)	.....	0.6	.....	.....
20	Improved land.....acres....1940..	227,185	273,760	19,620	369,785	35,115	10,796	46,354	79,779	59,899
21	.....1930..	210,579	292,143	15,338	302,138	168,647	11,614	45,900	18,371	63,345
22	.....1920..	40,844	61,816	3,078	³ 210,948	23,134	(¹)	11,674	9,837	21,760
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	250	1,117	1,190	221,138	125,073	22	12,614	6,583	5,606
24	.....1930..	.....	800	.....	190,257	14,959	.....	18,341	.....	4,680
25	.....1920..	20	29	.....	132,944	22,172	(¹)	1,280	266	441
26	Other unimproved land.....acres....1940..	2,173	4,470	3,410	163,178	64,434	625	5,030	10,452	1,733
27	.....1930..	1,927	3,550	.....	407,123	69,051	.....	12,137	.....	510
28	.....1920..	24,282	27,734	1,831	692,932	172,383	(¹)	7,643	11,254	4,082
29	Land in occupied farms.....acres....1940..	229,608	275,035	24,220	399,354	36,250	11,443	63,998	96,814	66,903
30	.....1930..	212,506	296,493	15,338	258,658	150,706	11,614	63,711	18,371	68,515
31	Increase or decrease (-), 1930-1940.....acres.....	17,102	-21,458	8,882	140,696	-112,456	-171	287	78,443	-1,912
32	.....percent.....	8.0	-7.2	57.9	54.4	-74.6	-1.5	0.4	427.0	-2.8
33	Land in planted crops.....acres....1940..	203,661	240,567	18,335	183,000	28,960	10,383	38,731	76,115	55,952
34	.....1930..	190,117	261,352	13,751	117,088	149,485	11,165	37,250	17,093	59,474
35	Increase or decrease (-), 1930-1940.....acres.....	13,544	-20,785	4,584	65,912	-120,525	-782	1,481	59,022	-3,522
36	.....percent.....	7.1	-8.0	33.3	56.3	-80.6	-7.0	4.0	345.3	-5.9
37	Land idle.....acres....1940..	5,866	400	5,865	186,097	180,522	1,060	25,241	20,639	9,931
38	.....1930..	100	2,200	.....	577,751	97,789	.....	5,635	.....	140
39	Increase or decrease (-), 1930-1940.....acres.....	5,766	-1,800	5,865	-391,654	82,733	1,060	19,606	20,639	9,791
40	.....percent.....	(²)	-81.8	.....	-67.8	84.6	.....	347.9	.....	(²)
41	Land available for settlement.....acres....1940..	.....	.....	.....	109,718	181,968	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	298,668	88,358	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	-188,950	93,610	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	-63.3	105.9	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	22,000	50,891	16,070	754,101	224,622	9,513	50,411	59,813	57,815
46	Length of these ditches.....miles.....	88.0	156.9	48.4	927.0	690.2	26.3	116.1	230.4	193.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	49,716	43,723	2,420	.....	.....	.....	.....	7,191	.....
53	Length of these tile.....miles.....	249.6	225.0	8.4	.....	.....	.....	.....	31.2	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	157,892	184,733	5,730	.....	.....	1,930	13,567	29,810	9,363
60	Length of these open ditches.....miles.....	207.2	172.8	5.7	.....	.....	8.0	76.6	45.8	30.1
61	Length of these tile.....miles.....	590.1	797.1	8.0	.....	.....	1.2	24.9	67.4	7.8
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Percent not shown when more than 1,000.

³Office estimate; the reported figures exceeded the improved acreage in all farms in the county as determined by the Census of Agriculture.

CENSUS OF DRAINAGE — MINNESOTA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Steele	Stevens	Swift	Todd	Traverse	Wadena	
LAND AREA							
1	Approximate land area.....acres....1940..	272,000	364,800	478,080	606,080	366,080	343,040
2	Drainage enterprises.....number...1940..	18	29	28	49	46	26
3	Land in enterprises.....acres....1940..	38,819	64,763	122,155	106,706	138,203	85,381
4	.....1930..	23,954	36,859	83,359	97,050	152,602	90,279
5	.....1920..	17,679	44,232	65,840	46,785	171,595	51,937
6	Area of all enterprises, overlapping included.....acres....1940..	39,679	66,023	130,185	113,416	174,510	94,083
7	Amount of overlapping.....acres....1940..	860	1,260	8,030	6,710	36,307	8,702
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	35,662	64,763	122,155	68,157	135,779	83,381
9	.....1930..	21,382	29,177	83,359	61,063	152,602	66,036
10	Increase or decrease (-), 1930-1940.....acres.....	14,280	35,586	38,796	7,094	-16,823	17,345
11	.....percent.....	66.8	122.0	46.5	11.6	-11.0	26.3
12	Land undrained, unfit for any crop.....acres....1940..	1,494	.....	.....	8,921	2,424	.....
13	.....1930..	1,050	3,526	.....	14,930	.....	8,707
14	Increase or decrease (-), 1930-1940.....acres.....	444	-3,526	.....	-6,009	2,424	-8,707
15	.....percent.....	42.3	-100.0	.....	-40.2	.....	-100.0
16	Land partly drained, for partial crop.....acres....1940..	1,663	.....	.....	29,628	.....	2,000
17	.....1930..	1,522	4,156	.....	21,057	.....	15,536
18	Increase or decrease (-), 1930-1940.....acres.....	141	-4,156	.....	8,571	.....	-13,536
19	.....percent.....	9.3	-100.0	.....	40.7	.....	-87.1
20	Improved land.....acres....1940..	37,284	64,763	122,155	54,696	138,203	67,656
21	.....1930..	22,224	33,051	83,359	67,465	152,602	56,931
22	.....1920..	12,373	26,857	50,429	18,394	156,906	17,109
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	40	.....	.....	43,098	.....	17,725
24	.....1930..	500	.....	.....	24,613	.....	23,077
25	.....1920..	.....	.....	.....	.....	.....	2,707
26	Other unimproved land.....acres....1940..	1,495	.....	.....	8,912	.....	.....
27	.....1930..	1,230	3,808	.....	4,972	.....	10,271
28	.....1920..	5,306	17,375	15,411	28,391	14,689	32,121
29	Land in occupied farms.....acres....1940..	37,819	61,615	119,634	100,303	138,203	79,504
30	.....1930..	23,419	36,859	83,359	95,964	152,602	76,961
31	Increase or decrease (-), 1930-1940.....acres.....	14,400	24,756	36,275	4,339	-14,399	2,543
32	.....percent.....	61.5	67.2	43.5	4.5	-9.4	3.3
33	Land in planted crops.....acres....1940..	30,400	55,527	101,921	51,328	123,039	65,921
34	.....1930..	21,361	32,863	73,600	47,580	113,620	54,115
35	Increase or decrease (-), 1930-1940.....acres.....	9,019	22,664	28,321	3,748	9,419	11,806
36	.....percent.....	42.2	69.0	38.5	7.9	8.3	21.8
37	Land idle.....acres....1940..	3,319	.....	.....	55,302	14,799	18,005
38	.....1930..	1,455	3,708	600	47,807	38,952	21,154
39	Increase or decrease (-), 1930-1940.....acres.....	1,864	-3,708	-600	7,495	-24,153	-3,149
40	.....percent.....	128.1	-100.0	-100.0	15.7	-62.0	-14.9
41	Land available for settlement.....acres....1940..	.....	.....	.....	6,403	.....	1,800
42	.....1930..	240	.....	.....	453	.....	6,940
43	Increase or decrease (-), 1930-1940.....acres.....	-240	.....	.....	5,950	.....	-5,140
44	.....percent.....	-100.0	.....	.....	(¹)	.....	-74.1
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	22,868	31,231	31,530	105,505	137,055	85,381
46	Length of these ditches.....miles.....	80.0	49.0	64.3	417.4	206.1	207.8
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	7,661	.....	6,200	.....	1,148	.....
53	Length of these tile.....miles.....	41.1	.....	44.7	.....	2.8	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	8,290	33,532	84,425	1,201	.....	.....
60	Length of these open ditches.....miles.....	11.5	59.0	103.7	2.5	.....	.....
61	Length of these tile.....miles.....	31.6	71.1	322.1	0.4	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹ Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — MINNESOTA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Waseca	Washington	Watonwan	Wilkin	Wright	Yellow Medicine	Other counties ¹
LAND AREA								
1	Approximate land area.....acres.....1940..	265,600	249,600	277,120	481,280	429,440	485,120	1,042,560
2	Drainage enterprises.....number.....1940..	20	8	29	33	38	34	5
3	Land in enterprises.....acres.....1940..	36,258	19,066	56,336	238,168	37,290	103,187	10,341
4	.....1930..	32,959	10,284	60,452	253,295	13,017	38,962	8,191
5	.....1920..	10,076	8,804	15,158	237,948	13,362	12,775	19,747
6	Area of all enterprises, overlapping included.....acres.....1940..	36,988	21,485	60,689	369,006	37,912	104,467	10,589
7	Amount of overlapping.....acres.....1940..	730	2,420	4,353	130,838	622	1,280	248
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	31,268	17,856	52,455	233,140	32,891	87,198	9,450
9	.....1930..	25,242	5,547	53,977	235,318	11,164	38,837	7,991
10	Increase or decrease (-), 1930-1940.....acres.....	6,026	12,309	-1,522	-2,178	21,727	48,361	1,459
11	.....percent.....	23.9	221.9	-2.8	-0.9	194.6	124.5	18.2
12	Land undrained, unfit for any crop.....acres.....1940..	3,300	605	2,214	5,028	2,064	2,897	650
13	.....1930..	4,481	1,484	1,040	7,397	.....	.....	200
14	Increase or decrease (-), 1930-1940.....acres.....	-1,181	-859	1,174	-2,369	2,064	2,897	450
15	.....percent.....	-26.4	-58.7	112.9	-32.0	.....	.....	225.0
16	Land partly drained, for partial crop.....acres.....1940..	1,690	605	1,667	.....	2,335	13,092	241
17	.....1930..	3,236	3,273	5,435	10,580	1,853	125	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-1,546	-2,668	-3,768	-10,580	482	12,967	241
19	.....percent.....	-47.8	-81.5	-69.3	-100.0	25.0	(²)	.....
20	Improved land.....acres.....1940..	32,958	17,856	53,548	234,948	29,067	100,420	9,303
21	.....1930..	26,163	5,440	55,562	245,698	12,886	38,862	7,904
22	.....1920..	6,007	4,557	13,906	146,620	7,756	8,495	13,124
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	1,500	605	577	.....	5,601	.....	374
24	.....1930..	1,108	1,640	800	.....	106	.....	287
25	.....1920..	.....	850	.....	4,029	852	.....	667
26	Other unimproved land.....acres.....1940..	1,800	605	2,211	3,220	2,622	2,767	664
27	.....1930..	5,688	3,204	4,090	7,597	25	100	.....
28	.....1920..	4,069	3,397	1,252	87,299	4,754	4,280	5,956
29	Land in occupied farms.....acres.....1940..	34,618	19,066	56,336	223,899	37,290	103,187	10,321
30	.....1930..	32,959	9,289	55,955	252,895	13,017	38,962	7,704
31	Increase or decrease (-), 1930-1940.....acres.....	1,659	9,777	381	-28,996	24,273	64,225	2,617
32	.....percent.....	5.0	105.2	0.7	-11.5	186.5	164.8	34.0
33	Land in planted crops.....acres.....1940..	31,131	17,161	51,397	172,172	28,967	84,856	8,865
34	.....1930..	25,905	4,505	45,322	204,050	11,827	34,609	7,120
35	Increase or decrease (-), 1930-1940.....acres.....	5,226	12,656	6,075	-31,878	17,140	50,247	1,745
36	.....percent.....	20.2	280.9	13.4	-15.6	144.9	145.2	24.5
37	Land idle.....acres.....1940..	5,127	1,904	4,839	25,198	7,969	18,271	1,296
38	.....1930..	1,674	1,655	1,663	.....	.....	.....	.....
39	Increase or decrease (-), 1930-1940.....acres.....	3,453	249	3,176	25,198	7,969	18,271	1,296
40	.....percent.....	206.3	15.0	191.0	.....	.....	.....	.....
41	Land available for settlement.....acres.....1940..	640	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	340	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	640	.....	-340	.....	.....	.....	.....
44	.....percent.....	.....	.....	-100.0	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	30,279	14,801	400	238,168	29,240	15,343	3,182
46	Length of these ditches.....miles.....	60.8	23.4	1.5	297.8	76.5	35.0	14.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	1,874	3,748	17,067	.....	1,192	21,603	7,179
53	Length of these tile.....miles.....	7.7	11.1	93.3	.....	13.5	96.4	17.0
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	4,105	517	38,868	.....	6,858	66,241	.....
60	Length of these open ditches.....miles.....	8.5	0.8	19.0	.....	20.0	59.8	.....
61	Length of these tile.....miles.....	10.8	3.4	194.7	.....	12.2	170.5	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹ Includes Rock, Wabasha, and Winona Counties in 1940; Dakota, Rock, and Wabasha Counties in 1930; and Dakota, Houston, Rock, Scott, and Wabasha Counties in 1920.
² Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — MINNESOTA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Aitkin	Anoka	Becker	Beltrami ¹	Benton	Big Stone	Blue Earth
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	2,732	33	55	17	20	11	18	83
Open ditches:								
2 Completed.....miles.....1940..	15,856.7	539.4	363.4	86.9	610.6	58.9	53.3	76.9
3	1930..	14,477.6	427.9	288.4	890.2	57.1	42.1	79.2
4	1920..	14,657.0	530.0	303.4	1,635.5	62.3	34.4	93.0
5 Additional length authorized.....miles.....1940..	0.3							
Tile drains:								
6 Completed.....miles.....1940..	9,893.4		18.5				35.0	456.4
7	1930..	9,451.3		10.9			42.5	278.4
8	1920..	5,924.6		5.7	0.1		42.7	243.0
9 Additional length authorized.....miles.....1940..	6.0							
Levees and dikes:								
10 Completed.....miles.....1940..	0.4							
11	1930..	149.7						
12	1920..	0.1						
13 Additional length authorized.....miles.....1940..								
Pumping plants:								
14 Engine capacity.....horsepower.....1940..	30							
15	1930..	75						
16	1920..							
17 Pump capacity.....gal. per min.....1940..	10,000							
18	1930..	12,700						
19	1920..							
20 Land served by pumps.....acres.....1940..	1,315							
21	1930..	815						
22	1920..							
23 Wells pumped for drainage.....number.....1940..								
24	1930..							
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	65,576,077	1,308,222	459,399	201,110	1,429,396	70,191	179,252	2,007,534
26	1930..	64,139,641	1,223,274	320,398	209,696	1,896,123	66,507	210,688
27	1920..	42,017,447	966,046	315,585	162,025	2,994,371	63,127	204,470
28 Estimated cost when completed.....dollars.....1940..	65,616,075	1,308,222	459,399	201,110	1,429,396	70,191	179,252	2,007,534
29	1930..	64,149,641	1,223,274	320,398	209,696	1,896,123	66,507	210,688
30	1920..	44,183,838	966,046	315,585	162,025	3,103,371	64,753	204,470
31 Average cost per acre when completed.....dollars.....1940..	5.97	3.21	4.37	4.80	4.10	4.74	6.79	14.16
32	1930..	5.59	2.81	2.59	11.09	2.94	7.85	6.58
33	1920..	4.79	2.30	4.53	9.40	2.56	8.12	20.22
Invested in and required for completion, 1940:								
34 Enterprises having open ditches only.....dollars..	28,128,874	1,308,222	430,181	201,110	1,429,396	70,191	63,784	53,482
35 Average amount per acre.....dollars..	3.41	3.21	4.21	4.80	4.10	4.74	5.32	3.26
36 Enterprises having open ditches and levees.....dollars..	50,129							
37 Average amount per acre.....dollars..	20.09							
38 Enterprises having tile only.....dollars..	11,799,417		8,836				16,711	1,361,429
39 Average amount per acre.....dollars..	12.83		11.94				7.53	14.28
40 Enterprises having tile and levees.....dollars..								
41 Average amount per acre.....dollars..								
42 Enterprises having open ditches and tile.....dollars..	25,515,945		20,382				98,757	592,623
43 Average amount per acre.....dollars..	13.97		9.67				8.12	19.76
44 Enterprises having ditches, tile, and levees.....dollars..	28,592							
45 Average amount per acre.....dollars..	11.53							
46 Enterprises operating pumping plants ².....dollars..	93,118							
47 Average amount per acre.....dollars..	70.81							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48 By enterprises operating pumping plants.....dollars..	751							
49 Enterprises reporting.....number..	1							
50 Land in these enterprises.....acres..	1,315							
51 Average cost per acre.....dollars..	0.57							
52 By enterprises not operating pumping plants.....dollars..	142,237	(⁴)						7,748
53 Enterprises reporting.....number..	559	(⁴)	1					54
54 Land in these enterprises.....acres..	1,877,184	(⁴)						108,419
55 Average cost per acre.....dollars..	0.08	(⁴)						0.07
Federal aid in maintenance:								
56 Enterprises reporting.....number..	89							
57 Land in these enterprises.....acres..	298,454							
FINANCIAL CONDITION								
58 Drainage taxes collected in 1939.....dollars..	1,114,425	20,666	1,498	1,505	(⁴)			121,874
59 Enterprises reporting.....number..	728	4	4	4	1			61
60 Land in these enterprises.....acres..	2,877,164	61,403	3,993	18,338	(⁴)			109,417
61 Average amount collected per acre.....dollars..	0.39	0.34	0.38	0.08	(⁴)			1.11
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	278,473		874	2,940				4,100
63 Enterprises reporting.....number..	207		4	4				9
64 Land in these enterprises.....acres..	1,213,033		3,993	11,248				32,717
65 Portion delinquent in these enterprises.....percent..	23.0		21.9	26.1				12.5
66 Total indebtedness, Dec. 31, 1939.....dollars..	6,034,528	95,000	(⁴)	21,378	35,573		(⁴)	770,697
67 Enterprises reporting.....number..	768	4	1	9	14		2	71
68 Land in these enterprises.....acres..	3,093,134	61,403	(⁴)	18,195	334,388		(⁴)	121,167
69 Average indebtedness per acre.....dollars..	1.95	1.55	(⁴)	1.17	0.11		(⁴)	6.2
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	317,729							
71 Enterprises reporting.....number..	94							
72 Land in these enterprises.....acres..	360,407							
73 Average arrearage per acre.....dollars..	(⁵)							
74 Reduction of debt by refinancing, prior to 1940.....dollars..								
75 Enterprises reporting.....number..								
76 Land in these enterprises.....acres..								
77 Average reduction per acre.....dollars..								

¹Part taken to form Lake of the Woods in 1922.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 2,498.

³Data in lines 46 and 47 are not included in lines 34 to 45.

⁴Where there are less than 3 enterprises reporting, data are included only in State totals.

⁵Not computed because acreage of 1 enterprise is included for which amount of arrearage was not reported.

CENSUS OF DRAINAGE — MINNESOTA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Brown	Carlton	Carver	Cass	Chippewa	Chisago	Clay	Clear-water	Cotton-wood
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	55	4	11	21	44	16	34	6	73
Open ditches:										
2	Completed.....miles.....1940..	128.3	102.0	58.6	161.7	263.7	74.9	312.6	72.2	36.0
3	.....1930..	123.5	103.0	47.5	157.9	201.0	84.0	225.1	72.7	23.7
4	.....1920..	137.9	54.0	52.8	166.0	175.6	74.5	244.5	.....	11.0
5	Additional length authorized.....miles.....1940..	0.3	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	265.9	.....	4.0	.....	190.8	.....	.....	.....	586.2
7	.....1930..	246.0	.....	2.0	.....	165.2	.....	.....	.....	414.5
8	.....1920..	184.5	.....	8.7	.....	149.7	.....	1.0	.....	319.4
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	984,966	282,488	126,168	302,026	917,414	86,527	1,011,199	203,348	1,669,257
26	.....1930..	900,609	401,289	122,055	300,238	956,748	143,408	1,055,379	156,571	1,304,740
27	.....1920..	560,195	135,012	117,579	268,696	1,036,955	94,962	712,787	.....	844,801
28	Estimated cost when completed.....dollars.....1940..	985,361	282,488	126,168	302,026	917,414	86,527	1,011,199	203,348	1,669,257
29	.....1930..	900,609	401,289	122,055	300,238	956,748	143,408	1,055,379	156,571	1,304,740
30	.....1920..	692,574	135,012	136,079	268,696	1,036,955	94,962	712,787	.....	952,231
31	Average cost per acre when completed.....dollars.....1940..	11.77	4.48	6.67	3.50	6.12	2.48	3.77	3.54	11.93
32	.....1930..	9.87	5.13	19.42	3.68	14.33	3.17	3.41	1.99	28.64
33	.....1920..	25.15	3.18	21.66	3.74	20.42	5.47	1.88	.....	28.40
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	116,345	282,488	105,745	302,026	123,270	86,527	1,011,199	203,348	32,096
35	Average amount per acre.....dollars..	3.74	4.48	6.19	3.50	2.72	2.48	3.77	3.54	6.07
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars..	689,040	.....	6,400	.....	98,376	.....	.....	.....	371,979
39	Average amount per acre.....dollars..	18.48	.....	9.98	.....	9.31	.....	.....	.....	9.94
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	179,976	.....	14,023	.....	694,768	.....	.....	.....	1,265,182
43	Average amount per acre.....dollars..	11.75	.....	11.96	.....	7.40	.....	.....	.....	13.02
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	1,698	.....	.....	.....	.....	.....	8,783	.....	2,302
53	Enterprises reporting.....number.....	4	.....	.....	.....	.....	.....	16	.....	39
54	Land in these enterprises.....acres.....	6,280	.....	.....	.....	.....	.....	150,728	.....	79,097
55	Average cost per acre.....dollars..	0.27	.....	.....	.....	.....	.....	0.06	.....	0.02
Federal aid in maintenance:										
56	Enterprises reporting.....number.....	2	.....	1	.....	.....	.....	.....	.....	.....
57	Land in these enterprises.....acres.....	(1)	.....	(1)	.....	.....	.....	.....	.....	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	10,768	(1)	.....	.....	(1)	.....	.....	.....	32,042
59	Enterprises reporting.....number.....	14	2	.....	.....	1	.....	.....	.....	41
60	Land in these enterprises.....acres.....	19,535	(1)	.....	.....	(1)	.....	.....	.....	71,085
61	Average amount collected per acre.....dollars..	0.55	(1)	.....	.....	(1)	.....	.....	.....	0.45
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	1,804	54,262	.....	.....	.....	.....	.....	.....	3,238
63	Enterprises reporting.....number.....	6	3	.....	.....	.....	.....	.....	.....	12
64	Land in these enterprises.....acres.....	9,310	58,802	.....	.....	.....	.....	.....	.....	32,048
65	Portion delinquent in these enterprises.....percent.....	19.4	92.3	.....	.....	.....	.....	.....	.....	10.1
66	Total indebtedness, Dec. 31, 1939.....dollars..	52,885	.....	.....	.....	.....	.....	(1)	.....	224,900
67	Enterprises reporting.....number.....	17	.....	.....	.....	.....	.....	2	.....	28
68	Land in these enterprises.....acres.....	26,915	.....	.....	.....	.....	.....	(1)	.....	61,275
69	Average indebtedness per acre.....dollars..	1.96	.....	.....	.....	.....	.....	(1)	.....	3.67
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	10,116	.....	.....	.....	.....	.....	.....	.....	.....
71	Enterprises reporting.....number.....	6	.....	.....	.....	.....	.....	.....	.....	.....
72	Land in these enterprises.....acres.....	2 10,625	.....	.....	.....	.....	.....	.....	.....	.....
73	Average arrearage per acre.....dollars..	(3)	.....	.....	.....	.....	.....	.....	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Where there are less than 3 enterprises reporting, data are included only in State totals.
² Data included for 1 enterprise in Hennepin County.
³ Not computed because acreage of 1 enterprise is included for which amount of arrearage was not reported.

CENSUS OF DRAINAGE - MINNESOTA

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COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Crow Wing	Dakota ¹	Dodge	Douglas	Faribault	Freeborn	Grant	Hennepin
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	14	2	5	19	76	39	24	36
2 Open ditches:								
3 Completed.....miles.....1940..	105.6	18.5	30.4	151.0	197.3	190.1	66.1	90.6
4	98.2	(²)	34.2	130.6	186.9	145.5	70.0	67.4
5	105.0	(²)	37.0	132.6	129.5	95.4	62.6	94.9
6 Tile drains:								
7 Completed.....miles.....1940..			38.4	13.0	723.8	175.5	47.7	93.2
8			19.0	24.8	719.5	191.5	33.8	71.8
9		(²)	10.0	11.5	616.0	17.9	53.5	0.4
10 Levees and dikes:								
11 Completed.....miles.....1940..						0.1		
12		(²)						
13 Additional length authorized.....miles.....1940..								
14 Pumping plants:								
15 Engine capacity.....horsepower.....1940..								30
16						25		50
17 Pump capacity.....gal. per min.....1940..		(²)						10,000
18						2,700		10,000
19 Land served by pumps.....acres.....1940..		(²)						1,315
20							325	490
21 Wells pumped for drainage.....number.....1940..								
22		(²)						
23								
24								
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	93,289	28,230	119,961	304,657	2,618,126	1,868,921	364,134	561,223
26	93,113	(²)	84,220	354,103	2,580,791	1,733,104	383,152	480,086
27	93,973	(²)	55,960	197,536	2,191,616	265,283	584,823	227,277
28 Estimated cost when completed.....dollars.....1940..	93,289	28,230	119,961	304,657	2,618,126	1,868,921	372,356	561,223
29	93,113	(²)	84,220	354,103	2,580,791	1,733,104	383,152	480,086
30	93,973	(²)	55,960	197,536	2,317,116	313,283	584,823	237,777
31 Average cost per acre when completed.....dollars.....1940..	2.28	3.55	5.02	4.43	10.12	15.25	6.05	15.35
32	2.24	(²)	5.84	14.39	10.22	14.00	6.14	23.29
33	3.85	(²)	4.03	6.44	19.52	16.42	9.69	17.78
34 Invested in and required for completion, 1940:								
35 Enterprises having open ditches only.....dollars.....	93,289	28,230		244,055	112,618	252,867	123,905	207,697
36 Average amount per acre.....dollars.....	2.28	3.55		3.75	5.36	7.67	2.73	7.13
37 Enterprises having open ditches and levees.....dollars.....						50,129		
38 Average amount per acre.....dollars.....						20.09		
39 Enterprises having tile only.....dollars.....			55,344		637,180	241,458	75,931	91,280
40 Average amount per acre.....dollars.....			11.64		9.58	18.68	18.06	41.97
41 Enterprises having tile and levees.....dollars.....								
42 Average amount per acre.....dollars.....								
43 Enterprises having open ditches and tile.....dollars.....			64,617	60,602	1,868,328	1,324,467	172,520	169,128
44 Average amount per acre.....dollars.....			3.37	16.29	10.92	17.86	14.43	43.06
45 Enterprises having ditches, tile, and levees.....dollars.....								
46 Average amount per acre.....dollars.....								
47 Enterprises operating pumping plants ³.....dollars.....								93,118
48 Average amount per acre.....dollars.....								70.81
MAINTENANCE AND OPERATION								
49 Cost of maintenance and operation in 1939:								
50 By enterprises operating pumping plants.....dollars.....								751
51 Enterprises reporting.....number.....								41
52 Land in these enterprises.....acres.....								1,315
53 Average cost per acre.....dollars.....								0.57
54 By enterprises not operating pumping plants.....dollars.....			14		11,968	14,791		
55 Enterprises reporting.....number.....			3		67	17		
56 Land in these enterprises.....acres.....			21,083		230,302	77,415		
57 Average cost per acre.....dollars.....			(⁴)		0.05	0.19		
58 Federal aid in maintenance:								
59 Enterprises reporting.....number.....			4			(⁵) 1		(⁶) 2
60 Land in these enterprises.....acres.....			6,542					
FINANCIAL CONDITION								
61 Drainage taxes collected in 1939.....dollars.....			(⁷)	(⁸)	27,359	106,249	3,608	13,718
62 Enterprises reporting.....number.....			2	1	24	19	5	11
63 Land in these enterprises.....acres.....			(⁹)	(⁹)	99,398	70,863	11,393	5,012
64 Average amount collected per acre.....dollars.....			(⁹)	(⁹)	0.28	1.50	0.32	2.74
65 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....						6,164		1,421
66 Enterprises reporting.....number.....						10		6
67 Land in these enterprises.....acres.....						54,023		3,359
68 Portion delinquent in these enterprises.....percent.....						11.4		42.3
69 Total indebtedness, Dec. 31, 1939.....dollars.....			(⁹)	35,651	153,560	511,705	84,749	148,213
70 Enterprises reporting.....number.....			1	3	44	17	4	11
71 Land in these enterprises.....acres.....			(⁹)	15,753	153,406	65,342	10,513	5,183
72 Average indebtedness per acre.....dollars.....			(⁹)	2.26	1.00	7.83	8.06	28.60
73 Indebtedness in arrears, Dec. 31, 1939.....dollars.....								(⁷)
74 Enterprises reporting.....number.....								1
75 Land in these enterprises.....acres.....								(⁸)
76 Average arrearage per acre.....dollars.....								
77 Reduction of debt by refinancing, prior to 1940.....dollars.....								
78 Enterprises reporting.....number.....								
79 Land in these enterprises.....acres.....								
80 Average reduction per acre.....dollars.....								

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ² Included in "Other counties." ³ Data in lines 46 and 47 are not included in lines 34 to 45. ⁴ Data shown by written permission of enterprise affected. ⁵ Less than 1/2 cent per acre. ⁶ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 4. ⁷ Not reported. ⁸ Included in Brown County.

CENSUS OF DRAINAGE - MINNESOTA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Houston ¹	Hubbard	Isanti	Itasca	Jackson	Kanabec	Kandiyohi	Kittson	Koochi- ching
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	1	12	26	10	83	12	43	40	22
2	Open ditches:									
3	Completed.....miles.....1940..	21.0	38.7	150.2	116.6	58.5	82.0	381.0	293.7	507.2
4	.....1930..	20.0	39.7	153.8	104.5	71.9	80.5	395.7	242.6	568.6
5	.....1920..	(²)	31.0	111.5	97.0	70.4	76.0	320.4	395.0	542.0
6	.....1940..									
7	Tile drains:									
8	Completed.....miles.....1940..			0.5		940.6		131.5		
9	.....1930..			2.2		769.6	2.1	105.0		
10	.....1920..	(²)				652.1		70.3		
11	.....1940..									
12	Levees and dikes:									
13	Completed.....miles.....1940..									
14	.....1930..									
15	.....1920..	(²)								
16	.....1940..									
17	Additional length authorized.....miles.....1940..									
18	Pumping plants:									
19	Engine capacity.....horsepower.....1940..									
20	.....1930..									
21	.....1920..	(²)								
22	.....1940..									
23	Pump capacity.....gal. per min.....1940..									
24	.....1930..									
25	.....1920..	(²)								
26	Land served by pumps.....acres.....1940..									
27	.....1930..									
28	.....1920..	(²)								
29	Wells pumped for drainage.....number.....1940..									
30	.....1930..									
31	.....1920..	(²)								
32	.....1940..									
33	.....1930..									
34	.....1920..	(²)								
CAPITAL INVESTED										
35	Capital invested to January 1.....dollars.....1940..	234,144	46,152	362,370	309,453	2,251,183	130,216	977,329	1,312,398	1,876,739
36	.....1930..	234,144	53,235	365,462	314,200	2,258,563	125,782	960,673	1,087,368	1,520,886
37	.....1920..	(³)	30,887	194,885	241,490	1,556,157	105,760	632,589	758,425	1,281,238
38	Estimated cost when completed.....dollars.....1940..	234,144	46,152	362,370	309,453	2,251,183	130,216	977,329	1,312,398	1,876,739
39	.....1930..	234,144	53,235	365,462	314,200	2,258,563	125,782	960,673	1,087,368	1,520,886
40	.....1920..	(³)	30,887	194,885	241,490	1,624,563	105,760	687,928	758,425	1,356,438
41	Average cost per acre when completed.....dollars.....1940..	16.11	2.12	6.14	2.48	9.49	2.03	4.94	3.78	2.95
42	.....1930..	16.11	2.42	12.55	2.86	8.97	8.55	14.42	2.85	2.19
43	.....1920..	(³)	2.16	10.17	2.43	24.94	6.39	10.38	1.52	1.92
44	Invested in and required for completion, 1940:									
45	Enterprises having open ditches only.....dollars..	234,144	46,152	344,272	309,453	4,364	130,216	378,268	1,312,398	1,876,739
46	Average amount per acre.....dollars..	16.11	2.12	5.91	2.48	8.39	2.03	2.64	3.78	2.95
47	Enterprises having open ditches and levees.....dollars..									
48	Average amount per acre.....dollars..									
49	Enterprises having tile only.....dollars..					1,355,180		149,497		
50	Average amount per acre.....dollars..					9.34		9.23		
51	Enterprises having tile and levees.....dollars..									
52	Average amount per acre.....dollars..									
53	Enterprises having open ditches and tile.....dollars..			18,098		891,639		449,624		
54	Average amount per acre.....dollars..			22.62		9.72		11.74		
55	Enterprises having ditches, tile, and levees.....dollars..									
56	Average amount per acre.....dollars..									
57	Enterprises operating pumping plants.....dollars..									
58	Average amount per acre.....dollars..									
MAINTENANCE AND OPERATION										
59	Cost of maintenance and operation in 1939:									
60	By enterprises operating pumping plants.....dollars..									
61	Enterprises reporting.....number.....									
62	Land in these enterprises.....acres.....									
63	Average cost per acre.....dollars.....									
64	By enterprises not operating pumping plants.....dollars..					16,557				
65	Enterprises reporting.....number.....					57				
66	Land in these enterprises.....acres.....					196,694				
67	Average cost per acre.....dollars.....					0.08				
68	Federal aid in maintenance:									
69	Enterprises reporting.....number.....									
70	Land in these enterprises.....acres.....									
FINANCIAL CONDITION										
71	Drainage taxes collected in 1939.....dollars..	16,345		8,527	(³)	33,922		25,324	19,631	
72	Enterprises reporting.....number.....	1		7	1	55		10	13	
73	Land in these enterprises.....acres.....	14,531		16,440	(³)	143,484		29,096	118,401	
74	Average amount collected per acre.....dollars..	1.12		0.52	(³)	0.24		0.87	0.16	
75	Area delinquent in drainage taxes, Dec. 31, 1939.....acres...	104		5,493	34,411			7,975	6,873	
76	Enterprises reporting.....number.....	1		7	4			10	9	
77	Land in these enterprises.....acres.....	14,531		16,440	48,201			50,350	75,880	
78	Portion delinquent in these enterprises.....percent..	0.7		33.4	71.4			15.8	9.0	
79	Total indebtedness, Dec. 31, 1939.....dollars..	76,600		36,000	(³)	96,800		36,250	160,355	
80	Enterprises reporting.....number.....	1		8	1	25		5	26	
81	Land in these enterprises.....acres.....	14,531		18,960	(³)	83,348		18,501	186,786	
82	Average indebtedness per acre.....dollars..	5.27		1.90	(³)	1.16		1.96	0.86	
83	Indebtedness in arrears, Dec. 31, 1939.....dollars..									
84	Enterprises reporting.....number.....									
85	Land in these enterprises.....acres.....									
86	Average arrearage per acre.....dollars..									
87	Reduction of debt by refinancing, prior to 1940.....dollars..									
88	Enterprises reporting.....number.....									
89	Land in these enterprises.....acres.....									
90	Average reduction per acre.....dollars..									

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

	ITEM (See definitions in Introduction)	Lac qui Parle	Lake of the Woods ¹	Le Sueur	Lincoln	Lyon	McLeod	Mahonmen	Marshall
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	50	8	42	39	73	43	4	46
Open ditches:									
2	Completed.....miles.....1940..	215.5	148.0	192.6	131.4	76.1	131.3	60.0	1,387.6
3	.....1930..	195.9	624.4	163.7	106.8	75.0	150.7	62.5	660.5
4	.....1920..	226.0	.....	168.8	132.2	54.5	96.6	41.1	834.5
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:									
6	Completed.....miles.....1940..	154.1	.....	0.5	104.1	393.2	88.6	.....	.....
7	.....1930..	166.1	.....	.....	101.6	296.5	36.0	.....	.....
8	.....1920..	111.4	.....	0.2	62.9	303.1	51.3	.....	.....
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:									
10	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
11	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	.....	.....	.....	.....	0.1	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:									
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
25	Capital invested to January 1.....dollars.....1940..	936,608	347,776	280,266	600,223	1,270,447	527,357	277,190	3,076,140
26	.....1930..	883,583	1,378,327	265,735	553,480	1,017,198	463,308	282,816	2,526,724
27	.....1920..	738,907	.....	238,951	348,352	870,872	283,506	92,573	2,069,234
28	Estimated cost when completed.....dollars.....1940..	936,608	347,776	280,266	600,223	1,270,447	527,357	277,190	3,076,140
29	.....1930..	883,583	1,378,327	265,735	553,480	1,017,198	463,308	282,816	2,526,724
30	.....1920..	738,907	.....	238,951	389,256	989,480	285,992	267,573	2,069,234
31	Average cost per acre when completed.....dollars.....1940..	10.89	1.71	4.38	10.67	12.08	9.64	6.24	3.78
32	.....1930..	10.86	2.04	16.38	9.83	10.80	8.10	5.62	3.08
33	.....1920..	27.81	.....	14.29	26.86	31.15	20.32	7.29	2.68
Invested in and required for completion, 1940:									
34	Enterprises having open ditches only.....dollars..	167,280	347,776	260,381	50,902	64,018	161,167	277,190	3,076,140
35	Average amount per acre.....dollars.....	4.92	1.71	4.21	4.55	3.62	7.92	6.24	3.78
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars.....	285,228	.....	.....	60,401	783,926	116,166	.....	.....
39	Average amount per acre.....dollars.....	19.28	.....	.....	11.70	12.58	9.96	.....	.....
40	Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	494,100	.....	19,885	488,920	422,503	250,024	.....	.....
43	Average amount per acre.....dollars.....	13.03	.....	9.09	12.25	16.75	11.02	.....	.....
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
Cost of maintenance and operation in 1939:									
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	.....	.....	.....	.....	1,539	(²)	.....	.....
53	Enterprises reporting.....number.....	.....	.....	.....	.....	16	1	.....	.....
54	Land in these enterprises.....acres.....	.....	.....	.....	.....	27,624	(²)	.....	.....
55	Average cost per acre.....dollars.....	.....	.....	.....	.....	0.06	(²)	.....	.....
Federal aid in maintenance:									
56	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
FINANCIAL CONDITION									
58	Drainage taxes collected in 1939.....dollars.....	758	.....	(²)	17,675	70,492	972	.....	.....
59	Enterprises reporting.....number.....	3	.....	2	8	20	6	.....	.....
60	Land in these enterprises.....acres.....	2,435	.....	(²)	21,037	43,707	8,219	.....	.....
61	Average amount collected per acre.....dollars.....	0.31	.....	(²)	0.84	1.61	0.12	.....	.....
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	2,940	.....	.....	.....	.....	(²)	35,086	.....
63	Enterprises reporting.....number.....	9	.....	.....	.....	.....	1	3	.....
64	Land in these enterprises.....acres.....	9,129	.....	.....	.....	.....	(²)	43,780	.....
65	Portion delinquent in these enterprises.....percent..	32.2	.....	.....	.....	.....	(²)	80.1	.....
66	Total indebtedness, Dec. 31, 1939.....dollars.....	138,363	8,075	(²)	21,452	60,522	5,035	(²)	.....
67	Enterprises reporting.....number.....	14	8	2	4	19	3	1	.....
68	Land in these enterprises.....acres.....	18,678	203,378	(²)	10,691	33,726	5,905	(²)	.....
69	Average indebtedness per acre.....dollars.....	7.41	0.04	(²)	2.01	1.79	0.85	(²)	.....
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	135,425	.....	.....	.....	.....	.....	.....	.....
71	Enterprises reporting.....number.....	10	.....	.....	.....	.....	.....	.....	.....
72	Land in these enterprises.....acres.....	15,049	.....	.....	.....	.....	.....	.....	.....
73	Average arrearage per acre.....dollars.....	9.00	.....	.....	.....	.....	.....	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Organized from part of Beltrami County in 1922.

²Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE — MINNESOTA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Martin	Meeker	Wille Lacs	Norrison	Mower	Murray	Nicollet	Nobles	Norman
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	131	41	11	22	6	86	45	28	40
2 Open ditches:									
3 Completed.....miles.....1940..	125.0	107.4	48.4	92.8	7.0	83.9	168.3	37.5	337.4
4 1930..	127.0	102.1	42.3	106.6	19.1	77.6	108.4	56.8	270.7
5 1920..	82.7	128.6	42.0	117.2	5.1	78.5	142.7	31.0	314.8
6 Additional length authorized.....miles.....1940..									
7 Tile drains:									
8 Completed.....miles.....1940..	1,023.1	19.3	7.1		50.8	783.8	52.5	321.3	0.5
9 1930..	1,028.5	15.3	7.1		92.9	777.6	55.1	294.1	
10 1920..	718.8	16.9			13.5	488.6	36.7	137.6	0.5
11 Additional length authorized.....miles.....1940..									
12 Levees and dikes:									
13 Completed.....miles.....1940..						0.3			
14 1930..									
15 1920..									
16 Additional length authorized.....miles.....1940..									
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..									
19 1930..									
20 1920..									
21 Pump capacity.....gal. per min.....1940..									
22 1930..									
23 1920..									
24 Wells pumped for drainage.....number.....1940..									
25 1930..									
CAPITAL INVESTED									
26 Capital invested to January 1.....dollars.....1940..	2,782,775	318,980	60,487	107,052	235,233	2,243,246	456,317	1,609,796	878,509
27 1930..	2,936,410	295,990	47,860	101,521	236,287	2,284,010	410,538	1,585,461	885,417
28 1920..	1,793,548	249,787	34,192	96,019	77,520	1,343,220	332,762	510,331	970,666
29 Estimated cost when completed.....dollars.....1940..	2,782,775	318,980	60,487	107,052	235,233	2,243,246	456,317	1,609,796	878,509
30 1930..	2,936,410	295,990	47,860	101,521	236,287	2,284,010	410,538	1,585,461	885,417
31 1920..	1,857,548	249,787	34,192	99,019	85,020	1,446,271	342,445	545,660	670,666
32 Average cost per acre when completed.....dollars.....1940..	9.12	5.70	3.28	1.74	13.94	12.64	5.40	14.95	3.40
33 1930..	9.88	4.05	2.42	1.65	13.82	11.31	4.61	15.23	2.55
34 1920..	27.33	11.77	4.77	2.99	17.82	32.20	11.95	32.61	2.40
35 Invested in and required for completion, 1940:									
36 Enterprises having open ditches only.....dollars..	23,799	255,838	43,985	107,052		97,740	245,768	39,937	876,645
37 Average amount per acre.....dollars..	3.34	5.04	2.55	1.74		4.61	3.63	6.28	3.41
38 Enterprises having open ditches and levees.....dollars..									
39 Average amount per acre.....dollars..									
40 Enterprises having tile only.....dollars..	980,183	30,417			149,538	744,951	159,143	389,364	1,851
41 Average amount per acre.....dollars..	9.59	15.23			20.51	14.27	12.36	11.06	1.29
42 Enterprises having tile and levees.....dollars..									
43 Average amount per acre.....dollars..									
44 Enterprises having open ditches and tile.....dollars..	1,778,793	32,725	16,602		86,695	1,371,953	51,406	1,180,485	
45 Average amount per acre.....dollars..	10.74	10.01	13.92		8.97	13.50	13.21	17.84	
46 Enterprises having ditches, tile, and levees.....dollars..						28,592			
47 Average amount per acre.....dollars..						11.53			
MAINTENANCE AND OPERATION									
48 Cost of maintenance and operation in 1939:									
49 By enterprises operating pumping plants.....dollars..									
50 Enterprises reporting.....number.....									
51 Land in these enterprises.....acres.....									
52 Average cost per acre.....dollars..									
53 By enterprises not operating pumping plants.....dollars..	33,146					7,863		4,136	
54 Enterprises reporting.....number.....	104					67		26	
55 Land in these enterprises.....acres.....	243,719					131,228		104,395	
56 Average cost per acre.....dollars..	0.14					0.06		0.04	
57 Federal aid in maintenance:									
58 Enterprises reporting.....number.....	66					6			
59 Land in these enterprises.....acres.....	196,079					33,920			
FINANCIAL CONDITION									
60 Drainage taxes collected in 1939.....dollars..	44,264				8,598	61,085	(1)	18,323	2,034
61 Enterprises reporting.....number.....	69				4	67	2	9	4
62 Land in these enterprises.....acres.....	147,715				8,850	146,679	(1)	44,179	21,610
63 Average amount collected per acre.....dollars..	0.30				0.97	0.42	(1)	0.41	0.09
64 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....			(1)		(1)	3,036			
65 Enterprises reporting.....number.....			2		1	19			
66 Land in these enterprises.....acres.....			(1)		(1)	64,175			
67 Portion delinquent in these enterprises.....percent..			(1)		(1)	4.7			
68 Total indebtedness, Dec. 31, 1939.....dollars..	277,546	(1)	(1)		32,275	514,450		66,345	4,062
69 Enterprises reporting.....number.....	80	1	2		4	80		8	4
70 Land in these enterprises.....acres.....	195,969	(1)	(1)		8,850	155,988		43,939	21,610
71 Average indebtedness per acre.....dollars..	1.42	(1)	(1)		3.65	3.30		1.51	0.19
72 Indebtedness in arrears, Dec. 31, 1939.....dollars..	722								
73 Enterprises reporting.....number.....	3								
74 Land in these enterprises.....acres.....	2,703								
75 Average arrearage per acre.....dollars..	0.27								
76 Reduction of debt by refinancing, prior to 1940.....dollars..									
77 Enterprises reporting.....number.....									
78 Land in these enterprises.....acres.....									
79 Average reduction per acre.....dollars..									

1 Where there are less than 3 enterprises reporting, data are included only in State totals.

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Otter Tail	Pennington	Pine	Pipestone ¹	Polk	Pope	Ramsey	Red Lake
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	61	49	9	1	121	19	20	30
Open ditches:								
2 Completed.....miles.....1940..	262.5	439.7	61.3	14.0	1,117.3	62.7	44.8	124.5
3	1930..	253.4	253.1	59.0	640.3	103.0	47.3	144.1
4	1920..	241.2	371.2	51.0	601.7	69.4	37.4	158.4
5 Additional length authorized.....miles.....1940..								
6 Tile drains:								
7 Completed.....miles.....1940..	22.5			72.0	12.0	4.4	1.5	
8	1930..			113.0	6.1		1.6	
9	1920..	23.2		43.2		7.1	0.8	
10 Levees and dikes:								
11 Completed.....miles.....1940..								
12	1930..	149.5						
13	1920..							
14 Additional length authorized.....miles.....1940..								
Pumping plants:								
15 Engine capacity.....horsepower.....1940..								
16	1930..							
17	1920..							
18 Pump capacity.....gal. per min.....1940..								
19	1930..							
20	1920..							
21 Land served by pumps.....acres.....1940..								
22	1930..							
23	1920..							
24 Wells pumped for drainage.....number.....1940..								
.....	1930..							
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	338,299	797,740	124,081	249,539	2,329,407	168,872	88,644	247,451
26	1930..	392,427	852,411	125,236	251,000	2,295,076	178,979	134,990
27	1920..	316,154	603,019	89,274	219,175	1,102,337	123,112	71,357
28 Estimated cost when completed.....dollars.....1940..	338,299	797,740	124,081	249,539	2,329,407	168,872	88,644	247,451
29	1930..	392,427	852,411	125,236	251,000	2,295,076	178,979	134,990
30	1920..	316,154	603,019	89,274	269,175	1,111,537	124,912	86,857
31 Average cost per acre when completed.....dollars.....1940..	3.01	2.37	3.40	11.08	3.25	4.99	6.85	2.08
32	1930..	7.38	2.94	3.35	11.51	3.01	4.39	32.31
33	1920..	6.25	1.72	5.50	18.15	1.33	10.96	20.82
34 Invested in and required for completion, 1940:								
35 Enterprises having open ditches only.....dollars..	269,270	797,740	124,081		2,275,487	148,023	68,659	247,451
36 Average amount per acre.....dollars..	2.56	2.37	3.40		3.20	4.57	6.25	2.08
37 Enterprises having open ditches and levees.....dollars..								
38 Average amount per acre.....dollars..					27,496	18,269		
39 Enterprises having tile only.....dollars..	26,458							
40 Average amount per acre.....dollars..	9.08				19.94	14.27		
41 Enterprises having tile and levees.....dollars..								
42 Average amount per acre.....dollars..								
43 Enterprises having open ditches and tile.....dollars..	42,571			249,539	26,424	2,580	19,985	
44 Average amount per acre.....dollars..	10.52			11.08	5.21	12.90	10.24	
45 Enterprises having ditches, tile, and levees.....dollars..								
46 Average amount per acre.....dollars..								
47 Enterprises operating pumping plants.....dollars..								
Average amount per acre.....dollars..								
MAINTENANCE AND OPERATION								
48 Cost of maintenance and operation in 1939:								
49 By enterprises operating pumping plants.....dollars..								
50 Enterprises reporting.....number..								
51 Land in these enterprises.....acres..								
52 Average cost per acre.....dollars..								
53 By enterprises not operating pumping plants.....dollars..				35				
54 Enterprises reporting.....number..				1				
55 Land in these enterprises.....acres..				22,514				
56 Average cost per acre.....dollars..				(2)				
57 Federal aid in maintenance:								
Enterprises reporting.....number..				1	1			
Land in these enterprises.....acres..				22,514	(3)			
FINANCIAL CONDITION								
58 Drainage taxes collected in 1939.....dollars..		8,073		10,455	26,929			3,333
59 Enterprises reporting.....number..		6		1	39			7
60 Land in these enterprises.....acres..		84,660		22,514	250,532			55,760
61 Average amount collected per acre.....dollars..		0.10		0.46	0.12			0.06
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..		30,682		518	17,094	(3)		
63 Enterprises reporting.....number..		6		1	19	2		
64 Land in these enterprises.....acres..		84,660		22,514	104,110	(3)		
65 Portion delinquent in these enterprises.....percent..		36.2		2.3	16.4	(3)		
66 Total indebtedness, Dec. 31, 1939.....dollars..		19,000		32,000	303,472	(3)		35,350
67 Enterprises reporting.....number..		3		1	73	1		6
68 Land in these enterprises.....acres..		69,740		22,514	381,130	(3)		41,360
69 Average indebtedness per acre.....dollars..		0.27		1.42	0.80	(3)		0.93
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..					140,229			
71 Enterprises reporting.....number..					63			
72 Land in these enterprises.....acres..					298,924			
73 Average arrearage per acre.....dollars..					0.47			
74 Reduction of debt by refinancing, prior to 1940.....dollars..								
75 Enterprises reporting.....number..								
76 Land in these enterprises.....acres..								
77 Average reduction per acre.....dollars..								

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Less than 1/2 cent per acre.

³Where there are less than 3 enterprises reporting, data are included only in State totals, except as noted in footnote 1.

CENSUS OF DRAINAGE — MINNESOTA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Redwood	Renville	Rice	Roseau	St. Louis	Scott	Sherburne	Sibley	Stearns
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	90	85	17	33	15	7	31	61	38
Open ditches:										
2	Completed.....miles.....1940..	295.2	329.7	54.1	927.0	690.2	34.3	192.7	276.2	223.5
3	.....1930..	184.8	360.3	31.5	955.3	783.5	34.2	196.9	96.4	237.4
4	.....1920..	174.4	343.9	43.8	1,091.1	654.8	(¹)	140.0	201.3	197.4
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	839.7	1,022.1	16.4	.....	.....	1.2	24.9	98.6	7.8
7	.....1930..	767.1	1,235.4	.....	.....	.....	.....	24.9	89.1	2.0
8	.....1920..	479.8	332.4	7.3	.....	.....	(¹)	5.8	9.2	9.5
9	Additional length authorized.....miles.....1940..	5.0	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	.....	.....	.....	.....	.....	(¹)	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	(¹)	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	(¹)	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	(²)	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	3,213,989	5,477,663	133,896	1,564,905	1,386,065	78,657	273,416	823,393	324,157
26	.....1930..	2,893,835	5,238,177	131,368	1,698,728	1,353,781	75,970	327,149	686,118	376,725
27	.....1920..	1,597,448	1,774,271	102,191	1,768,122	1,028,797	(¹)	174,602	207,622	275,221
28	Estimated cost when completed.....dollars.....1940..	3,245,370	5,477,663	133,896	1,564,905	1,386,065	78,657	273,416	823,393	324,157
29	.....1930..	2,893,835	5,238,177	131,368	1,698,728	1,353,781	75,970	327,149	686,118	376,725
30	.....1920..	1,895,940	1,875,171	102,191	1,768,122	1,033,797	(¹)	176,302	442,906	275,221
31	Average cost per acre when completed.....dollars.....1940..	14.13	19.61	5.53	2.08	6.17	6.87	4.27	8.50	4.82
32	.....1930..	13.62	17.67	8.56	1.89	5.36	6.54	4.28	37.35	5.50
33	.....1920..	29.10	20.93	20.82	1.71	4.75	(¹)	8.56	20.74	10.47
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars..	104,815	389,146	57,095	1,564,905	1,386,065	59,811	156,635	190,129	259,492
35	Average amount per acre.....dollars..	4.76	7.65	3.55	2.08	6.17	6.29	3.11	3.18	4.49
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars..	728,930	1,010,324	23,536	.....	.....	.....	.....	114,394	.....
39	Average amount per acre.....dollars..	14.66	23.11	9.72	.....	.....	.....	.....	15.91	.....
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	2,411,625	4,078,193	53,265	.....	.....	18,846	116,781	518,870	64,665
43	Average amount per acre.....dollars..	15.27	22.08	9.30	.....	.....	9.76	8.60	17.40	6.91
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	(²)	8,543	.....	.....	1,601	.....	(²)	.....	.....
53	Enterprises reporting.....number..	1	38	.....	.....	4	.....	2	.....	.....
54	Land in these enterprises.....acres..	(²)	200,347	.....	.....	85,802	.....	(²)	.....	.....
55	Average cost per acre.....dollars..	(²)	0.04	.....	.....	0.02	.....	(²)	.....	.....
Federal aid in maintenance:										
56	Enterprises reporting.....number..	2	.....	.....	.....	.....	.....	.....	.....	.....
57	Land in these enterprises.....acres..	(²)	.....	.....	.....	.....	.....	.....	.....	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars..	76,551	185,878	.....	10,139	6,303	.....	.....	7,001	.....
59	Enterprises reporting.....number..	50	37	.....	18	10	.....	.....	8	.....
60	Land in these enterprises.....acres..	147,830	185,533	.....	407,355	133,272	.....	.....	32,080	.....
61	Average amount collected per acre.....dollars..	0.52	1.00	.....	0.02	0.05	.....	.....	0.22	.....
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	3,780	1,823	.....	.....	45,184	.....	(²)	(²)	.....
63	Enterprises reporting.....number..	17	4	.....	.....	14	.....	1	2	.....
64	Land in these enterprises.....acres..	96,785	103,132	.....	.....	196,822	.....	(²)	(²)	.....
65	Portion delinquent in these enterprises.....percent..	3.9	1.8	.....	.....	23.0	.....	(²)	(²)	.....
66	Total indebtedness, Dec. 31, 1939.....dollars..	287,464	49,150	.....	.....	127,099	.....	23,283	43,000	.....
67	Enterprises reporting.....number..	50	11	.....	.....	6	.....	4	5	.....
68	Land in these enterprises.....acres..	147,830	34,754	.....	.....	51,827	.....	7,249	19,040	.....
69	Average indebtedness per acre.....dollars..	1.94	1.41	.....	.....	2.45	.....	3.21	2.26	.....
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....	.....
73	Average arrearage per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE — MINNESOTA

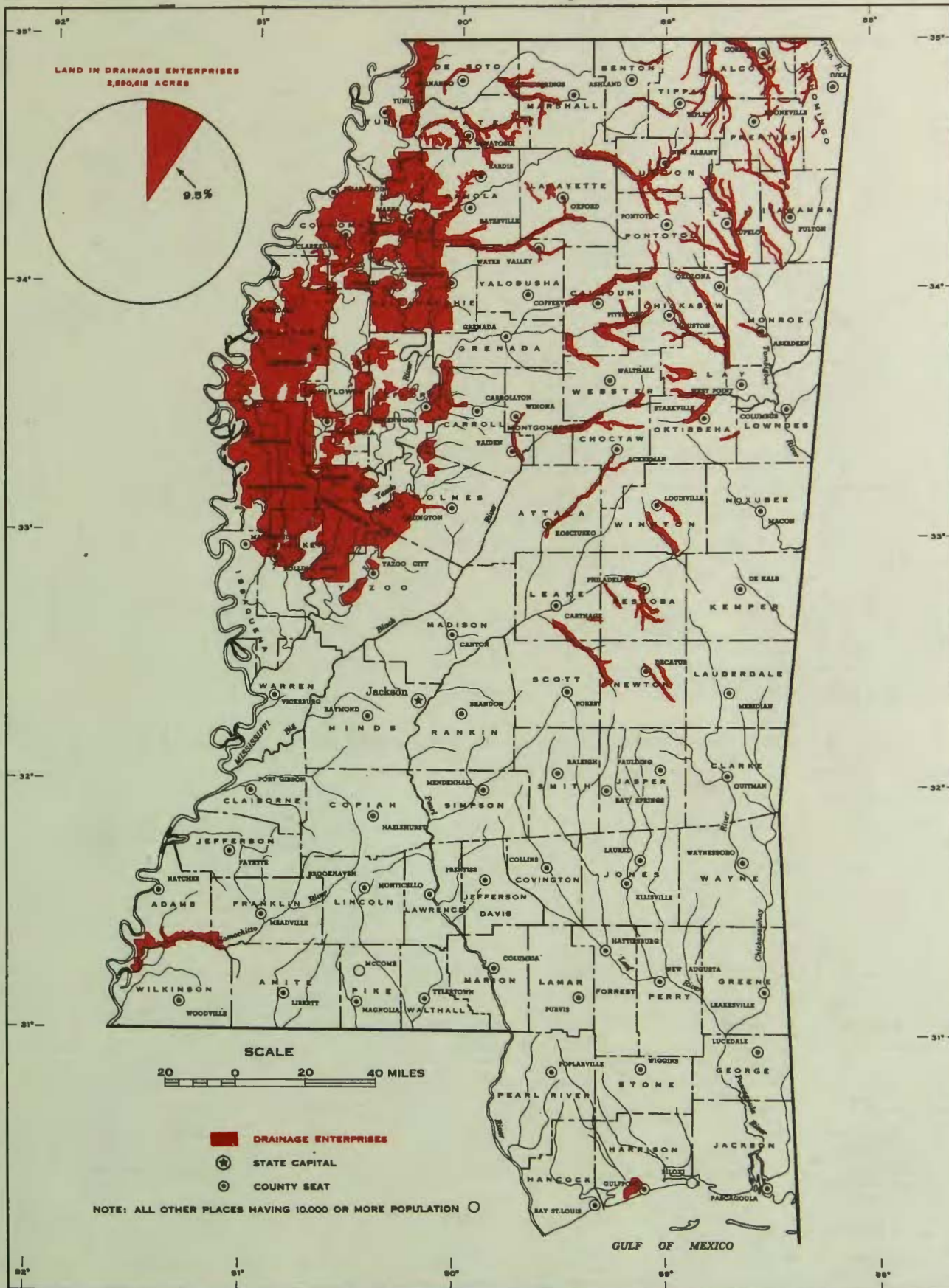
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Waseca	Washington	Watonwan	Wilkin	Wright	Yellow Medicine	Other counties ¹
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	20	8	29	33	36	34	5
Open ditches:								
2	Completed.....miles.....1940..	69.3	24.2	20.5	297.8	96.5	94.8	14.5
3	.....1930..	67.7	27.1	15.0	265.3	109.2	88.6	25.6
4	.....1920..	59.0	25.5	20.0	283.2	94.2	31.9	76.5
5	Additional length authorized.....miles.....1940..							
Tile drains:								
6	Completed.....miles.....1940..	18.5	14.5	288.0		25.7	266.9	17.0
7	.....1930..	23.7	14.3	373.5		34.0	285.7	8.0
8	.....1920..		6.0	182.0		21.0	51.5	18.8
9	Additional length authorized.....miles.....1940..							
Levees and dikes:								
10	Completed.....miles.....1940..							
11	.....1930..						0.2	
12	.....1920..							
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..							
15	.....1930..							
16	.....1920..							
17	Pump capacity.....gal. per min.....1940..							
18	.....1930..							
19	.....1920..							
20	Land served by pumps.....acres.....1940..							
21	.....1930..							
22	.....1920..							
23	Wells pumped for drainage.....number.....1940..							
24	.....1930..							
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	281,294	114,699	730,336	784,440	257,652	1,790,426	155,793
26	.....1930..	331,184	107,559	730,270	726,639	264,347	1,740,446	147,921
27	.....1920..	81,715	58,217	450,516	721,575	217,897	212,850	413,979
28	Estimated cost when completed.....dollars.....1940..	281,294	114,699	730,336	784,440	257,652	1,790,426	155,793
29	.....1930..	331,184	107,559	740,270	726,639	264,347	1,740,446	147,921
30	.....1920..	81,715	58,217	450,516	741,575	217,897	227,128	463,979
31	Average cost per acre when completed.....dollars.....1940..	7.76	5.02	12.96	3.29	6.91	17.35	15.06
32	.....1930..	10.05	10.46	12.25	2.67	20.31	44.67	18.06
33	.....1920..	8.11	6.61	29.72	3.12	16.31	17.78	23.50
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	122,860	58,029	4,000	784,440	150,670	44,763	50,663
35	Average amount per acre.....dollars.....	4.06	3.92	10.00	3.29	5.15	2.92	15.83
36	Enterprises having open ditches and levees.....dollars..							
37	Average amount per acre.....dollars.....							
38	Enterprises having tile only.....dollars.....	42,520	42,870	179,437		13,208	379,041	105,730
39	Average amount per acre.....dollars.....	22.69	11.44	10.51		11.08	17.54	14.73
40	Enterprises having tile and levees.....dollars.....							
41	Average amount per acre.....dollars.....							
42	Enterprises having open ditches and tile.....dollars..	115,914	13,800	546,899		93,774	1,366,622	
43	Average amount per acre.....dollars.....	28.24	26.69	14.07		13.67	20.63	
44	Enterprises having ditches, tile, and levees.....dollars..							
45	Average amount per acre.....dollars.....							
46	Enterprises operating pumping plants.....dollars.....							
47	Average amount per acre.....dollars.....							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..							
49	Enterprises reporting.....number.....							
50	Land in these enterprises.....acres.....							
51	Average cost per acre.....dollars.....							
52	By enterprises not operating pumping plants.....dollars..			4,364	13,651	421	(²)	(²)
53	Enterprises reporting.....number.....			20	5	4		2
54	Land in these enterprises.....acres.....			49,222	23,360	4,473	(²)	(²)
55	Average cost per acre.....dollars.....			0.09	0.58	0.09	(²)	(²)
Federal aid in maintenance:								
56	Enterprises reporting.....number.....							
57	Land in these enterprises.....acres.....							
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	2,203	7,356	33,022			25,189	2,804
59	Enterprises reporting.....number.....	3	3	20			20	3
60	Land in these enterprises.....acres.....	4,025	2,043	41,234			83,559	6,951
61	Average amount collected per acre.....dollars..	0.55	3.60	0.80			0.30	0.40
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..		320	1,160			4,880	(²)
63	Enterprises reporting.....number.....		4	3			13	1
64	Land in these enterprises.....acres.....		9,738	10,054			35,988	(²)
65	Portion delinquent in these enterprises.....percent..		3.3	11.5			13.6	(²)
66	Total indebtedness, Dec. 31, 1939.....dollars..	53,000	3,015	46,243			309,754	(²)
67	Enterprises reporting.....number.....	3	3	12			14	2
68	Land in these enterprises.....acres.....	4,025	2,043	27,827			77,519	(²)
69	Average indebtedness per acre.....dollars.....	13.17	1.48	1.66			4.00	(²)
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..							
71	Enterprises reporting.....number.....							
72	Land in these enterprises.....acres.....							
73	Average arrearage per acre.....dollars.....							
74	Reduction of debt by refinancing, prior to 1940.....dollars..							
75	Enterprises reporting.....number.....							
76	Land in these enterprises.....acres.....							
77	Average reduction per acre.....dollars.....							

¹Includes Rock, Wabasha, and Winona Counties in 1940; Dakota, Rock, and Wabasha Counties in 1930; and Dakota, Houston, Rock, Scott, and Wabasha Counties in 1920.
²Where there are less than 3 enterprises reporting, data are included only in State totals.

MISSISSIPPI

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE — MISSISSIPPI

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	30,348,900	29,671,630	29,671,630				
Land in drainage enterprises.....acres.....	2,990,618	2,988,496	1,601,444	-97,878	-3.3	1,387,052	86.6
Improved.....acres.....	1,892,524	1,950,356	941,239	-57,832	-3.0	1,009,117	107.2
Unimproved:							
Timber and cut-over.....acres.....	998,570	905,712	631,964	92,358	9.1	273,748	43.3
Other.....acres.....	9,524	132,428	28,241	-122,904	-92.8	104,197	368.9
Drainage sufficient for normal crop.....acres.....	1,884,992	2,434,593	(¹)	-549,601	-22.6		
Partly drained, for partial crop.....acres.....	504,037	267,743	(¹)	236,299	88.2		
Unfit to raise any crop for lack of drainage.....acres.....	501,589	286,155	² 261,126	215,434	75.3	25,029	9.6
In occupied farms.....acres.....	2,182,729	2,092,899	(¹)	89,830	4.3		
In planted crops.....acres.....	1,638,170	1,801,947	(¹)	-113,771	-6.3		
Idle.....acres.....	1,016,503	975,970	(¹)	40,533	4.2		
Available for settlement.....acres.....	97,562	687,363	(¹)	-599,801	-97.3		
Open ditches, completed.....miles.....	4,344.1	4,022.1	1,815.1	322.0	8.0	2,207.0	121.6
Tile drains, completed.....miles.....	34.1	43.5	238.8	-9.4	-21.6	-195.3	-81.8
Drainage pumping plants, capacity.....horsepower.....	(³)	370	250	(³)	(³)	120	48.0
gal. per min..	(³)	103,000	78,000	(³)	(³)	25,000	32.1
Capital invested in enterprises.....dollars.....	23,259,677	23,601,443	7,076,164	-341,766	-1.4	16,525,279	233.5
Average per acre.....dollars.....	8.05	7.90	4.42	0.15	1.9	3.48	78.7

¹Not available. ²Reported as "Swampy, subject to overflow, seeped, or alkali." ³Where there are less than 3 enterprises reporting, data are not shown.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹				SIZE	AREA OF ENTERPRISES ¹			
	1940	1930	1920	Land in enterprises ² 1940		1940	1930	1920	Land in enterprises ² 1940
All enterprises.....	Acres 3,126,870	Acres 3,159,944	Acres 1,604,484	Acres 2,890,618	5,000 to 9,999 acres.....	Acres 429,877	Acres 462,954	Acres 157,416	Acres 413,250
Less than 100 acres.....	93	65		93	10,000 to 19,999 acres.....	693,017			660,200
100 to 199 acres.....		330			20,000 to 49,999 acres.....	839,518	1,558,578	664,285	789,265
200 to 499 acres.....	7,016	6,964	1,894	6,734	50,000 to 99,999 acres.....	611,775	631,908	320,400	501,098
500 to 999 acres.....	18,630	19,705	9,789	17,274	100,000 to 199,999 acres.....	133,976			127,154
1,000 to 1,999 acres.....	94,085			85,613	200,000 to 499,999 acres.....		131,678	249,460	
2,000 to 4,999 acres.....	298,883	347,762	201,240	289,937					

¹The sum of the areas in the individual enterprises, without deduction for overlapping.
²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	2,860,618	100.0	23,259,677	100.0
Drainage districts.....	2,840,463	98.3	23,084,370	99.2
State projects.....	(¹)		8,280	(²)
Individually owned projects.....	50,155	1.7	167,027	0.7

¹Completely overlapped by later enterprises. ²Less than one-tenth of 1 percent.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	2,890,618	100.0	2,988,496	100.0	1,601,444	100.0	23,259,677	100.0	23,601,443	100.0	7,076,164	100.0
Gravity drainage only by—												
Open ditches.....	² 2,872,306	99.4	2,890,648	96.4	1,504,044	93.9	² 23,185,647	99.7	22,553,562	95.6	6,691,064	94.6
Tile drains.....			2,400	0.1						20,000			0.1
Open ditches and tile drains..	18,312	0.6	5,131	0.1			74,030	0.3	51,600	0.2		
All drained by pumping by—												
Open ditches.....			4,000	0.2					72,000	0.3		
Tile drains.....												
Open ditches and tile drains..												
Part only by pumping by—												
Open ditches.....	(³)	(³)	96,317	3.2	97,400	6.1	(³)	(³)	904,281	3.8	385,100	5.4
Tile drains.....												
Open ditches and tile drains..												
Total area served by pumps.....	(³)	(³)	8,040	0.3	4,000	0.2						

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.
²Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches and levees.
³When there are less than 3 enterprises reporting, data are not shown.

CENSUS OF DRAINAGE — MISSISSIPPI

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	2,890,618	100.0	2,988,496	100.0	23,259,677	100.0	23,601,443	100.0	159,062	135,044
Enterprises in arrears.....	282,180	9.8	183,977	6.2	2,358,693	10.2	2,475,640	10.5	96,312	72,525
With some delinquent land.....	235,560	8.1	179,019	6.0	1,946,863	8.4	2,426,140	10.3	96,312	72,525
With no delinquent land.....	42,380	1.5	3,049	0.1	369,800	1.6	31,500	0.1		
With no report on delinquency.....	4,240	0.2	1,909	0.1	42,000	0.2	18,000	0.1		
Enterprises not in arrears.....	2,608,438	90.2	2,804,519	93.8	20,900,984	89.8	21,125,803	89.5	62,750	62,519
With some delinquent land.....	504,580	17.4	812,028	27.2	4,472,346	19.2	6,874,411	29.1	62,750	62,519
With no delinquent land.....	2,096,303	72.5	1,853,938	62.0	16,356,899	70.3	13,127,325	55.6		
With no report on delinquency.....	7,555	0.3	138,553	4.6	71,750	0.3	1,124,067	4.8		

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
	All enterprises.....	2,890,618	23,259,677	6,688,362	408,979	5,505,240	159,062	856,921
Enterprises in debt.....	² 2,176,016	19,197,816	6,688,362	408,979	5,287,000	159,062	797,198
In arrears, amount of arrearage stated.....	278,098	2,298,683	993,173	408,979	26,280	95,052	89,306
Collecting drainage taxes in 1939.....	245,918	2,000,153	867,011	314,196	26,280	66,317	89,306
No collections reported.....	32,175	298,530	126,162	94,783		28,735	
In arrears, amount not stated.....	² 4,087	60,000				1,260	1,255
Collecting drainage taxes in 1939.....	² 4,087	60,000				1,260	1,255
Not in arrears.....	1,893,836	16,839,133	5,695,189		5,260,720	62,750	706,637
Collecting drainage taxes in 1939.....	1,758,005	15,811,561	5,517,862		4,976,914	62,750	706,637
No collections reported.....	135,831	1,027,572	177,327		283,806		
Enterprises not in debt.....	714,602	4,061,861			218,240		59,723
Collecting drainage taxes in 1939.....	416,042	2,093,162			128,160		59,723
No collections reported.....	298,560	1,968,699			90,080		

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Includes 4,087 acres for which amount of indebtedness was not reported.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	2,890,618	100.0	23,259,677	100.0
Improvement of land already in farms.....	364,588	12.6	3,329,941	14.3
Reclamation of swamp land not previously in farms.....	7,774	0.3	25,300	0.1
Protection against overflow.....	2,518,256	87.1	19,904,436	85.6

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
	All enterprises.....	2,890,618	100.0	3,126,870	236,252	23,259,677	100.0
1900-1904.....	8,472	0.3	12,609	4,137	56,360	0.2
1905-1909.....	208,778	7.2	346,617	137,839	1,594,757	6.9
1910-1914.....	779,322	27.0	830,799	52,467	4,724,880	20.3
1915-1919.....	680,969	23.5	692,897	11,928	6,043,034	26.0
1920-1924.....	954,268	33.0	983,469	29,201	9,468,755	40.7
1925-1929.....	212,326	7.3	213,006	680	1,315,323	5.6
1930-1934.....	8,137	0.3	8,137		49,700	0.2
1935-1939.....	39,346	1.4	39,346		7,868	(³)

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

³ Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE — MISSISSIPPI

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION				DEVELOPMENT				USE OF LAND				
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	2,890,618	1,894,992	65.2	504,037	501,599	1,892,524	65.5	988,570	9,524	2,182,729	75.5	1,688,176	1,016,503	87,562
1900-1904.....	8,472	6,870	81.1	817	785	7,720	91.1	732	.....	8,472	100.0	5,937	1,500	160
1905-1909.....	208,778	143,949	68.9	32,540	32,239	146,511	70.2	61,694	573	162,499	77.8	123,080	60,589	5,160
1910-1914.....	778,322	524,985	67.4	124,222	129,115	540,761	69.5	236,548	1,013	618,618	79.5	475,833	247,047	26,402
1915-1919.....	680,969	380,401	55.9	152,134	148,434	397,763	58.1	277,038	6,168	476,512	70.0	347,108	286,421	30,680
1920-1924.....	954,268	671,598	70.4	143,012	139,653	641,155	67.2	312,517	596	727,890	76.3	596,868	316,602	20,735
1925-1929.....	212,326	145,491	68.5	33,395	33,450	146,504	69.0	64,648	1,174	173,153	81.6	129,150	68,813	4,425
1930-1934.....	8,137	5,908	72.6	1,171	1,058	6,020	74.0	2,117	.....	7,829	96.2	5,100	2,275	.....
1935-1939.....	39,346	5,790	14.7	16,756	16,800	6,090	15.5	33,250	.....	7,756	19.7	5,100	33,256	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	2,890,618	2,584,212	999,463	1,584,749	112,370	0.04	0.11
Gravity drainage only ¹	2,890,618	2,584,212	999,463	1,584,749	112,370	0.04	0.11
Open ditches only.....	2,500,976	2,194,570	985,369	1,212,961	111,655	0.04	0.11
Open ditches and levees ¹	371,330	371,330	.....	367,570	.....	.....	.....
Open ditches and tile drains.....	18,312	18,312	14,094	4,218	715	0.04	0.05

¹Data for 1 enterprise operating pumping plant are included in those having gravity drainage only.

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	2,890,618	100.0	23,259,677	100.0
Method:				
By district forces.....	619,270	21.4	5,296,094	22.8
By contract.....	361,801	12.5	2,617,439	11.2
Work apportioned to landowners.....	1,901,522	65.8	15,286,154	65.7
"None," or not reporting.....	8,025	0.3	60,000	0.3
Whether systematic:				
Reporting "yes".....	738,256	25.5	5,903,644	25.4
Reporting "no".....	2,114,851	73.2	16,974,823	73.0
Not reporting.....	37,511	1.3	381,210	1.6

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	2,890,618	319,209	11.0
Capital invested.....dollars..	23,259,677	2,230,150	9.6
Drainage works:			
Open ditches.....miles....	4,344.1	277.0	6.4
Tile drains.....miles....	34.1	23.0	67.4
Levees.....miles....	190.5

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STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	<i>Acres</i>	<i>Dollars</i>	<i>Miles</i>	<i>Miles</i>	<i>Miles</i>
All enterprises reporting Federal aid received.....	199,381	2,111,176	233.7	.....	42.0
Work Projects Administration.....	24,933	152,025	58.2	.....	.....
Corps of Engineers, U.S.A.....	129,903	1,590,618	81.1	.....	42.0
W.P.A. and Corps of Engineers.....	44,545	368,533	94.4	.....	.....

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	2,890,618	1,210,050	72.8
Capital invested.....dollars..	23,259,677	16,673,218	71.7
Drainage works:			
Open ditches.....miles....	4,344.1	2,669.1	61.4
Tile drains.....miles....	34.1	23.1	67.7
Levees.....miles....	190.5	156.5	82.2

¹The land actually dependent upon outside agencies for protection is 2,083,427 acres, which is 91.2 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE — MISSISSIPPI

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)		THE STATE	Alcorn	Benton	Bolivar	Calhoun	Carroll	Chickasaw	Choctaw
LAND AREA									
1	Approximate land area.....acres.....1940..	30,348,800	259,200	263,680	586,880	373,350	408,320	323,840	266,860
2	Drainage enterprises.....number.....1940..	1,343	14	3	27	6	6	11	6
3	Land in enterprises.....acres.....1940..	2,890,618	32,326	6,747	375,400	58,315	30,596	28,325	16,938
4	.....1930..	2,988,496	32,882	7,498	374,135	106,620	31,418	27,858	19,322
5	.....1920..	1,601,444	26,883	4,000	184,896	29,352	8,200	22,218	14,975
6	Area of all enterprises, overlapping included.....acres.....1940..	3,125,970	32,326	6,967	484,500	59,355	31,866	28,575	16,938
7	Amount of overlapping.....acres.....1940..	236,252	.....	220	109,100	40	1,280	250	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	1,884,992	27,126	5,235	359,480	39,845	17,855	16,695	8,628
9	.....1930..	2,434,593	31,882	6,101	355,915	85,270	21,181	23,477	17,600
10	Increase or decrease (-), 1930-1940.....acres.....	-549,601	-4,756	-866	-3,565	-45,425	-3,326	-6,782	-8,972
11	.....percent.....	-22.6	-14.9	-14.2	1.0	-53.3	-15.7	-28.9	-51.0
12	Land undrained, unfit for any crop.....acres.....1940..	501,589	2,618	740	8,054	9,750	6,280	5,709	4,029
13	.....1930..	286,155	800	400	9,000	2,000	1,850	498	1,025
14	Increase or decrease (-), 1930-1940.....acres.....	215,434	1,818	340	-946	7,750	4,430	5,211	3,004
15	.....percent.....	75.3	227.2	85.0	-10.5	387.5	239.4	(²)	293.1
16	Land partly drained, for partial crop.....acres.....1940..	504,037	2,582	772	7,866	8,720	6,451	5,921	4,281
17	.....1930..	267,748	200	997	9,220	19,350	8,387	3,883	697
18	Increase or decrease (-), 1930-1940.....acres.....	236,289	2,382	-225	-1,354	-10,630	-1,936	2,038	3,584
19	.....percent.....	88.2	(²)	-22.6	-14.7	-54.9	-23.1	52.5	514.2
20	Improved land.....acres.....1940..	1,892,524	24,803	5,875	328,771	33,030	17,849	19,229	10,526
21	.....1930..	1,950,356	25,232	6,075	334,361	55,000	16,970	20,910	11,450
22	.....1920..	941,239	13,102	1,600	125,366	12,972	6,960	19,052	6,433
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	988,570	7,335	872	46,329	24,565	12,737	9,096	6,412
24	.....1930..	905,712	5,450	390	37,464	49,620	13,413	6,948	7,300
25	.....1920..	631,964	13,781	2,400	44,426	16,890	1,240	3,166	6,274
26	Other unimproved land.....acres.....1940..	9,524	183	.....	300	720	.....	.....	.....
27	.....1930..	132,428	2,200	1,033	2,310	1,000	1,035	.....	572
28	.....1920..	28,241	.....	.....	15,084	.....	.....	.....	2,268
29	Land in occupied farms.....acres.....1940..	2,132,729	28,588	6,747	332,265	40,830	20,600	23,171	12,841
30	.....1930..	2,092,899	27,163	6,601	334,561	67,620	19,938	22,645	11,875
31	Increase or decrease (-), 1930-1940.....acres.....	89,830	1,420	146	-2,296	-26,790	1,662	526	966
32	.....percent.....	4.3	5.2	2.2	-0.7	-39.6	8.8	2.3	8.1
33	Land in planted crops.....acres.....1940..	1,688,176	21,825	4,685	323,072	26,400	16,900	15,159	7,440
34	.....1930..	1,801,947	25,168	6,075	332,341	50,000	13,000	18,500	10,625
35	Increase or decrease (-), 1930-1940.....acres.....	-113,771	-3,343	-1,390	-9,269	-23,600	3,900	-3,341	-3,185
36	.....percent.....	-6.3	-13.3	-22.9	-2.8	-47.2	30.0	-18.0	-30.0
37	Land idle.....acres.....1940..	1,016,503	7,455	1,415	46,749	26,500	12,838	10,134	7,121
38	.....1930..	975,970	5,450	1,140	38,290	41,600	15,193	3,799	8,160
39	Increase or decrease (-), 1930-1940.....acres.....	40,533	2,005	275	8,459	-15,100	-2,355	6,335	-1,039
40	.....percent.....	4.2	36.8	24.1	22.1	-36.3	-15.5	166.8	-12.7
41	Land available for settlement.....acres.....1940..	87,562	3,720	.....	2,000	6,640	.....	.....	.....
42	.....1930..	687,363	5,420	350	37,330	39,000	12,125	2,179	7,447
43	Increase or decrease (-), 1930-1940.....acres.....	-599,801	-1,700	-350	-35,330	-32,360	-12,125	-2,179	-7,447
44	.....percent.....	-87.3	-31.4	-100.0	-94.6	-83.0	-100.0	-100.0	-100.0
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	2,500,976	32,326	6,747	375,400	58,315	18,187	28,325	16,938
46	Length of these ditches.....miles.....	4,008.3	99.6	19.1	683.5	74.5	28.7	69.1	43.0
47	Part protected by levees of an outside agency.....acres.....	1,744,338	.....	.....	375,400	.....	13,938	.....	.....
48	Land drained by open ditches and own levees.....acres.....	³ 371,330	.....	.....	.....	.....	12,399	.....	.....
49	Length of these ditches.....miles.....	³ 299.8	.....	.....	.....	.....	12.0	.....	.....
50	Length of these levees.....miles.....	³ 190.5	.....	.....	.....	.....	9.0	.....	.....
51	Part protected by levees of an outside agency.....acres.....	³ 320,777	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	18,312	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	36.0	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	34.1	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	18,312	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	(³)	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	(³)	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	(³)	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	(³)	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	(³)	.....	.....	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 273.
²Percent not shown when more than 1,000.
³Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches and levees.

CENSUS OF DRAINAGE—MISSISSIPPI

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Clay	Coahoma	De Soto	Harrison ¹	Holmes	Humphreys	Itawamba	Lafayette	Leake	
LAND AREA										
1	Approximate land area.....acres.....1940..	264,960	364,800	305,920	374,400	488,960	252,400	346,240	434,560	375,040
2	Drainage enterprises.....number.....1940..	6	13	5	1	3	5	7	6	3
3	Land in enterprises.....acres.....1940..	31,816	180,736	46,101	10,124	68,520	188,669	21,523	22,044	8,940
4	.....1930..	25,059	168,605	45,194	12,000	81,458	179,228	19,004	22,476	9,052
5	.....1920..	12,293	172,000	5,500	.....	25,000	158,500	9,097	18,839	(²)
6	Area of all enterprises, overlapping included.....acres.....1940..	32,116	193,813	47,101	10,124	68,520	191,949	22,758	22,044	8,940
7	Amount of overlapping.....acres.....1940..	300	13,077	1,000	.....	.....	3,280	1,230	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	11,906	138,685	32,660	2,624	20,898	80,525	16,395	14,544	5,939
9	.....1930..	12,830	143,565	35,886	11,200	23,734	127,498	14,100	18,350	4,300
10	Increase or decrease (-), 1930-1940.....acres.....	-924	-4,880	-3,226	-8,576	-2,836	-46,973	2,295	-3,806	1,639
11	.....percent.....	-7.2	-3.4	-9.0	-76.6	-11.9	-36.8	16.3	-20.7	38.1
12	Land undrained, unfit for any crop.....acres.....1940..	10,420	24,075	6,636	3,500	23,800	53,744	2,529	3,645	1,480
13	.....1930..	9,500	20,550	3,778	800	19,934	36,730	.....	2,400	3,254
14	Increase or decrease (-), 1930-1940.....acres.....	920	3,525	2,858	2,700	3,866	17,014	2,529	1,245	-1,774
15	.....percent.....	9.7	17.2	75.6	337.5	19.4	46.3	.....	51.9	-54.5
16	Land partly drained, for partial crop.....acres.....1940..	9,490	17,976	6,805	4,000	23,822	54,400	2,604	3,855	1,521
17	.....1930..	2,739	4,490	5,530	.....	37,790	15,000	4,904	1,726	1,498
18	Increase or decrease (-), 1930-1940.....acres.....	6,751	13,486	1,275	4,000	-13,968	39,400	-2,300	2,129	23
19	.....percent.....	246.5	300.4	23.0	.....	-37.0	262.7	-46.9	123.3	1.5
20	Improved land.....acres.....1940..	19,216	145,378	36,300	2,624	21,085	81,869	16,451	16,870	3,840
21	.....1930..	12,800	143,430	34,151	2,000	41,468	108,000	17,150	18,610	2,800
22	.....1920..	7,236	138,171	1,650	.....	17,500	81,550	5,708	10,205	(²)
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	12,600	30,968	9,801	7,500	47,435	106,800	5,077	5,174	5,100
24	.....1930..	9,902	15,650	8,678	9,200	38,590	67,358	1,095	2,760	4,752
25	.....1920..	5,057	33,829	3,850	.....	7,500	76,950	3,389	8,634	(²)
26	Other unimproved land.....acres.....1940..	.....	4,390	.....	.....	.....	.....	.....	.....	.....
27	.....1930..	2,367	9,525	2,365	800	1,400	3,870	759	1,106	1,500
28	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	(²)
29	Land in occupied farms.....acres.....1940..	25,537	169,293	44,277	3,000	29,013	109,000	18,920	18,403	5,361
30	.....1930..	15,000	143,530	35,151	2,000	43,468	129,530	17,100	19,650	2,800
31	Increase or decrease (-), 1930-1940.....acres.....	10,537	25,763	9,126	1,000	-14,455	-20,530	1,820	-1,247	2,561
32	.....percent.....	70.2	17.9	26.0	50.0	-33.2	-15.8	10.6	-6.3	91.5
33	Land in planted crops.....acres.....1940..	11,706	125,142	34,900	2,000	30,000	75,200	13,200	13,350	3,700
34	.....1930..	9,000	141,430	34,151	2,000	40,768	98,000	17,050	15,000	2,800
35	Increase or decrease (-), 1930-1940.....acres.....	2,706	-16,288	749	.....	-20,768	-22,800	-3,850	-1,650	900
36	.....percent.....	30.1	-11.5	2.2	.....	-50.9	-23.3	-22.6	-11.0	32.1
37	Land idle.....acres.....1940..	13,937	33,159	9,989	7,500	47,463	106,800	6,530	6,133	5,100
38	.....1930..	8,250	23,690	10,921	10,000	40,668	74,428	1,625	5,723	4,298
39	Increase or decrease (-), 1930-1940.....acres.....	5,687	9,469	-932	-2,500	6,795	32,372	4,905	410	802
40	.....percent.....	68.9	40.0	-8.5	.....	16.7	43.5	301.8	7.2	18.6
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	4,000	17,640	400	.....	1,000
42	.....1930..	5,900	4,240	8,721	9,200	37,968	40,698	615	.....	2,300
43	Increase or decrease (-), 1930-1940.....acres.....	-5,900	-4,240	-8,721	-9,200	-33,968	-23,058	-215	.....	-1,300
44	.....percent.....	-100.0	-100.0	-100.0	-100.0	-89.5	-56.6	-35.0	.....	-56.5
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	31,816	167,823	46,101	10,124	68,520	12,560	21,528	22,044	8,940
46	Length of these ditches.....miles.....	46.4	274.0	83.3	17.0	28.5	19.0	59.4	56.6	13.3
47	Part protected by levees of an outside agency.....acres.....	.....	166,933	31,664	.....	68,520	12,560	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	176,109	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	119.0	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	27.0	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	176,109	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	12,913	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	20.0	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	5.0	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	12,913	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

CENSUS OF DRAINAGE—MISSISSIPPI

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Lee	Leflore	Marshall	Houroe	Montgomery	Neshoba	Newton	Oktibbeha
LAND AREA									
1	Approximate land area.....acres....1940..	291,200	376,320	454,400	492,160	257,920	363,520	371,200	290,560
2	Drainage enterprises.....number...1940..	18	11	5	6	3	4	3	3
3	Land in enterprises.....acres....1940..	47,156	82,192	30,435	9,598	9,638	21,633	13,490	14,596
4	.....1930..	58,159	77,102	28,165	7,997	12,817	18,100	20,182	11,038
5	.....1920..	49,294	34,007	8,740	6,262	(¹)	11,418	.....	12,150
6	Area of all enterprises, overlapping included.....acres....1940..	51,126	92,362	30,955	10,750	9,638	21,633	13,490	14,716
7	Amount of overlapping.....acres....1940..	3,970	10,170	520	1,152	.....	.....	.....	120
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	36,803	39,353	18,630	7,040	2,030	5,977	8,320	10,908
9	.....1930..	51,627	62,815	20,815	7,782	10,500	18,100	10,057	10,038
10	Increase or decrease (-), 1930-1940.....acres.....	-14,824	-23,462	-2,185	-742	-8,470	-12,123	-1,737	870
11	.....percent.....	-28.7	-37.4	-10.5	-9.5	-80.7	-67.0	-17.3	8.7
12	Land undrained, unfit for any crop.....acres....1940..	4,769	21,090	5,500	1,225	3,800	7,708	2,651	1,788
13	.....1930..	1,750	7,460	3,230	145	500	.....	4,217	.....
14	Increase or decrease (-), 1930-1940.....acres.....	3,019	13,630	2,270	1,080	3,300	7,708	-1,566	1,788
15	.....percent.....	172.5	182.7	70.3	744.8	660.0	.....	-37.1	.....
16	Land partly drained, for partial crop.....acres....1940..	5,594	21,749	6,305	1,333	3,808	7,948	2,519	1,900
17	.....1930..	4,782	6,827	4,120	70	1,817	.....	5,908	1,000
18	Increase or decrease (-), 1930-1940.....acres.....	802	14,922	2,185	1,263	1,991	7,948	-3,389	900
19	.....percent.....	16.8	218.6	53.0	(²)	109.6	.....	-57.4	90.0
20	Improved land.....acres....1940..	43,710	39,231	21,630	8,541	5,600	7,412	7,977	11,265
21	.....1930..	48,554	54,713	19,185	7,547	5,900	6,100	9,157	7,038
22	.....1920..	44,989	24,383	2,185	5,572	(¹)	400	.....	5,798
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	3,386	42,961	8,740	1,057	4,038	14,221	4,639	3,331
24	.....1930..	4,123	16,252	7,860	400	5,917	3,500	9,060	4,000
25	.....1920..	4,245	9,624	6,555	690	(¹)	11,018	.....	4,282
26	Other unimproved land.....acres....1940..	60	.....	65	.....	.....	.....	874	.....
27	.....1930..	5,480	6,126	1,120	50	.....	8,500	1,965	.....
28	.....1920..	.....	.....	.....	.....	(¹)	.....	.....	2,070
29	Land in occupied farms.....acres....1940..	46,755	48,139	23,510	9,423	6,300	10,700	11,368	14,265
30	.....1930..	50,354	71,870	19,415	7,647	5,900	6,100	8,000	7,038
31	Increase or decrease (-), 1930-1940.....acres.....	-3,599	-23,731	4,095	1,776	400	4,600	3,368	7,227
32	.....percent.....	-7.1	-33.0	21.1	23.2	6.8	75.4	42.1	102.7
33	Land in planted crops.....acres....1940..	30,877	36,892	16,800	6,540	1,900	5,400	7,477	9,893
34	.....1930..	48,304	53,355	17,440	6,275	5,600	6,100	7,000	7,038
35	Increase or decrease (-), 1930-1940.....acres.....	-17,427	-16,463	-640	265	-3,800	-700	477	2,855
36	.....percent.....	-36.1	-30.9	-3.7	4.2	-67.8	-11.5	6.8	40.6
37	Land idle.....acres....1940..	9,295	39,844	10,280	1,660	5,850	14,221	5,513	3,238
38	.....1930..	6,119	20,729	10,150	450	6,617	10,300	8,525	1,000
39	Increase or decrease (-), 1930-1940.....acres.....	3,176	19,115	130	1,210	-767	3,921	-3,012	2,238
40	.....percent.....	51.9	92.2	1.3	268.9	-11.6	38.1	-35.3	223.8
41	Land available for settlement.....acres....1940..	2,600	160	.....	175	.....	3,000	200	.....
42	.....1930..	3,502	2,878	2,500	275	6,417	11,000	8,525	4,000
43	Increase or decrease (-), 1930-1940.....acres.....	-902	-2,718	-2,500	-100	-6,417	-8,000	-8,325	-4,000
44	.....percent.....	-25.8	-94.4	-100.0	-36.4	-100.0	-72.7	-97.6	-100.0
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	47,156	73,233	30,435	9,598	9,638	21,633	13,490	14,596
46	Length of these ditches.....miles.....	120.7	117.5	48.2	25.4	26.0	46.7	36.4	28.4
47	Part protected by levees of an outside agency.....acres.....	.....	73,233	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	8,959	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	1.3	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	8.0	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	8,959	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — MISSISSIPPI

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Panola	Pontotoc	Prentiss	Quitman	Sharkey	Sunflower	Tallahatchie	Tate	Tippah	
LAND AREA										
1	Approximate land area.....acres.....1940..	450,560	320,640	267,520	263,680	279,040	443,520	412,160	263,040	296,960
2	Drainage enterprises.....number.....1940..	10	7	18	17	5	14	12	6	14
3	Land in enterprises.....acres.....1940..	89,240	19,210	23,653	182,060	103,652	133,579	194,385	61,758	15,031
4	.....1930..	115,421	19,870	23,822	177,519	129,805	142,425	168,751	36,589	14,275
5	.....1920..	19,934	17,109	18,844	72,647	.....	90,460	26,300	34,030	12,537
6	Area of all enterprises, overlapping included.....acres.....1940..	93,769	19,871	23,653	184,340	103,652	133,579	206,840	66,118	17,415
7	Amount of overlapping.....acres.....1940..	4,529	661	.....	2,280	.....	.....	12,455	4,360	2,384
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	63,570	17,059	16,923	111,047	54,478	98,157	115,975	54,100	10,132
9	.....1930..	77,290	16,506	22,399	139,890	115,718	118,318	134,410	28,460	10,510
10	Increase or decrease (-), 1930-1940.....acres.....	-13,720	553	-5,476	-28,843	-61,240	-20,161	-18,435	25,640	-478
11	.....percent.....	-17.8	3.4	-24.4	-20.6	-52.9	-17.0	-13.7	90.1	-4.5
12	Land undrained, unfit for any crop.....acres.....1940..	12,582	1,001	3,378	34,180	24,574	17,524	38,369	3,700	2,952
13	.....1930..	23,531	.....	100	25,999	2,587	11,010	15,742	5,400	1,000
14	Increase or decrease (-), 1930-1940.....acres.....	-10,949	1,001	3,278	8,181	21,987	6,514	22,627	-1,700	1,952
15	.....percent.....	-46.5	.....	(¹)	31.5	849.9	59.2	143.7	-31.5	195.2
16	Land partly drained, for partial crop.....acres.....1940..	13,088	1,150	3,352	36,833	24,600	17,898	40,041	3,958	1,947
17	.....1930..	14,600	3,364	1,323	11,630	11,500	13,097	18,599	2,729	2,665
18	Increase or decrease (-), 1930-1940.....acres.....	-1,512	-2,214	2,029	25,203	13,100	4,801	21,442	1,229	-718
19	.....percent.....	-10.4	-65.8	153.4	216.7	113.9	36.5	115.3	45.0	-26.9
20	Improved land.....acres.....1940..	57,210	17,595	18,402	110,147	50,589	90,824	108,968	53,800	12,423
21	.....1930..	62,600	16,700	20,558	78,021	73,600	105,395	95,095	25,960	11,041
22	.....1920..	11,820	13,576	10,144	30,284	.....	55,449	11,700	15,721	9,036
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	32,030	1,615	5,251	71,334	53,069	33,755	85,417	7,958	2,090
24	.....1930..	41,090	1,385	2,023	92,054	56,205	30,664	63,345	7,400	1,589
25	.....1920..	8,114	3,533	8,700	41,790	.....	35,011	9,600	15,063	3,501
26	Other unimproved land.....acres.....1940..	.....	.....	.....	579	.....	.....	.....	.....	518
27	.....1930..	11,731	1,785	1,241	7,444	.....	6,366	10,311	3,229	1,645
28	.....1920..	.....	.....	.....	573	.....	.....	5,000	3,246	.....
29	Land in occupied farms.....acres.....1940..	65,240	19,210	21,625	132,149	69,589	116,265	130,740	59,701	14,517
30	.....1930..	72,590	17,300	21,039	121,910	71,400	115,102	118,640	25,960	11,667
31	Increase or decrease (-), 1930-1940.....acres.....	-7,350	1,910	586	10,239	-1,811	1,163	12,100	33,741	2,850
32	.....percent.....	-10.1	11.0	2.8	8.4	-2.5	1.0	10.2	130.0	24.4
33	Land in planted crops.....acres.....1940..	52,700	15,821	13,700	102,256	45,500	95,085	101,961	49,400	10,290
34	.....1930..	56,800	16,300	20,446	74,911	69,400	97,495	94,811	25,960	11,041
35	Increase or decrease (-), 1930-1940.....acres.....	-4,100	-479	-6,746	27,345	-23,900	-2,410	7,150	23,440	-751
36	.....percent.....	-7.2	-2.9	-33.0	36.5	-34.4	-2.5	7.5	90.3	-6.8
37	Land idle.....acres.....1940..	32,371	1,996	7,905	70,560	53,229	33,940	86,370	8,122	2,788
38	.....1930..	47,921	1,970	2,210	68,857	50,605	26,043	62,599	9,629	1,360
39	Increase or decrease (-), 1930-1940.....acres.....	-15,550	26	5,695	1,703	2,624	7,897	23,771	-1,507	1,428
40	.....percent.....	-32.4	1.3	257.7	2.5	5.2	30.3	38.0	-15.5	105.0
41	Land available for settlement.....acres.....1940..	4,000	.....	.....	.....	11,240	.....	.....	400	392
42	.....1930..	31,200	1,175	957	40,500	52,518	17,773	39,280	8,729	595
43	Increase or decrease (-), 1930-1940.....acres.....	-27,200	-1,175	-957	-40,500	-41,378	-17,773	-39,280	-8,329	-203
44	.....percent.....	-87.2	-100.0	-100.0	-100.0	-78.6	-100.0	-100.0	-35.4	-34.1
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	52,959	19,210	23,653	148,860	103,652	133,579	150,802	61,758	15,031
46	Length of these ditches.....miles.....	71.2	60.3	100.0	224.2	145.0	190.0	144.4	112.1	89.1
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	148,860	103,652	133,579	131,707	.....	.....
48	Land drained by open ditches and own levees.....acres.....	36,281	.....	.....	33,200	.....	.....	39,365	.....	.....
49	Length of these ditches.....miles.....	48.0	.....	.....	29.0	.....	.....	56.0	.....	.....
50	Length of these levees.....miles.....	25.0	.....	.....	22.0	.....	.....	46.0	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	33,200	.....	.....	37,492	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	4,218	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	7.0	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	18.0	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	4,218	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — MISSISSIPPI

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Tishomingo	Tunica	Union	Washington	Webster	Yalobusha	Yazoo	Other counties ¹
LAND AREA									
1	Approximate land area.....acres....1940..	288,640	293,120	270,080	465,920	266,240	322,560	600,320	2,878,720
2	Drainage enterprises.....number....1940..	4	6	11	13	4	5	5	12
3	Land in enterprises.....acres....1940..	10,647	66,962	29,798	376,131	10,405	17,449	91,897	108,908
4	.....1930..	10,217	96,455	35,867	402,149	9,640	15,719	100,856	90,737
5	.....1920..	(²)	18,960	29,919	358,140	4,950	14,900	25,500	43,150
6	Area of all enterprises, overlapping included.....acres....1940..	10,647	67,084	32,969	407,389	10,405	17,599	105,657	124,321
7	Amount of overlapping.....acres....1940..	.....	122	3,171	31,258	.....	150	13,760	15,413
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	9,517	51,220	19,500	234,618	5,273	13,845	45,397	36,080
9	.....1930..	9,917	62,277	28,861	393,207	8,531	15,110	81,356	47,110
10	Increase or decrease (-), 1930-1940.....acres.....	-400	-11,057	-9,361	-158,589	-3,258	-1,265	-35,959	-11,030
11	.....percent.....	-4.0	-17.8	-32.4	-40.3	-38.2	-8.4	-44.2	-23.4
12	Land undrained, unfit for any crop.....acres....1940..	565	7,710	5,135	70,668	2,702	1,790	23,200	36,019
13	.....1930..	.....	16,216	750	.....	700	1,900	17,000	34,399
14	Increase or decrease (-), 1930-1940.....acres.....	565	-8,506	4,385	70,668	2,002	-110	6,200	1,620
15	.....percent.....	.....	-52.4	584.7	.....	286.0	-5.8	36.5	4.7
16	Land partly drained, for partial crop.....acres....1940..	565	8,032	5,163	70,845	2,430	1,814	23,300	36,809
17	.....1930..	300	17,962	6,256	8,942	409	1,709	2,500	9,228
18	Increase or decrease (-), 1930-1940.....acres.....	265	-9,930	-1,093	61,903	2,021	105	20,800	27,581
19	.....percent.....	88.3	-55.3	-17.5	692.3	494.1	6.1	832.0	288.9
20	Improved land.....acres....1940..	9,484	55,680	26,900	241,236	5,743	12,660	48,561	34,226
21	.....1930..	7,717	62,192	28,466	264,792	6,350	13,350	41,608	27,310
22	.....1920..	(²)	3,161	15,805	198,909	2,618	6,720	14,100	11,344
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	1,143	11,282	2,691	134,895	4,662	4,789	43,336	73,079
24	.....1930..	2,000	23,069	5,745	137,357	2,578	3,740	46,857	57,927
25	.....1920..	(²)	15,799	14,114	159,231	2,332	8,180	11,400	31,806
26	Other unimproved land.....acres....1940..	20	.....	207	.....	.....	.....	.....	1,603
27	.....1930..	500	11,204	1,656	.....	712	1,629	12,391	5,500
28	.....1920..	(²)	.....	.....	.....	.....	.....	.....	.....
29	Land in occupied farms.....acres....1940..	10,122	62,429	29,391	274,796	7,460	15,934	58,000	37,256
30	.....1930..	7,617	65,692	29,928	220,560	6,350	16,296	70,897	25,990
31	Increase or decrease (-), 1930-1940.....acres.....	2,505	-3,263	-537	54,236	1,110	-362	-12,897	11,266
32	.....percent.....	32.9	-5.0	-1.8	24.6	17.5	-2.2	-18.2	43.3
33	Land in planted crops.....acres....1940..	8,699	51,980	18,764	210,362	4,500	11,800	39,800	25,200
34	.....1930..	7,617	62,192	27,756	190,400	4,850	13,250	38,608	23,090
35	Increase or decrease (-), 1930-1940.....acres.....	1,082	-10,212	-8,992	19,962	-350	-1,450	1,192	2,110
36	.....percent.....	14.2	-16.4	-32.4	10.5	-7.2	-10.9	3.1	9.1
37	Land idle.....acres....1940..	1,069	11,362	7,155	134,911	4,800	4,875	43,336	72,990
38	.....1930..	2,300	32,963	5,820	194,712	4,421	5,259	46,789	55,387
39	Increase or decrease (-), 1930-1940.....acres.....	-1,231	-21,601	1,335	-59,801	379	-384	-3,453	17,603
40	.....percent.....	-53.5	-65.5	22.9	-30.7	8.6	-7.3	-7.4	31.8
41	Land available for settlement.....acres....1940..	.....	.....	.....	13,995	.....	.....	7,000	9,000
42	.....1930..	1,000	15,347	1,520	175,469	2,612	1,769	18,789	25,440
43	Increase or decrease (-), 1930-1940.....acres.....	-1,000	-15,347	-1,520	-161,474	-2,612	-1,769	-11,789	-15,440
44	.....percent.....	-100.0	-100.0	-100.0	-92.0	-100.0	-100.0	-62.7	-64.6
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	10,647	66,962	29,798	374,950	10,405	17,449	26,880	108,908
46	Length of these ditches.....miles.....	35.7	100.1	86.2	392.6	17.5	33.6	32.0	110.0
47	Part protected by levees of an outside agency.....acres.....	.....	66,962	.....	374,950	.....	.....	26,880	15,500
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	³ 65,017	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	³ 34.5	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	³ 53.5	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	³ 65,017	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	1,181	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	9.0	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	11.1	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	1,181	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	(³)	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	(³)	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	(³)	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	(³)	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	(³)	.....

¹ Includes Adams, Attala, Franklin, Grenada, Issaquena, Scott, Wilkinson, and Winston Counties in 1940; Adams, Attala, Grenada, Issaquena, Lowndes, Scott, and Winston Counties in 1930; and Adams, Attala, Leake, Montgomery, Tishomingo, and Winston Counties in 1920.

² Included in "Other counties."

³ Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches and levees.

CENSUS OF DRAINAGE — MISSISSIPPI

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Alcorn	Benton	Bolivar	Calhoun	Carroll	Chickasaw	Choctaw
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	1 343	14	3	27	6	6	11	6
2 Open ditches:								
3 Completed.....miles.....1940..	4,344.1	99.6	19.1	683.5	74.5	40.7	68.1	43.0
4 1930..	4,022.1	90.8	17.5	502.4	102.0	14.1	67.5	53.0
5 1920..	1,815.1	66.2	8.5	139.7	31.0	9.8	54.5	40.6
6 Additional length authorized.....miles.....1940..								
7 Tile drains:								
8 Completed.....miles.....1940..	34.1							
9 1930..	43.5			3.5				
10 1920..	238.8			80.0				
11 Additional length authorized.....miles.....1940..	4.0							
12 Levees and dikes:								
13 Completed.....miles.....1940..	190.5					9.0		
14 1930..	227.7					11.0		
15 1920..	6.7							
16 Additional length authorized.....miles.....1940..								
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	(2)							
19 1930..	370							
20 1920..	250							
21 Pump capacity.....gal. per min.....1940..	(2)							
22 1930..	103,000							
23 1920..	78,000							
24 Land served by pumps.....acres.....1940..	(2)							
25 1930..	8,040							
26 1920..	4,000							
27 Wells pumped for drainage.....number.....1940..								
28 1930..								
29 1920..								
CAPITAL INVESTED								
30 Capital invested to January 1.....dollars.....1940..	23,259,677	189,065	50,961	3,527,310	381,512	215,896	145,250	145,464
31 1930..	23,601,443	193,062	52,404	3,554,856	390,000	194,200	216,500	183,700
32 1920..	7,073,164	131,220	23,500	843,473	148,000	32,000	214,500	100,209
33 Estimated cost when completed.....dollars.....1940..	23,261,777	189,065	50,961	3,527,310	381,512	215,896	145,250	145,464
34 1930..	23,902,443	193,062	52,404	3,554,856	390,000	194,200	216,500	183,700
35 1920..	8,561,254	131,220	23,500	1,022,473	148,000	32,000	214,500	100,209
36 Average cost per acre when completed.....dollars.....1940..	8.05	5.85	7.55	9.40	6.54	7.06	5.13	8.59
37 1930..	8.00	5.87	7.00	9.50	3.66	6.18	7.77	9.51
38 1920..	5.35	4.88	5.88	5.53	4.96	3.90	9.65	6.09
39 Invested in and required for completion, 1940:								
40 Enterprises having open ditches only.....dollars..	19,919,168	189,065	50,961	3,527,310	381,512	136,412	145,250	145,464
41 Average amount per acre.....dollars..	7.95	5.85	7.55	9.40	6.54	7.50	5.13	8.59
42 Enterprises having open ditches and levees.....dollars..	3,266,479					79,484		
43 Average amount per acre.....dollars..	38.80					6.41		
44 Enterprises having tile only.....dollars..								
45 Average amount per acre.....dollars..								
46 Enterprises having tile and levees.....dollars..								
47 Average amount per acre.....dollars..								
48 Enterprises having open ditches and tile.....dollars..	76,130							
49 Average amount per acre.....dollars..	4.16							
50 Enterprises having ditches, tile, and levees.....dollars..								
51 Average amount per acre.....dollars..								
52 Enterprises operating pumping plants.....dollars..	(3)							
53 Average amount per acre.....dollars..	(3)							
MAINTENANCE AND OPERATION								
54 Cost of maintenance and operation in 1939:								
55 By enterprises operating pumping plants.....dollars..	(3)							
56 Enterprises reporting.....number..	1							
57 Land in these enterprises.....acres..	(3)							
58 Average cost per acre.....dollars..	(3)							
59 By enterprises not operating pumping plants.....dollars..	3 112,370	1,947		39,273	(4)			250
60 Enterprises reporting.....number..	68	8		25		2		3
61 Land in these enterprises.....acres..	3 999,463	28,669		339,192	(4)			7,215
62 Average cost per acre.....dollars..	3 0.11	0.07		0.12	(4)			0.03
63 Federal aid in maintenance:								
64 Enterprises reporting.....number..	26						2	
65 Land in these enterprises.....acres..	199,381						(4)	
FINANCIAL CONDITION								
66 Drainage taxes collected in 1939.....dollars..	856,921	6,340	(4)	199,828	18,154	8,636	3,898	833
67 Enterprises reporting.....number..	239	10	2	26	5	4	8	5
68 Land in these enterprises.....acres..	2,424,052	29,590	(4)	353,400	48,435	22,709	22,364	10,936
69 Average amount collected per acre.....dollars..	0.35	0.21	(4)	0.56	0.37	0.38	0.17	0.08
70 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	159,062	3,076	(4)	6,109	3,850	(4)	(4)	(4)
71 Enterprises reporting.....number..	82	8	1	9	4	1	2	2
72 Land in these enterprises.....acres..	740,140	8,500	(4)	135,900	40,094	(4)	(4)	(4)
73 Portion delinquent in these enterprises.....percent..	21.5	35.9	(4)	4.5	9.6	(4)	(4)	(4)
74 Total indebtedness, Dec. 31, 1939.....dollars..	6,688,362	40,880	(4)	1,309,630	106,825	91,432	25,700	24,990
75 Enterprises reporting.....number..	233	9	2	26	5	4	6	3
76 Land in these enterprises.....acres..	2,171,929	8,826	(4)	353,400	48,435	22,709	16,209	9,723
77 Average indebtedness per acre.....dollars..	3.08	4.63	(4)	3.70	2.20	4.03	1.58	2.57
78 Indebtedness in arrears, Dec. 31, 1939.....dollars..	408,979	16,314	(4)		21,000	(4)	4,280	21,860
79 Enterprises reporting.....number..	69	8	1		4	1	4	3
80 Land in these enterprises.....acres..	282,180	8,560	(4)		40,094	(4)	14,105	9,723
81 Average arrearage per acre.....dollars..	1.45	1.90	(4)		0.52	(4)	0.30	2.25
82 Reduction of debt by refinancing, prior to 1940.....dollars..	5,505,240			183,226		(4)		(4)
83 Enterprises reporting.....number..	81			15		1		1
84 Land in these enterprises.....acres..	1,608,240			235,072		(4)		(4)
85 Average reduction per acre.....dollars..	3.42			0.78		(4)		(4)

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 273.

²Where there are less than 3 enterprises reporting, data are not shown.

³Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches and levees.

⁴Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1, p. 288.

CENSUS OF DRAINAGE - MISSISSIPPI

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Clay	Coahoma	De Soto	Harrison ¹	Holmes	Humphreys	Itawamba	Lafayette	Leake
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	6	18	5	1	3	5	7	6	3
2 Open ditches:									
3 Completed.....miles.....1940..	46.4	294.0	83.3	17.0	28.5	138.0	59.4	56.6	13.3
4 1930..	38.0	206.3	55.0	11.0	28.5	208.0	56.0	42.0	13.0
5 1920..	20.5	213.8	14.0	.....	8.0	130.6	18.0	19.0	(²)
6 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
7 Tile drains:									
8 Completed.....miles.....1940..	.....	5.0	.....	.....	.....	.....	.....	.....	.....
9 1930..	.....	20.0	.....	.....	.....	.....	.....	.....	.....
10 1920..	.....	150.2	.....	.....	.....	.....	.....	.....	.....
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:									
13 Completed.....miles.....1940..	.....	.....	.....	.....	.....	27.0	.....	.....	.....
14 1930..	.....	.....	.....	.....	5.0	.....	.....	.....	.....
15 1920..	.....	.....	.....	.....	.....	3.6	.....	.....	.....
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21 Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
25 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
25 Capital invested to January 1.....dollars.....1940..	208,300	1,086,312	534,550	56,000	428,351	1,251,882	184,363	237,015	134,000
26 1930..	220,500	1,060,340	226,969	56,000	435,000	841,208	185,797	233,795	124,000
27 1920..	62,500	899,422	12,000	.....	50,000	528,000	68,732	162,676	(²)
28 Estimated cost when completed.....dollars.....1940..	208,300	1,086,312	534,550	56,000	428,351	1,251,882	184,363	237,015	134,000
29 1930..	220,500	1,185,340	226,969	56,000	435,000	854,708	185,797	233,795	124,000
30 1920..	62,500	985,822	12,000	.....	110,000	528,000	68,732	176,076	(²)
31 Average cost per acre when completed.....dollars.....1940..	6.55	6.01	11.60	5.53	6.25	6.64	8.56	10.75	14.99
32 1930..	8.80	7.03	5.02	4.67	5.34	4.77	9.78	10.40	13.70
33 1920..	5.08	5.73	2.18	.....	4.40	3.33	7.56	9.35	(²)
34 Invested in and required for completion, 1940:									
35 Enterprises having open ditches only.....dollars..	208,300	1,072,312	534,550	56,000	428,351	67,267	184,363	237,015	134,000
36 Average amount per acre.....dollars..	6.55	6.39	11.60	5.53	6.25	5.36	8.56	10.75	14.99
37 Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	1,184,615	.....	.....	.....
38 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	6.73	.....	.....	.....
39 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43 Enterprises having open ditches and tile.....dollars..	.....	14,000	.....	.....	.....	.....	.....	.....	.....
44 Average amount per acre.....dollars..	.....	1.08	.....	.....	.....	.....	.....	.....	.....
45 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
48 Cost of maintenance and operation in 1939:									
49 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52 Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
53 By enterprises not operating pumping plants.....dollars..	.....	(³)	.....	.....	.....	.....	.....	.....	(³)
54 Enterprises reporting.....number.....	.....	1	.....	.....	.....	.....	.....	.....	1
55 Land in these enterprises.....acres.....	.....	(³)	.....	.....	.....	.....	.....	.....	(³)
56 Average cost per acre.....dollars..	.....	(²)	.....	.....	.....	.....	.....	.....	(³)
57 Federal aid in maintenance:									
Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	6	.....	.....
Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	20,248	.....	.....
FINANCIAL CONDITION									
58 Drainage taxes collected in 1939.....dollars..	4,621	54,551	15,250	2,953	17,040	23,442	5,898	8,986	6,449
59 Enterprises reporting.....number.....	5	13	3	1	3	4	3	4	3
60 Land in these enterprises.....acres.....	24,240	116,042	34,629	10,124	68,520	101,325	7,972	19,151	8,940
61 Average amount collected per acre.....dollars..	0.19	0.47	0.44	0.29	0.25	0.23	0.74	0.47	0.72
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	(³)	.....	.....	.....	.....	(³)	(³)	.....	.....
63 Enterprises reporting.....number.....	2	.....	.....	1	3	1	2	.....	.....
64 Land in these enterprises.....acres.....	(³)	.....	.....	10,124	68,520	(³)	(³)	19,151	.....
65 Portion delinquent in these enterprises.....percent..	(³)	.....	.....	11.8	7.0	(³)	(³)	42.4	.....
66 Total indebtedness, Dec. 31, 1939.....dollars..	71,400	175,951	198,600	28,000	129,343	296,443	48,750	54,525	49,143
67 Enterprises reporting.....number.....	5	12	4	1	3	5	5	4	3
68 Land in these enterprises.....acres.....	24,240	99,658	40,789	10,124	68,520	188,669	13,852	19,151	8,940
69 Average indebtedness per acre.....dollars..	2.94	1.76	4.87	2.76	1.89	1.57	3.52	2.85	5.50
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(³)	(³)	.....	4,000	(³)	.....	8,390	25,757	.....
71 Enterprises reporting.....number.....	2	2	.....	1	2	.....	3	4	.....
72 Land in these enterprises.....acres.....	(³)	(³)	.....	10,124	(³)	.....	8,294	19,151	.....
73 Average arrearage per acre.....dollars..	(³)	(³)	.....	0.40	(³)	.....	1.02	1.34	.....
74 Reduction of debt by refinancing, prior to 1940.....dollars..	(³)	.....	(³)	.....	(³)	478,534	.....	.....	(³)
75 Enterprises reporting.....number.....	2	.....	1	.....	1	4	.....	.....	2
76 Land in these enterprises.....acres.....	(³)	.....	(³)	.....	(³)	185,269	.....	.....	(³)
77 Average reduction per acre.....dollars..	(³)	.....	(³)	.....	(³)	2.58	.....	.....	(³)

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1.

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Lee	Leflore	Marshall	Monroe	Montgomery	Neshoba	Newton	Oktibbeha
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	18	11	5	6	3	4	3	3
Open ditches:								
2 Completed.....miles.....1940..	120.7	118.8	48.2	25.4	26.0	46.7	36.4	28.4
3 .....1930..	130.0	103.8	49.5	16.5	17.5	43.5	42.0	17.0
4 .....1920..	92.6	43.0	9.5	17.0	(1)	9.9		23.0
5 Additional length authorized.....miles.....1940..								
Tile drains:								
6 Completed.....miles.....1940..								
7 .....1930..								
8 .....1920..								
9 Additional length authorized.....miles.....1940..								
Levees and dikes:								
10 Completed.....miles.....1940..		8.0						
11 .....1930..		14.5						
12 .....1920..								
13 Additional length authorized.....miles.....1940..								
Pumping plants:								
14 Engine capacity.....horsepower.....1940..								
15 .....1930..								
16 .....1920..								
17 Pump capacity.....gal. per min. 1940..								
18 .....1930..								
19 .....1920..								
20 Land served by pumps.....acres.....1940..								
21 .....1930..								
22 .....1920..								
23 Wells pumped for drainage.....number.....1940..								
24 .....1930..								
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	408,185	611,347	224,000	90,045	80,028	270,200	103,566	85,000
26 .....1930..	438,579	592,370	244,785	66,000	68,000	241,000	132,000	85,000
27 .....1920..	276,644	139,380	61,040	43,500	(1)	95,000		60,000
28 Estimated cost when completed.....dollars.....1940..	408,185	611,347	224,000	90,045	80,028	270,200	103,566	85,000
29 .....1930..	438,579	602,370	245,785	66,000	68,000	241,000	132,000	85,000
30 .....1920..	276,644	139,380	76,240	43,500	(1)	180,000		60,000
31 Average cost per acre when completed.....dollars.....1940..	8.66	7.44	7.36	9.38	8.30	12.49	7.68	5.82
32 .....1930..	7.54	7.81	8.73	8.25	5.31	13.31	6.54	7.70
33 .....1920..	5.62	4.10	8.72	6.95	(1)	15.76		4.94
Invested in and required for completion, 1940:								
34 Enterprises having open ditches only.....dollars..	408,185	564,547	224,000	90,045	80,028	270,200	103,566	85,000
35 Average amount per acre.....dollars..	8.66	7.71	7.36	9.38	8.30	12.49	7.68	5.82
36 Enterprises having open ditches and levees.....dollars..		46,800						
37 Average amount per acre.....dollars..		5.22						
38 Enterprises having tile only.....dollars..								
39 Average amount per acre.....dollars..								
40 Enterprises having tile and levees.....dollars..								
41 Average amount per acre.....dollars..								
42 Enterprises having open ditches and tile.....dollars..								
43 Average amount per acre.....dollars..								
44 Enterprises having ditches, tile, and levees.....dollars..								
45 Average amount per acre.....dollars..								
46 Enterprises operating pumping plants.....dollars..								
47 Average amount per acre.....dollars..								
MAINTENANCE AND OPERATION								
48 Cost of maintenance and operation in 1939:								
49 By enterprises operating pumping plants.....dollars..								
50 Enterprises reporting.....number.....								
51 Land in these enterprises.....acres.....								
52 Average cost per acre.....dollars.....								
53 By enterprises not operating pumping plants.....dollars..		(2)						(2)
54 Enterprises reporting.....number.....		2						1
55 Land in these enterprises.....acres.....		(2)						(2)
56 Average cost per acre.....dollars.....		(2)						(2)
Federal aid in maintenance:								
56 Enterprises reporting.....number.....	4	1		2				
57 Land in these enterprises.....acres.....	18,732	(2)		(2)				
FINANCIAL CONDITION								
58 Drainage taxes collected in 1939.....dollars..	4,039	26,933	14,476	1,784		(2)	2,767	(2)
59 Enterprises reporting.....number.....	5	11	5	4		2	3	2
60 Land in these enterprises.....acres.....	9,490	82,192	30,435	3,435		(2)	13,490	(2)
61 Average amount collected per acre.....dollars..	0.42	0.35	0.48	0.52		(2)	0.20	(2)
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres...	1,919	(2)	(2)	(2)	(2)	21,152	6,250	
63 Enterprises reporting.....number.....	4	2	1	1	1	4	3	
64 Land in these enterprises.....acres.....	8,446	(2)	(2)	(2)	(2)	21,633	13,490	
65 Portion delinquent in these enterprises.....percent..	22.7	(2)	(2)	(2)	(2)	97.8	46.3	
66 Total indebtedness, Dec. 31, 1939.....dollars..	6,092	204,662	136,900	8,848	(2)	94,000	50,600	(2)
67 Enterprises reporting.....number.....	4	9	5	5	1	4	3	1
68 Land in these enterprises.....acres.....	4,751	67,481	30,435	3,475	(2)	21,633	13,490	(2)
69 Average indebtedness per acre.....dollars..	1.28	3.03	4.50	2.55	(2)	4.34	3.75	(2)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(2)	(2)	(2)	(2)	(2)	70,500	14,500	
71 Enterprises reporting.....number.....	2	1	1	2	1	4	3	
72 Land in these enterprises.....acres.....	(2)	(2)	(2)	(2)	(2)	21,633	13,490	
73 Average arrearage per acre.....dollars..	(2)	(2)	(2)	(2)	(2)	3.26	1.07	
74 Reduction of debt by refinancing, prior to 1940.....dollars..		57,202			(2)			(2)
75 Enterprises reporting.....number.....		4			1			1
76 Land in these enterprises.....acres.....		35,494			(2)			(2)
77 Average reduction per acre.....dollars..		1.61			(2)			(2)

¹Included in "Other counties." ²Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1, p. 288.

CENSUS OF DRAINAGE - MISSISSIPPI

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Panola	Pontotoc	Prentiss	Quitman	Sharkey	Sunflower	Tallahatchie	Tate	Tippah
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	10	7	18	17	5	14	12	6	14
2 Open ditches:									
3 Completed.....miles.....1940..	119.2	60.3	100.0	253.2	145.0	190.0	207.4	112.1	89.1
4 1930..	80.0	54.0	80.4	169.8	185.5	161.5	137.0	42.5	50.2
5 1920..	23.0	45.5	52.5	61.7	.....	110.0	4.9	47.2	57.0
6 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
7 Tile drains:									
8 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	18.0	.....	.....
9 1930..	.....	.....	.....	.....	.....	.....	20.0	.....	.....
10 1920..	.....	.....	.....	2.0	.....	.....	6.6	.....	.....
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:									
13 Completed.....miles.....1940..	25.0	.....	.....	22.0	.....	.....	46.0	.....	.....
14 1930..	14.0	.....	1.0	80.5	.....	.....	15.5	.....	.....
15 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:									
18 Engine capacity.....horsepower....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21 Pump capacity.....gal. per min..1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
25 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
25 Capital invested to January 1.....dollars.....1940..	1,066,560	155,061	168,250	2,057,645	1,047,030	735,301	1,429,562	303,936	172,217
26 1930..	1,390,029	150,707	214,924	2,286,772	1,129,306	696,591	1,549,415	213,750	156,768
27 1920..	73,375	122,582	134,919	150,012	.....	490,056	45,300	169,000	99,476
28 Estimated cost when completed.....dollars.....1940..	1,066,560	155,061	168,250	2,057,645	1,047,030	735,301	1,429,562	303,936	172,217
29 1930..	1,390,029	150,707	214,924	2,286,772	1,129,306	696,591	1,549,415	213,750	156,768
30 1920..	130,375	122,582	134,919	380,012	.....	490,056	94,300	184,000	99,476
31 Average cost per acre when completed.....dollars.....1940..	11.95	8.07	7.11	11.30	10.10	5.50	7.35	4.92	11.46
32 1930..	12.04	7.58	9.02	12.88	8.70	4.89	9.18	5.84	10.98
33 1920..	6.54	7.16	7.16	5.23	.....	5.42	3.59	5.41	7.93
34 Invested in and required for completion, 1940:									
35 Enterprises having open ditches only.....dollars..	424,390	155,061	168,250	1,706,435	1,047,030	735,301	982,562	303,936	172,217
36 Average amount per acre.....dollars..	8.01	8.07	7.11	11.46	10.10	5.50	6.52	4.92	11.46
37 Enterprises having open ditches and levees.....dollars..	642,170	.....	.....	351,210	.....	.....	397,000	.....	.....
38 Average amount per acre.....dollars..	17.70	.....	.....	10.58	.....	.....	10.08	.....	.....
39 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
41 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43 Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	50,000	.....	.....
44 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	11.85	.....	.....
45 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
48 Cost of maintenance and operation in 1939:									
49 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52 Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
53 By enterprises not operating pumping plants.....dollars..	.....	.....	.....	.....	5,312	(1)	.....	(1)	(1)
54 Enterprises reporting.....number.....	.....	.....	.....	.....	3	2	.....	2	1
55 Land in these enterprises.....acres.....	.....	.....	.....	.....	81,338	(1)	.....	(1)	(1)
56 Average cost per acre.....dollars..	.....	.....	.....	.....	0.06	(1)	.....	(1)	(1)
57 Federal aid in maintenance:									
58 Enterprises reporting.....number.....	(1)	1	3	(1)	1	.....	(1)	1	.....
59 Land in these enterprises.....acres.....	(1)	.....	6,367	(1)	.....	.....	(1)	.....	.....
FINANCIAL CONDITION									
58 Drainage taxes collected in 1939.....dollars..	33,880	(1)	.....	59,606	36,808	35,283	54,419	12,829	2,386
59 Enterprises reporting.....number.....	10	2	.....	15	5	13	10	6	8
60 Land in these enterprises.....acres.....	89,240	(1)	.....	169,547	103,652	126,351	176,974	61,758	5,896
61 Average amount collected per acre.....dollars..	0.38	(1)	.....	0.35	0.36	0.28	0.31	0.21	0.40
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	.....	(1)	(1)	(1)	5,470	.....	16,880	.....	3,478
63 Enterprises reporting.....number.....	.....	1	.....	1	3	.....	3	.....	8
64 Land in these enterprises.....acres.....	.....	(1)	(1)	(1)	60,172	.....	62,733	.....	5,896
65 Portion delinquent in these enterprises.....percent..	.....	(1)	(1)	(1)	9.1	.....	26.9	.....	59.0
66 Total indebtedness, Dec. 31, 1939.....dollars..	235,510	19,732	(1)	339,286	428,700	225,798	541,140	74,820	57,246
67 Enterprises reporting.....number.....	10	3	1	15	5	11	11	4	8
68 Land in these enterprises.....acres.....	89,240	5,908	(1)	169,547	103,652	92,567	190,167	23,326	5,896
69 Average indebtedness per acre.....dollars..	2.64	3.34	(1)	2.00	4.14	2.44	2.84	3.21	9.71
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(1)	(1)	.....	(1)	.....	.....	(1)	.....	4,950
71 Enterprises reporting.....number.....	1	1	.....	2	.....	.....	1	.....	7
72 Land in these enterprises.....acres.....	(1)	(1)	.....	(1)	.....	.....	(1)	.....	5,411
73 Average arrearage per acre.....dollars..	(1)	(1)	.....	(1)	.....	.....	(1)	.....	0.91
74 Reduction of debt by refinancing, prior to 1940.....dollars..	465,100	.....	.....	1,115,862	457,350	39,891	617,572	.....	.....
75 Enterprises reporting.....number.....	3	.....	.....	4	5	8	8	.....	.....
76 Land in these enterprises.....acres.....	50,201	.....	.....	118,603	103,652	40,333	167,941	.....	.....
77 Average reduction per acre.....dollars..	9.26	.....	.....	9.41	4.41	0.99	3.68	.....	.....

¹Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1, p. 288.

CENSUS OF DRAINAGE — MISSISSIPPI

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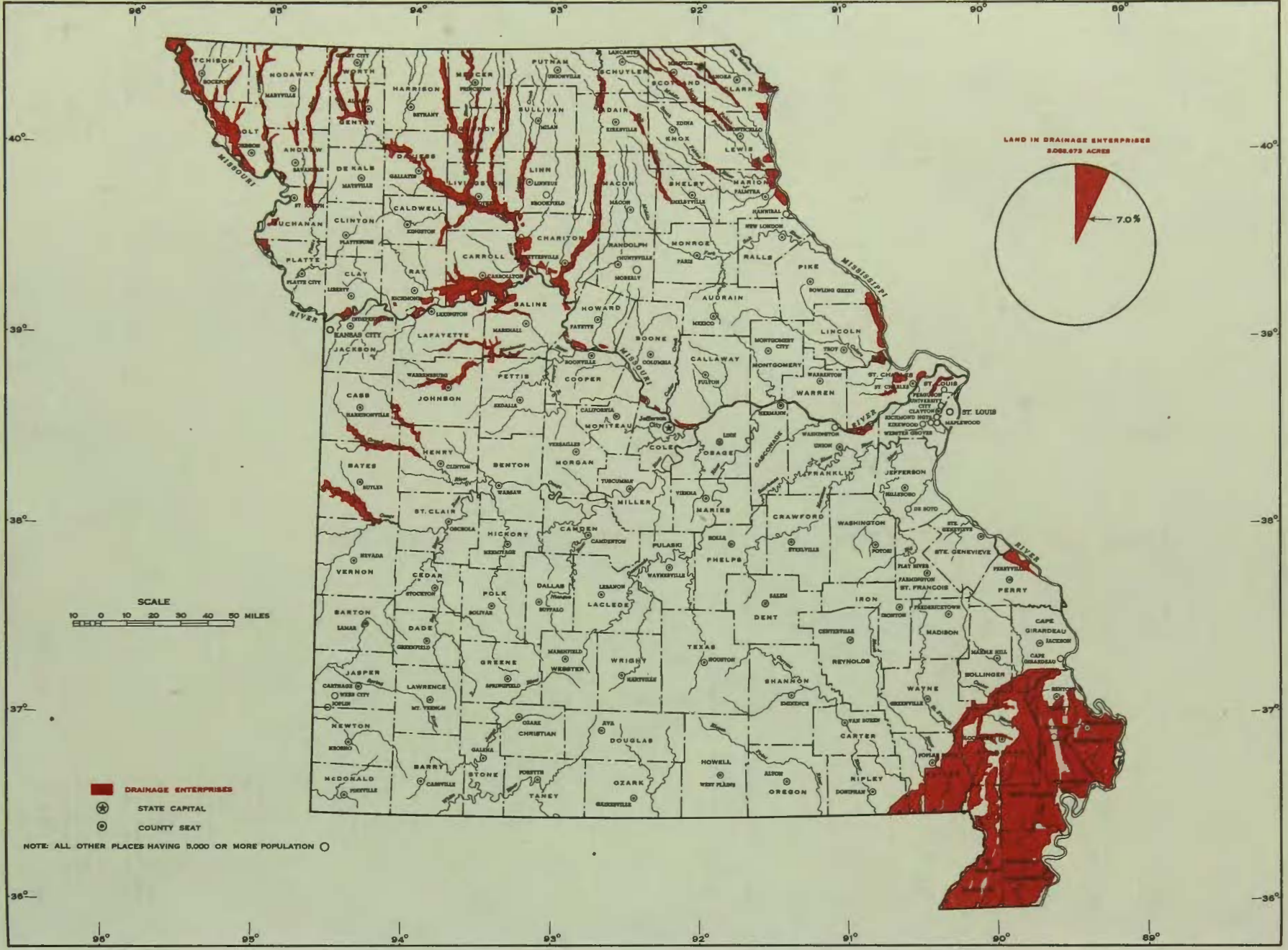
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Tishomingo	Tunica	Union	Washington	Webster	Yalobusha	Yazoo	Other counties ¹
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	4	6	11	13	4	5	5	12
Open ditches:								
2 Completed.....miles.....1940..	35.7	100.1	86.2	401.6	17.5	33.6	66.5	110.0
3 1930..	22.0	88.5	79.9	595.7	29.0	29.5	77.4	124.3
4 1920..	(2)	6.6	72.6	292.7	10.0	14.6	5.4	42.2
5 Additional length authorized.....miles.....1940..								
Tile drains:								
6 Completed.....miles.....1940..				11.1				
7 1930..								
8 1920..								
9 Additional length authorized.....miles.....1940..				4.0				
Levees and dikes:								
10 Completed.....miles.....1940..							53.5	
11 1930..				14.7			47.0	0.3
12 1920..		2.7					0.4	
13 Additional length authorized.....miles.....1940..								
Pumping plants:								
14 Engine capacity.....horsepower.....1940..							(3)	
15 1930..				270			100	
16 1920..				250				
17 Pump capacity.....gal. per min.....1940..							(3)	
18 1930..				81,000			22,000	
19 1920..				78,000				
20 Land served by pumps.....acres.....1940..							(3)	
21 1930..				4,040			4,000	
22 1920..				4,000				
23 Wells pumped for drainage.....number.....1940..								
24 1930..								
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	77,740	715,516	252,068	2,806,957	80,150	162,461	715,200	665,421
26 1930..	78,100	897,506	204,400	3,114,866	72,000	177,596	594,000	578,588
27 1920..	(2)	54,812	202,200	1,368,229	22,919	54,000	31,000	106,088
28 Estimated cost when completed.....dollars.....1940..	77,740	715,516	252,068	2,809,057	80,150	162,461	715,200	665,421
29 1930..	78,100	897,506	204,400	3,114,866	72,000	177,596	725,500	598,588
30 1920..	(2)	134,312	202,200	1,921,229	22,919	114,000	31,000	109,088
31 Average cost per acre when completed.....dollars.....1940..	7.30	10.68	8.46	7.47	2.70	9.31	7.78	6.11
32 1930..	7.64	9.30	7.37	7.75	7.47	9.49	7.19	6.60
33 1920..	(2)	7.08	6.76	5.36	4.63	7.65	1.22	2.53
Invested in and required for completion, 1940:								
34 Enterprises having open ditches only.....dollars..	77,740	715,516	252,068	2,796,927	80,150	162,461	150,000	665,421
35 Average amount per acre.....dollars..	7.30	10.68	8.46	7.46	7.70	9.31	5.58	6.11
36 Enterprises having open ditches and levees.....dollars..							4,565,200	
37 Average amount per acre.....dollars..							4 8.69	
38 Enterprises having tile only.....dollars..								
39 Average amount per acre.....dollars..								
40 Enterprises having tile and levees.....dollars..								
41 Average amount per acre.....dollars..								
42 Enterprises having open ditches and tile.....dollars..				12,130				
43 Average amount per acre.....dollars..				10.27				
44 Enterprises having ditches, tile, and levees.....dollars..								
45 Average amount per acre.....dollars..								
46 Enterprises operating pumping plants.....dollars..							(4)	
47 Average amount per acre.....dollars..							(4)	
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48 By enterprises operating pumping plants.....dollars..							(4)	
49 Enterprises reporting.....number..							1	
50 Land in these enterprises.....acres..							(4)	
51 Average cost per acre.....dollars..							(4)	
52 By enterprises not operating pumping plants.....dollars..	738			56,321				1,810
53 Enterprises reporting.....number..	3			10				4
54 Land in these enterprises.....acres..	10,338			365,212				47,500
55 Average cost per acre.....dollars..	0.07			0.15				0.04
Federal aid in maintenance:								
56 Enterprises reporting.....number..	1							4
57 Land in these enterprises.....acres..	(5)							46,087
FINANCIAL CONDITION								
58 Drainage taxes collected in 1939.....dollars..	3,929	18,842	5,121	111,634	(5)	7,973	21,516	16,282
59 Enterprises reporting.....number..	3	5	5	6	2	4	5	9
60 Land in these enterprises.....acres..	10,338	49,412	9,350	365,107	(5)	13,689	91,897	89,179
61 Average amount collected per acre.....dollars..	0.38	0.38	0.55	0.30	(5)	0.58	0.23	0.18
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	(5)			28,285	(5)			13,207
63 Enterprises reporting.....number..	1			3	2			3
64 Land in these enterprises.....acres..	(5)			147,100	(5)			13,967
65 Portion delinquent in these enterprises.....percent..	(5)			19.2	(5)			94.6
66 Total indebtedness, Dec. 31, 1939.....dollars..	(5)	217,900	12,180	701,100	11,305	71,825	296,045	231,007
67 Enterprises reporting.....number..	2	5	5	4	3	4	5	8
68 Land in these enterprises.....acres..	(5)	49,412	9,350	159,613	7,445	13,689	91,897	67,886
69 Average indebtedness per acre.....dollars..	(5)	4.41	1.30	4.39	1.52	5.25	3.22	3.40
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(5)				(5)		(5)	22,700
71 Enterprises reporting.....number..	1				2		1	3
72 Land in these enterprises.....acres..	(5)				(5)		(5)	13,967
73 Average arrearage per acre.....dollars..	(5)				(5)		(5)	1.62
74 Reduction of debt by refinancing, prior to 1940.....dollars..	(5)	192,986		910,820	(5)	(5)	277,598	243,442
75 Enterprises reporting.....number..	1	3		6	1	1	4	4
76 Land in these enterprises.....acres..	(5)	42,620		365,107	(5)	(5)	88,137	44,285
77 Average reduction per acre.....dollars..	(5)	4.53		2.49	(5)	(5)	3.15	5.50

¹Includes Adams, Attala, Franklin, Grenada, Issaquena, Scott, Wilkinson, and Winston Counties in 1940; Adams, Attala, Grenada, Issaquena, Lowndes, Scott, and Winston Counties in 1930; and Adams, Attala, Leake, Montgomery, Tishomingo, and Winston Counties in 1920. ²Included in "Other counties." ³Where there are less than 3 enterprises in State, data are not shown. ⁴Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches and levees. ⁵Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1, p. 288.

MISSOURI

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — MISSOURI

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (—)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	44,332,800	43,985,280	43,985,280				
Land in drainage enterprises.....acres.....	3,087,063	3,150,022	2,596,204	-62,959	-2.0	553,818	21.3
Improved.....acres.....	2,522,011	2,309,267	1,474,302	212,744	9.2	834,965	56.6
Unimproved:							
Timber and cut-over.....acres.....	478,245	565,068	1,074,860	-86,823	-15.4	-509,782	-47.4
Other.....acres.....	86,807	275,687	47,042	-198,880	-68.5	228,645	486.0
Drainage sufficient for normal crop.....acres.....	2,847,782	2,530,697	(1)	317,095	12.5		
Partly drained, for partial crop.....acres.....	133,413	366,074	(1)	-232,661	-63.6		
Unfit to raise any crop for lack of drainage.....acres.....	105,858	253,251	454,360	-147,393	-58.2	-201,109	-44.3
In occupied farms.....acres.....	2,673,169	2,427,599	(1)	245,570	10.1		
In planted crops.....acres.....	1,872,751	2,067,727	(1)	-194,976	-9.4		
Idle.....acres.....	527,289	879,897	(1)	-352,608	-40.1		
Available for settlement.....acres.....	24,592	379,679	(1)	-355,087	-89.5		
Open ditches, completed.....miles.....	5,191.5	4,960.5	3,438.7	231.0	4.7	1,521.8	44.3
Tile drains, completed.....miles.....	170.3	123.4	38.8	46.9	38.0	84.6	218.0
Drainage pumping plants, capacity.....horsepower.....	2,115	2,533	2,785	-418	-16.5	-252	-9.0
.....gal. per min.....	502,000	607,430	552,000	-105,430	-17.4	55,430	10.0
Capital invested in enterprises.....dollars.....	49,050,414	47,340,174	20,723,128	1,710,240	3.6	26,617,046	128.4
Average per acre.....dollars.....	15.89	15.03	7.98	0.86	5.7	7.05	88.3

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ²
	1940	1930	1920	1940
	Acres	Acres	Acres	Acres
All enterprises.....	4,434,979	4,111,570	3,104,869	3,087,063
Less than 100 acres.....	134	206	177	134
100 to 199 acres.....	228	3,907	1,056	228
200 to 499 acres.....	4,570	28,667	13,154	4,149
500 to 999 acres.....	28,045	28,667	13,154	25,210
1,000 to 1,999 acres.....	82,679	373,337	239,414	73,162
2,000 to 4,999 acres.....	330,308	450,062	341,884	297,712
5,000 to 9,999 acres.....	385,082	1,721,812	1,557,927	311,483
10,000 to 19,999 acres.....	683,745	1,721,812	1,557,927	520,508
20,000 to 49,999 acres.....	1,398,182	922,594	546,213	881,565
50,000 to 99,999 acres.....	999,189	610,985	405,062	545,998
100,000 to 199,999 acres.....	512,807	610,985	405,062	426,923
200,000 to 499,999 acres.....	.....	610,985	405,062	.....

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	3,087,063	100.0	49,050,414	100.0
Drainage districts.....	3,061,463	99.8	48,992,914	99.9
Individually owned projects.....	5,600	0.2	57,500	0.1

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	3,087,063	100.0	3,150,022	100.0	2,596,204	100.0	49,050,414	100.0	47,340,174	100.0	20,723,128	100.0
Gravity drainage only by—												
Open ditches.....	2,897,111	93.8	2,987,260	94.8	2,518,698	97.0	45,564,108	92.9	42,931,580	90.7	18,462,298	89.1
Tile drains.....	8,309	0.3	6,951	0.2			127,000	0.3	79,800	0.2		
Open ditches and tile drains.....	110,006	3.6	72,061	2.3			1,058,306	2.2	955,159	2.0		
All drained by pumping by—												
Open ditches.....	22,390	0.7	51,769	1.7			782,000	1.6	2,503,135	5.3		
Tile drains.....	.....						.....	.....
Open ditches and tile drains.....	31,057	1.0					991,000	2.0				
Part only by pumping by—												
Open ditches.....	10,560	0.3	31,981	1.0	77,306	3.0	212,000	0.4	870,500	1.8	2,260,890	10.9
Tile drains.....	.....						.....	.....
Open ditches and tile drains.....	7,630	0.2					316,000	0.6				
Total area served by pumps.....	64,527	2.1	71,604	2.3	70,308	2.7						

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enter-prises	CAPACITY				Land served Acres	KIND OF POWER	Enter-prises	CAPACITY				Land served Acres
		Engine or motor		Pump	G. p. m.				Engine or motor		Pump	G. p. m.	
		Number	Hp.						Percent	Number				Hp.	Percent
All pumping enterprises....1940..	11	2,115	100.0	1,502,000	64,527	Electric.....1940..	1	200	9.5	32,000	3,985		
1930..	11	2,533	100.0	607,430	71,604	1930..	2	700	27.6	160,000	12,953		
1920..	8	2,785	100.0	552,000	70,308	1920..	1	500	18.0	75,000	4,010		
Steam.....1940..	2	300	14.2	148,000	17,000	Internal combustion.....1940..	8	1,615	76.4	322,000	43,542		
1930..	2	1,000	39.5	290,000	20,000	1930..	7	833	32.9	157,430	38,651		
1920..	5	1,910	68.6	407,000	57,298	1920..	2	375	13.5	70,000	9,000		

¹One enterprise did not report gallons per minute.

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	PUMPS				Engine or motor capacity Hp.	Land served Acres
	Number	Capacity		Hp.		
		G. p. m.	Percent			
All pumping enterprises.....1940..	16	1,502,000	100.0	2,115	64,527	
1930..	16	607,430	100.0	2,533	71,604	
Centrifugal.....1940..	13	1,997,000	79.1	1,665	52,527	
1930..	15	600,430	98.8	2,458	71,029	
Rotary.....1940..	1	7,000	1.2	75	575	
1930..	3	105,000	20.9	450	12,000	
Screw.....1940..	1	7,000	1.2	75	575	
1930..	3	105,000	20.9	450	12,000	

¹One enterprise did not report gallons per minute.

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	3,087,063	100.0	3,150,022	100.0	49,050,414	100.0	47,340,174	100.0	435,261	927,207
Enterprises in arrears.....	598,352	19.4	1,350,734	42.9	8,177,213	16.7	24,619,680	52.0	180,289	751,712
With some delinquent land.....	442,279	14.3	1,339,906	42.5	6,309,298	12.9	24,479,950	51.7	180,289	751,712
With no delinquent land.....	66,783	2.2	.....	.....	631,994	1.3	.....	.....	.....	.....
With no report on delinquency.....	89,290	2.9	10,828	0.4	1,235,921	2.5	139,700	0.3	.....	.....
Enterprises not in arrears.....	2,486,919	80.6	1,799,288	57.1	40,898,201	83.3	22,720,494	48.0	254,972	175,495
With some delinquent land.....	1,453,544	47.1	786,521	25.0	25,256,912	51.5	12,566,411	26.6	254,972	175,495
With no delinquent land.....	1,033,375	33.5	949,531	30.1	15,581,289	31.8	8,909,950	18.8	.....	.....
With no report on delinquency.....	.....	.....	63,136	2.0	.....	.....	1,244,133	2.6	.....	.....
Enterprises not reporting on arrearage.....	1,792	(²)	.....	.....	35,000	(²)	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no delinquent land.....	32	(²)	.....	.....	.....	.....	.....	.....	.....	.....
With no report on delinquency.....	1,760	(²)	.....	.....	33,000	(²)	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

²Less than one-tenth of 1 per cent.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises Acres	Capital invested Dollars	Indebtedness Dollars	Arrearage in payment of bonds Dollars	Reduction of debt by refinancing Dollars	Delinquent in drainage taxes ¹ Acres	Drainage taxes collected in 1939 Dollars
All enterprises.....	3,087,063	49,050,414	8,174,365	1,927,224	8,653,382	435,261	1,290,413
Enterprises in debt.....	1,892,734	32,903,747	8,174,365	1,927,224	7,642,017	379,235	1,188,941
In arrears, amount of arrearage stated.....	587,352	8,177,213	2,743,996	1,927,224	359,191	180,289	210,317
Collecting drainage taxes in 1939.....	474,906	6,538,972	1,931,681	1,308,569	359,191	159,777	210,317
No collections reported.....	112,446	1,638,241	812,315	618,655	.....	20,512	.....
In arrears, amount not stated.....	11,000	139,000	26,000	.....	.....	.....	.....
Collecting drainage taxes in 1939.....	11,000	139,000	26,000	.....	.....	.....	.....
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Not in arrears.....	1,292,622	24,554,534	5,404,347	.....	7,282,226	198,946	978,600
Collecting drainage taxes in 1939.....	1,289,466	24,368,409	5,245,347	.....	7,215,226	198,946	978,600
No collections reported.....	23,156	186,125	159,000	.....	67,000	.....	.....
Not reporting as to arrears.....	1,760	33,000	22	.....	600	.....	24
Collecting drainage taxes in 1939.....	1,760	33,000	22	.....	600	.....	24
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Enterprises not in debt.....	1,108,695	14,900,139	.....	.....	873,765	45,978	62,795
Collecting drainage taxes in 1939.....	398,487	2,640,808	.....	.....	206,500	45,612	62,795
No collections reported.....	710,208	12,059,331	.....	.....	667,265	366	.....
Enterprises not reporting as to debt.....	85,634	1,246,528	.....	.....	137,600	10,048	38,677
Collecting drainage taxes in 1939.....	85,634	1,246,528	.....	.....	137,600	10,048	38,677
No collections reported.....	.....	.....	.....	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	3,087,063	100.0	49,050,414	100.0
Improvement of land already in farms.....	1,310,921	42.5	15,777,169	32.2
Reclamation of swamp land not previously in farms.....	1,009,946	32.7	18,816,130	38.4
Protection against overflow.....	766,296	24.8	14,457,115	29.4

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	3,087,063	100.0	4,434,979	1,347,916	49,050,414	100.0
1880-1889.....	340	(3)	340	.....	1,559	(3)
1890-1899.....	53,403	1.7	131,238	77,835	384,896	0.8
1900-1904.....	146,958	4.8	516,970	370,012	2,760,022	5.6
1905-1909.....	901,165	29.2	1,371,897	470,732	17,505,928	35.7
1910-1914.....	584,799	18.9	901,836	317,037	8,740,543	17.8
1915-1919.....	685,099	22.2	771,859	86,700	10,068,764	20.5
1920-1924.....	407,453	13.2	430,915	23,462	5,836,818	11.9
1925-1929.....	246,374	7.9	248,452	2,078	3,407,257	6.9
1930-1934.....	13,653	0.4	13,653	.....	253,000	0.6
1935-1939.....	47,819	1.7	47,819	.....	91,627	0.2

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

³Less than one-tenth of 1 percent.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement		
	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Per-cent	Acres	Acres	
All enterprises..	3,087,063	2,847,792	92.2	133,413	105,858	2,522,011	81.7	478,245	86,807	2,673,169	86.6	1,872,751	527,289	24,592
1880-1889.....	340	340	100.0	.....	.....	340	100.0	.....	.....	311	91.5	273	.....	.....
1890-1899.....	53,403	50,867	95.3	.....	2,536	47,250	88.5	4,074	2,079	45,511	87.1	36,556	7,588	.....
1900-1904.....	146,958	141,405	96.2	3,053	2,500	115,295	78.5	19,455	12,207	132,735	90.3	89,310	30,545	.....
1905-1909.....	901,165	872,595	96.6	20,701	7,868	733,008	81.3	152,509	15,648	815,229	90.5	562,836	150,492	.....
1910-1914.....	584,799	498,122	85.2	71,687	14,990	466,623	79.8	114,978	3,198	474,552	81.1	330,478	76,178	23,992
1915-1919.....	685,099	605,140	88.3	14,869	65,090	531,079	77.5	123,065	30,955	570,342	83.2	382,605	150,722	600
1920-1924.....	407,453	386,707	94.9	13,223	4,523	352,636	86.6	38,511	16,274	359,137	88.1	256,556	61,140	.....
1925-1929.....	246,374	234,043	95.0	3,980	3,351	215,831	88.0	23,317	6,226	219,356	89.0	169,122	35,162	.....
1930-1934.....	13,653	13,653	100.0	.....	.....	12,850	94.1	583	220	12,515	91.6	9,733	1,543	.....
1935-1939.....	47,819	44,919	93.9	2,900	.....	46,068	96.3	1,753	.....	42,461	88.8	35,282	3,919	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	3,087,063	3,053,146	2,141,480	911,666	429,740	0.14	0.20
Gravity drainage only.....	3,015,426	2,981,509	2,069,843	911,666	400,609	0.13	0.19
Open ditches only.....	1,859,589	1,825,672	1,117,815	707,857	219,550	0.12	0.20
Open ditches and levees.....	1,037,522	1,037,522	939,269	98,253	180,094	0.17	0.19
Tile drains only.....	.....	.....	.....	.....	.....	.....	.....
Tile drains and levees.....	8,309	8,309	2,048	6,261	265	0.03	0.13
Open ditches and tile drains.....	100,223	100,223	928	99,295	200	(1)	0.22
Open ditches, tile drains, and levees.....	9,783	9,783	9,783	.....	500	0.05	0.05
Pumping for all or part of drainage.....	71,637	71,637	71,637	.....	29,131	0.41	0.41
All drainage by pumping.....	53,447	53,447	53,447	.....	25,728	0.48	0.48
Part pumping and part gravity.....	18,190	18,190	18,190	3,403	0.19	0.19

¹Less than 1/2 cent per acre.

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	3,087,063	100.0	49,050,414	100.0
Method:				
By district forces.....	1,065,204	34.5	17,515,924	35.7
By contract.....	1,153,862	37.4	19,271,188	39.3
Work apportioned to landowners.....	60,591	2.0	907,385	1.8
"None," or not reporting.....	807,366	26.1	11,355,917	23.2
Whether systematic:				
Reporting "yes".....	2,023,377	65.5	35,029,590	71.4
Reporting "no".....	1,017,982	33.0	13,308,505	27.1
Not reporting.....	45,704	1.5	712,319	1.5

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	3,087,063	318,813	10.3
Capital invested.....dollars..	49,050,414	3,234,549	6.6
Drainage works:			
Open ditches.....miles....	5,191.5	540.2	10.4
Tile drains.....miles....	170.3	17.0	10.0
Levees.....miles....	687.1	97.5	14.2

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	1,548,099	28,024,197	2,597.8	106.6	446.9
Work Projects Administration.....	425,986	5,023,927	753.9	84.1	82.0
Civilian Conservation Corps.....	266,594	3,537,198	431.7	20.5	54.0
Corps of Engineers, U.S.A.....	156,009	2,131,000	69.7	2.0	93.0
W.P.A. and C.C.C.....	655,987	16,637,072	1,286.5	.....	217.9
Other kind or combination.....	43,523	695,000	56.0	.....	.....

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	3,087,063	¹ 800,041	25.9
Capital invested.....dollars..	49,050,414	18,575,018	37.9
Drainage works:			
Open ditches.....miles....	5,191.5	1,406.2	27.1
Tile drains.....miles....	170.3	1.2	0.7
Levees.....miles....	687.1	267.4	38.9

¹The land actually dependent upon outside agencies for protection is 773,339 acres, which is 96.7 percent of all land in these protected enterprises.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Adair	Andrew	Atchison	Bollinger ¹	Buchanan ¹	Butler	Caldwell	
LAND AREA									
1	Approximate land area.....acres....1940..	44,332,800	367,360	275,200	351,360	397,440	263,040	456,240	275,200
2	Drainage enterprises.....number...1940..	² 338	4	10	7	1	2	6	3
3	Land in enterprises.....acres....1940..	3,067,063	12,043	19,030	86,731	27,339	10,586	229,701	3,931
4	.....1930..	3,150,022	11,265	24,311	80,034	27,340	10,715	232,406	(³)
5	.....1920..	2,596,204	8,800	(³)	46,982	33,765	(³)	232,800	(³)
6	Area of all enterprises, overlapping included.....acres....1940..	4,434,979	12,043	19,270	101,681	27,339	10,586	231,661	4,046
7	Amount of overlapping.....acres....1940..	1,347,916	.....	240	14,960	.....	.....	2,160	115
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	2,847,792	11,827	16,849	86,731	27,339	10,586	165,853	3,931
9	.....1930..	2,530,697	4,600	18,183	74,628	23,296	10,715	193,000	(³)
10	Increase or decrease (-), 1930-1940.....acres.....	317,095	7,227	-1,334	12,103	4,043	-129	-27,147	.....
11	.....percent.....	12.5	157.1	-7.3	16.2	17.4	-1.2	-14.1	.....
12	Land undrained, unfit for any crop.....acres....1940..	105,858	216	200	.....	.....	.....	.....	.....
13	.....1930..	253,251	400	2,600	5,300	.....	.....	11,261	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-147,393	-184	-2,400	-5,300	.....	.....	-11,261	.....
15	.....percent.....	-58.2	-46.0	-92.3	-100.0	.....	.....	-100.0	.....
16	Land partly drained, for partial crop.....acres....1940..	133,413	.....	1,981	.....	.....	.....	63,848	.....
17	.....1930..	366,074	6,265	3,528	106	4,044	.....	28,145	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-232,661	-6,265	-1,547	-106	-4,044	.....	35,703	.....
19	.....percent.....	-63.6	-100.0	-43.8	-100.0	-100.0	.....	126.8	.....
20	Improved land.....acres....1940..	2,522,011	8,890	16,828	86,731	14,234	10,186	165,853	3,907
21	.....1930..	2,309,267	10,233	22,662	74,109	12,546	10,715	112,070	(³)
22	.....1920..	1,474,302	7,200	(³)	43,364	1,712	(³)	63,800	(³)
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	478,245	1,662	1,888	.....	13,105	400	63,848	24
24	.....1930..	565,068	545	1,435	.....	10,750	.....	106,250	.....
25	.....1920..	1,074,860	1,000	(³)	98	32,053	(³)	169,000	(³)
26	Other unimproved land.....acres....1940..	86,807	1,491	314	.....	.....	.....	.....	.....
27	.....1930..	275,687	487	213	5,925	4,044	.....	14,086	.....
28	.....1920..	47,042	600	(³)	3,520	.....	(³)	.....	(³)
29	Land in occupied farms.....acres....1940..	2,673,169	12,043	16,610	86,731	27,339	10,586	146,200	3,931
30	.....1930..	2,427,599	10,965	23,256	79,409	12,546	10,715	107,220	(³)
31	Increase or decrease (-), 1930-1940.....acres.....	245,570	1,078	-4,646	-7,322	14,793	-129	38,980	.....
32	.....percent.....	10.1	9.8	-20.0	-9.2	117.9	-1.2	36.4	.....
33	Land in planted crops.....acres....1940..	1,872,751	8,765	14,810	73,600	14,234	10,100	61,300	3,867
34	.....1930..	2,067,727	5,900	17,928	72,585	11,666	10,400	91,950	(³)
35	Increase or decrease (-), 1930-1940.....acres.....	-194,976	2,865	-3,118	1,005	2,568	-300	-30,650	.....
36	.....percent.....	-9.4	48.6	-17.4	1.4	22.0	-2.9	-33.3	.....
37	Land idle.....acres....1940..	527,289	3,278	1,334	.....	13,105	486	152	64
38	.....1930..	879,897	5,365	4,399	800	11,635	100	120,925	(³)
39	Increase or decrease (-), 1930-1940.....acres.....	-352,608	-2,087	-3,065	-800	1,469	386	-120,773	.....
40	.....percent.....	-40.1	-38.9	-69.7	-100.0	12.6	386.0	-99.9	.....
41	Land available for settlement.....acres....1940..	24,592	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	379,679	.....	300	.....	14,794	.....	100,315	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-355,087	.....	-300	.....	-14,794	.....	-100,315	.....
44	.....percent.....	-93.5	.....	-100.0	.....	-100.0	.....	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	1,859,589	12,043	14,330	41,731	.....	8,386	28,877	3,467
46	Length of these ditches.....miles.....	3,323.6	19.7	33.8	106.0	.....	16.0	55.4	8.0
47	Part protected by levees of an outside agency.....acres.....	257,542	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	1,037,522	.....	4,700	45,000	27,339	2,200	200,824	.....
49	Length of these ditches.....miles.....	1,504.3	.....	18.0	4.0	43.4	2.0	296.2	.....
50	Length of these levees.....miles.....	573.9	.....	6.0	6.0	16.5	1.0	66.5	.....
51	Part protected by levees of an outside agency.....acres.....	507,261	.....	.....	.....	23,011	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	8,309	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	12.4	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	16.1	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	100,223	.....	.....	.....	.....	.....	.....	464
60	Length of these open ditches.....miles.....	183.4	.....	.....	.....	.....	.....	.....	1.0
61	Length of these tile.....miles.....	105.8	.....	.....	.....	.....	.....	.....	1.5
62	Part protected by levees of an outside agency.....acres.....	8,536	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	9,783	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	31.5	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	5.6	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	9.1	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	71,637	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	148.7	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	46.5	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	88.0	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 286.
³ Included in "Other counties."
⁴ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - MISSOURI

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Callaway	Cape Girardeau	Carroll	Chariton	Clark	Daviess	Dunklin	Franklin ¹	Gentry
LAND AREA										
1	Approximate land area.....acres....1940..	534,400	368,040	444,160	485,760	325,760	360,320	347,520	596,480	312,320
2	Drainage enterprises.....number...1940..	4	2	9	14	6	3	26	1	4
3	Land in enterprises.....acres....1940..	4,678	47,495	93,110	71,642	30,259	38,478	265,193	4,300	27,199
4	.....1930..	(²)	43,495	96,705	74,961	47,119	38,066	250,948	(²)	28,282
5	.....1920..	(²)	37,236	52,224	49,554	25,474	.....	250,483	.....	.....
6	Area of all enterprises, overlapping included.....acres....1940..	4,678	49,573	134,588	86,051	30,259	38,478	396,794	4,300	27,759
7	Amount of overlapping.....acres....1940..	.....	2,078	41,476	14,409	.....	.....	131,601	.....	550
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	4,678	47,495	87,732	71,342	28,759	35,194	225,361	4,300	27,199
9	.....1930..	(²)	22,860	69,700	47,005	37,294	7,000	217,025	(²)	22,699
10	Increase or decrease (-), 1930-1940.....acres.....	.....	24,635	18,032	24,337	-9,535	28,194	8,336	.....	4,500
11	.....percent.....	.....	107.8	25.9	51.8	-22.9	402.8	3.8	.....	19.8
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	1,000	300	1,150	1,142	37,371	.....	.....
13	.....1930..	(²)	.....	5,725	27,900	5,625	3,611	7,954	(²)	1,992
14	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-4,725	-27,600	-4,475	-2,469	29,417	.....	-1,992
15	.....percent.....	.....	.....	-82.5	-98.9	-79.6	-68.4	369.8	.....	-100.0
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	4,378	.....	350	2,142	2,461	.....	.....
17	.....1930..	(²)	20,635	21,280	56	4,200	27,455	25,989	(²)	3,591
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-20,635	-16,902	-56	-3,850	-25,313	-23,508	.....	-3,591
19	.....percent.....	.....	-100.0	-79.4	-100.0	-91.7	-92.2	-90.5	.....	-100.0
20	Improved land.....acres....1940..	4,347	42,523	89,809	54,780	29,283	36,336	165,073	3,600	26,475
21	.....1930..	(²)	16,610	80,100	45,446	43,394	33,356	172,383	(²)	20,720
22	.....1920..	(²)	23,477	45,038	41,170	21,344	.....	150,143	.....	.....
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	.....	4,972	3,231	13,826	1,426	1,000	79,708	700	724
24	.....1930..	.....	6,370	5,000	6,171	2,300	1,900	60,190	(²)	5,567
25	.....1920..	(²)	13,759	2,184	8,130	1,890	.....	100,340	.....	.....
26	Other unimproved land.....acres....1940..	331	.....	70	3,036	560	1,142	20,412	.....	.....
27	.....1930..	(²)	20,515	11,605	23,344	1,425	2,800	18,375	.....	1,995
28	.....1920..	(²)	.....	5,092	254	2,240	.....	.....	.....	.....
29	Land in occupied farms.....acres....1940..	4,678	47,495	93,110	71,642	27,437	37,194	227,826	4,300	27,199
30	.....1930..	(²)	16,610	90,100	50,478	42,219	35,900	172,942	(²)	27,782
31	Increase or decrease (-), 1930-1940.....acres.....	.....	30,885	3,010	21,164	-14,782	1,294	54,884	.....	-583
32	.....percent.....	.....	185.9	3.4	41.9	-35.0	3.6	31.7	.....	-2.1
33	Land in planted crops.....acres....1940..	4,178	26,749	71,800	49,259	24,127	29,283	156,599	3,600	24,051
34	.....1930..	(²)	14,200	77,600	33,656	37,775	24,500	168,407	(²)	18,620
35	Increase or decrease (-), 1930-1940.....acres.....	.....	12,549	-5,800	15,403	-13,648	4,783	-11,808	.....	5,431
36	.....percent.....	.....	88.4	-7.5	45.5	-36.1	19.5	-7.0	.....	29.2
37	Land idle.....acres....1940..	500	4,972	3,511	20,653	3,979	1,000	105,214	.....	1,040
38	.....1930..	.....	8,780	17,075	32,810	9,225	13,223	75,186	(²)	1,695
39	Increase or decrease (-), 1930-1940.....acres.....	.....	-3,808	-13,564	-12,157	-5,246	-12,223	30,028	.....	-645
40	.....percent.....	.....	-43.4	-79.4	-37.0	-56.9	-92.4	39.9	.....	-38.3
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	26,885	5,725	21,845	3,000	.....	50,955	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	-26,885	-5,725	-21,845	-3,000	.....	-50,955	.....	.....
44	.....percent.....	.....	-100.0	-100.0	-100.0	-100.0	.....	-100.0	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	.....	2,078	52,940	50,797	12,553	38,478	201,962	.....	27,199
46	Length of these ditches.....miles.....	.....	3.5	77.0	71.0	27.9	68.7	289.3	.....	52.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	6,253	.....	.....	.....	43,404	.....	.....
48	Land drained by open ditches and own levees.....acres.....	3,795	45,417	35,170	20,845	7,146	.....	63,231	4,300	.....
49	Length of these ditches.....miles.....	9.4	70.9	24.9	28.0	8.0	.....	168.9	4.0	.....
50	Length of these levees.....miles.....	15.5	28.3	6.0	34.4	8.0	.....	87.8	18.0	.....
51	Part protected by levees of an outside agency.....acres.....	.....	33,839	.....	5,000	.....	.....	24,860	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	2,200	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	3.0	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	1.0	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	2,800	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	8.0	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	2.0	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	883	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	1.5	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	0.1	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	0.1	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	.....	.....	.....	.....	10,560	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	50.0	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

² Included in "Other counties."

³ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - MISSOURI

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Grundy	Harrison	Holt	Howard	Johnson	Knox	Lafayette	Lewis	
LAND AREA									
1	Approximate land area.....acres....1940..	278,400	460,800	291,840	300,180	528,640	327,680	405,760	323,200
2	Drainage enterprises.....number....1940..	12	3	9	5	3	5	3	6
3	Land in enterprises.....acres....1940..	58,190	22,057	53,899	9,109	32,065	7,415	7,039	19,816
4	.....1930..	42,324	22,423	47,306	9,500	41,211	11,497	7,022	19,650
5	.....1920..	(¹)	.....	41,708	(¹)	34,657	6,811	12,079	16,125
6	Area of all enterprises, overlapping included.....acres....1940..	58,690	22,557	63,899	15,346	32,265	7,575	7,039	19,816
7	Amount of overlapping.....acres....1940..	500	500	.....	6,239	200	.....	.....	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	58,190	17,174	63,899	9,009	32,065	7,415	7,039	17,464
9	.....1930..	33,842	8,700	35,169	8,295	30,953	11,337	6,622	7,981
10	Increase or decrease (-), 1930-1940.....acres.....	24,348	8,474	28,730	714	1,112	-3,922	417	9,483
11	.....percent.....	71.9	97.4	81.7	8.6	3.6	-34.6	6.3	118.8
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	.....	50	.....	.....	.....	1,600
13	.....1930..	5,296	5,200	9,944	1,205	6,000	.....	400	4,800
14	Increase or decrease (-), 1930-1940.....acres.....	-5,296	-5,200	-9,944	-1,155	-6,000	.....	-400	-3,200
15	.....percent.....	-100.0	-100.0	-100.0	-95.8	-100.0	.....	-100.0	-66.7
16	Land partly drained, for partial crop.....acres....1940..	.....	4,883	.....	50	.....	.....	.....	752
17	.....1930..	3,186	8,523	2,193	.....	4,258	160	.....	6,869
18	Increase or decrease (-), 1930-1940.....acres.....	-3,186	-3,640	-2,193	50	-4,258	-160	.....	-6,117
19	.....percent.....	-100.0	-42.7	-100.0	.....	-100.0	-100.0	.....	-89.0
20	Improved land.....acres....1940..	53,822	17,174	55,792	7,865	28,715	6,494	6,899	19,131
21	.....1930..	35,806	17,223	41,933	8,650	30,258	10,640	6,482	15,944
22	.....1920..	(¹)	.....	40,259	(¹)	28,235	3,481	10,871	14,040
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	3,768	1,953	6,774	1,194	3,350	921	140	285
24	.....1930..	3,755	2,000	130	75	9,053	857	540	1,106
25	.....1920..	(¹)	.....	744	(¹)	6,422	2,467	1,208	1,747
26	Other unimproved land.....acres....1940..	600	2,930	1,333	50	.....	.....	.....	400
27	.....1930..	2,763	3,200	5,243	775	1,900	.....	.....	2,600
28	.....1920..	(¹)	.....	705	(¹)	.....	863	.....	338
29	Land in occupied farms.....acres....1940..	58,006	22,057	62,300	9,109	32,065	7,415	7,039	19,416
30	.....1930..	42,324	22,100	47,159	9,500	32,958	11,497	7,022	17,150
31	Increase or decrease (-), 1930-1940.....acres.....	15,682	-43	15,141	-391	-893	-4,082	17	2,266
32	.....percent.....	37.0	-0.2	32.1	-4.1	-2.7	-35.5	0.2	13.2
33	Land in planted crops.....acres....1940..	42,252	16,860	53,713	7,662	28,715	4,782	6,729	14,830
34	.....1930..	29,087	10,790	41,079	8,050	21,025	8,600	4,530	9,550
35	Increase or decrease (-), 1930-1940.....acres.....	13,165	6,070	12,634	-388	7,690	-3,818	2,199	5,280
36	.....percent.....	45.3	56.2	30.8	-4.8	36.6	-44.4	48.5	55.3
37	Land idle.....acres....1940..	3,543	5,197	10,107	1,397	.....	2,173	310	4,303
38	.....1930..	5,200	3,306	5,673	1,200	10,786	2,291	310	8,019
39	Increase or decrease (-), 1930-1940.....acres.....	-1,657	1,891	4,434	197	-10,786	-118	.....	-3,716
40	.....percent.....	-31.9	57.2	78.2	16.4	-100.0	-5.2	.....	-46.3
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	3,053	.....	.....	200
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	-3,053	.....	.....	-200
44	.....percent.....	.....	.....	.....	.....	-100.0	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	58,190	22,057	57,745	.....	32,065	7,415	7,039	7,671
46	Length of these ditches.....miles.....	80.5	19.6	75.1	.....	50.0	17.4	22.4	18.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	6,154	9,109	.....	.....	.....	2,191
49	Length of these ditches.....miles.....	.....	.....	9.2	13.0	.....	.....	.....	5.0
50	Length of these levees.....miles.....	.....	.....	0.5	27.2	.....	.....	.....	4.0
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	4,012	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ².....acres.....	.....	.....	.....	.....	.....	.....	.....	9,954
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	20.2
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	2.0
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	15.0
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - MISSOURI

COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Lincoln	Linn	Livingston	Macon	Marion	Mercer	Mississippi	New Madrid	Nodaway
LAND AREA										
1	Approximate land area.....acres.....1940..	402,560	399,360	341,120	520,960	281,600	291,840	263,040	434,560	561,280
2	Drainage enterprises.....number.....1940..	7	3	7	3	3	6	17	20	12
3	Land in enterprises.....acres.....1940..	26,348	17,740	89,442	27,930	25,173	17,255	219,444	386,191	32,347
4	.....1930..	25,578	18,665	93,083	(¹)	22,953	14,631	235,300	380,722	40,830
5	.....1920..	16,800	(¹)	48,207	17,244	23,794	.....	204,845	371,287	16,208
6	Area of all enterprises, overlapping included.....acres.....1940..	26,348	17,740	93,202	27,930	25,173	17,535	378,487	813,610	32,347
7	Amount of overlapping.....acres.....1940..	.....	.....	3,760	.....	.....	280	159,043	427,419	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	23,948	14,140	71,942	27,930	22,614	11,697	207,278	350,570	31,928
9	.....1930..	23,208	9,360	8,199	(¹)	19,000	8,785	184,691	354,313	34,429
10	Increase or decrease (-), 1930-1940.....acres.....	740	4,780	63,743	.....	3,614	2,912	22,587	-3,743	-2,501
11	.....percent.....	3.2	51.1	777.4	.....	19.0	33.1	12.2	-1.0	-7.3
12	Land undrained, unfit for any crop.....acres.....1940..	200	3,600	17,500	.....	2,559	1,994	12,166	4,234	.....
13	.....1930..	2,370	7,000	67,860	(¹)	2,000	4,000	7,603	6,002	3,746
14	Increase or decrease (-), 1930-1940.....acres.....	-2,170	-3,400	-50,360	.....	559	-2,006	4,563	-1,768	-3,746
15	.....percent.....	-91.6	-48.6	-74.2	.....	28.0	-50.2	60.0	-29.4	-100.0
16	Land partly drained, for partial crop.....acres.....1940..	2,200	.....	.....	.....	.....	3,564	.....	31,387	419
17	.....1930..	.....	2,305	17,024	(¹)	1,953	1,846	43,006	20,407	2,635
18	Increase or decrease (-), 1930-1940.....acres.....	2,200	-2,305	-17,024	.....	-1,953	1,718	-43,006	10,980	-2,236
19	.....percent.....	.....	-100.0	-100.0	.....	-100.0	93.1	-100.0	53.8	-64.2
20	Improved land.....acres.....1940..	22,773	12,768	65,409	23,061	22,194	14,889	181,780	317,624	29,414
21	.....1930..	21,758	7,270	11,887	(¹)	21,255	9,085	172,455	269,866	38,248
22	.....1920..	16,050	(¹)	39,165	8,622	20,084	.....	130,575	190,039	14,624
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	2,563	1,372	4,689	1,848	479	838	35,978	68,301	1,954
24	.....1930..	2,700	2,345	3,000	(¹)	580	1,300	56,445	109,856	1,648
25	.....1920..	750	(¹)	9,042	1,724	2,052	.....	73,314	181,248	1,584
26	Other unimproved land.....acres.....1940..	1,012	3,600	19,344	3,021	2,500	1,528	1,686	66	979
27	.....1930..	1,120	9,050	78,196	(¹)	1,118	4,246	6,400	1,000	934
28	.....1920..	.....	(¹)	.....	6,898	1,658	.....	956	.....	.....
29	Land in occupied farms.....acres.....1940..	25,148	17,740	72,442	27,930	23,173	17,255	175,198	275,000	32,347
30	.....1930..	21,918	17,360	17,283	(¹)	21,953	14,631	172,002	265,694	40,772
31	Increase or decrease (-), 1930-1940.....acres.....	3,230	380	55,159	.....	1,220	2,624	3,196	9,306	-8,425
32	.....percent.....	14.7	2.2	319.2	.....	5.6	17.9	1.8	3.5	-20.7
33	Land in planted crops.....acres.....1940..	12,900	12,425	47,786	22,500	20,266	14,249	126,871	206,000	27,903
34	.....1930..	9,450	7,270	11,887	(¹)	19,250	6,400	164,533	265,077	36,198
35	Increase or decrease (-), 1930-1940.....acres.....	3,450	5,155	35,899	.....	1,018	7,849	-37,662	-59,077	-8,285
36	.....percent.....	36.5	70.9	302.0	.....	5.3	122.6	-22.9	-22.3	-22.9
37	Land idle.....acres.....1940..	2,488	4,502	24,639	5,430	1,500	2,768	44,544	76,306	1,071
38	.....1930..	13,528	11,090	75,024	(¹)	2,703	2,146	68,831	104,981	3,424
39	Increase or decrease (-), 1930-1940.....acres.....	-11,040	-6,588	-50,385	.....	-1,203	622	-24,287	-28,675	-2,353
40	.....percent.....	-81.6	-59.4	-67.2	.....	-44.5	29.0	-35.3	-27.3	-68.7
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	23,793	.....
42	.....1930..	2,000	.....	1,000	.....	.....	.....	.....	41,029	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-2,000	.....	-1,000	.....	.....	.....	.....	-17,236	.....
44	.....percent.....	-100.0	.....	-100.0	.....	.....	.....	.....	-42.0	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	3,088	17,740	88,978	27,930	.....	17,255	75,825	194,971	32,347
46	Length of these ditches.....miles.....	2.8	23.1	87.8	32.0	.....	31.5	130.0	470.4	98.3
47	* Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	6,400	.....	.....	.....	.....	.....	58,960	191,220	.....
49	Length of these ditches.....miles.....	31.0	.....	.....	.....	.....	.....	6.5	186.5	.....
50	Length of these levees.....miles.....	13.0	.....	.....	.....	.....	.....	33.0	85.0	.....
51	Part protected by levees of an outside agency.....acres.....	3,200	.....	.....	.....	.....	.....	58,960	117,620	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	464	.....	.....	.....	84,659	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	1.0	.....	.....	.....	155.8	.....	.....
61	Length of these tile.....miles.....	.....	.....	1.5	.....	.....	.....	99.5	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	3,400	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	5.0	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	5.0	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	8.0	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ².....acres.....	13,460	.....	.....	.....	25,173	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	12.5	.....	.....	.....	50.0	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	3.5	.....	.....	.....	26.0	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	15.0	.....	.....	.....	35.0	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — MISSOURI

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COUNTY TABLE I—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Pemiscot	Perry ¹	Platte ¹	Ray	Ripley	St. Charles	Saline	
LAND AREA								
1	Approximate land area.....acres.....1940..	312,320	304,640	264,950	367,360	408,960	359,040	485,750
2	Drainage enterprises.....number.....1940..	13	1	1	4	3	5	7
3	Land in enterprises.....acres.....1940..	268,635	18,480	5,213	15,483	24,233	21,082	27,498
4	.....1930..	270,682	25,000	6,600	14,162	30,755	26,458	33,372
5	.....1920..	270,118	25,000	4,914	7,448	29,576	18,275	7,184
6	Area of all enterprises, overlapping included.....acres.....1940..	603,324	18,480	6,213	15,483	30,786	21,082	27,498
7	Amount of overlapping.....acres.....1940..	334,689	.....	.....	.....	6,553	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	257,335	17,688	6,213	15,483	16,959	18,272	20,498
9	.....1930..	263,233	20,000	6,500	9,212	27,422	24,358	22,204
10	Increase or decrease (-), 1930-1940.....acres.....	4,102	-2,312	-387	6,271	-10,463	-6,086	-1,706
11	.....percent.....	1.6	-11.6	-5.9	68.1	-38.2	-25.0	-7.7
12	Land undrained, unfit for any crop.....acres.....1940..	1,300	396	.....	.....	.....	2,010	5,000
13	.....1930..	.....	5,000	.....	600	900	2,100	2,321
14	Increase or decrease (-), 1930-1940.....acres.....	1,300	-4,604	.....	-600	-900	-90	2,679
15	.....percent.....	.....	-92.1	.....	-100.0	-100.0	-4.3	115.4
16	Land partly drained, for partial crop.....acres.....1940..	.....	396	.....	.....	7,274	800	2,000
17	.....1930..	7,449	.....	.....	4,350	2,434	.....	8,847
18	Increase or decrease (-), 1930-1940.....acres.....	-7,449	396	.....	-4,350	4,840	800	-6,847
19	.....percent.....	-100.0	.....	.....	-100.0	198.8	.....	-77.4
20	Improved land.....acres.....1940..	242,773	17,688	6,213	14,983	16,959	18,362	18,120
21	.....1930..	223,713	20,000	6,000	13,582	15,500	24,153	28,139
22	.....1920..	81,641	22,000	4,914	6,897	17,745	17,070	6,713
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	25,357	395	.....	500	7,274	1,710	5,983
24	.....1930..	45,139	3,000	600	80	13,500	205	1,140
25	.....1920..	188,477	3,000	.....	.....	11,631	1,138	471
26	Other unimproved land.....acres.....1940..	505	396	.....	.....	.....	1,010	3,395
27	.....1930..	1,830	2,000	.....	500	1,756	2,100	4,093
28	.....1920..	.....	.....	.....	551	.....	67	.....
29	Land in occupied farms.....acres.....1940..	251,000	18,480	6,213	15,483	24,233	21,082	27,198
30	.....1930..	223,963	25,000	6,000	13,652	15,500	25,758	31,389
31	Increase or decrease (-), 1930-1940.....acres.....	27,037	-6,520	213	1,821	8,733	-4,676	-4,191
32	.....percent.....	12.1	-25.1	3.6	13.3	56.3	-18.2	-13.4
33	Land in planted crops.....acres.....1940..	181,500	10,560	5,800	14,733	16,959	16,090	17,920
34	.....1930..	217,622	20,000	6,000	12,382	13,500	19,350	23,338
35	Increase or decrease (-), 1930-1940.....acres.....	-36,122	-9,440	-200	2,371	3,459	-3,260	-5,419
36	.....percent.....	-16.6	-47.2	-3.3	19.0	25.6	-16.8	-23.2
37	Land idle.....acres.....1940..	20,631	7,920	.....	750	.....	4,680	9,578
38	.....1930..	48,381	3,000	600	1,100	16,000	6,805	8,950
39	Increase or decrease (-), 1930-1940.....acres.....	-27,750	4,920	-600	-350	-16,000	-2,125	628
40	.....percent.....	-57.4	164.0	-100.0	-31.8	-100.0	-31.2	7.0
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	41,139	.....	.....	.....	7,922	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-41,139	.....	.....	.....	-7,922	.....	.....
44	.....percent.....	-100.0	.....	.....	.....	-100.0	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	191,146	18,480	6,213	.....	24,233	14,640	16,590
46	Length of these ditches.....miles.....	421.4	40.0	4.0	.....	28.0	13.9	35.0
47	Part protected by levees of an outside agency.....acres.....	184,775	18,480	.....	.....	.....	4,630	.....
48	Land drained by open ditches and own levees.....acres.....	77,489	.....	.....	5,922	.....	3,142	10,908
49	Length of these ditches.....miles.....	179.2	.....	.....	13.0	.....	8.0	21.5
50	Length of these levees.....miles.....	15.0	.....	.....	2.2	.....	4.0	17.5
51	Part protected by levees of an outside agency.....acres.....	71,866	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	4,061	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	9.0	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	9.0	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	3,300	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	1.6	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	0.1	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	5,500	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	25.0	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	0.5	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	1.0	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

CENSUS OF DRAINAGE — MISSOURI

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Schuyler	Scotland	Scott	Shelby	Stoddard	Worth	Other counties ¹
LAND AREA							
1 Approximate land area.....acres....1940..	195,840	282,240	267,520	321,280	535,680	170,880	5,610,880
2 Drainage enterprises.....number...1940..	3	9	11	3	29	3	20
3 Land in enterprises.....acres....1940..	6,800	21,396	159,359	9,632	335,154	11,682	128,241
4 1930..	6,003	89,027	111,028	13,800	341,524	(²)	183,268
5 1920..	(²)	15,110	154,335	9,697	375,037	7,013	125,414
6 Area of all enterprises, overlapping included.....acres....1940..	6,800	21,516	293,431	9,632	398,736	11,682	131,441
7 Amount of overlapping.....acres....1940..	.....	120	134,072	.....	63,582	.....	3,200
CONDITION AND USE OF LAND							
8 Land with drainage sufficient for normal crop.....acres....1940..	5,910	18,309	149,447	9,632	335,154	11,682	125,732
9 1930..	5,303	86,827	72,950	5,900	332,794	(²)	121,005
10 Increase or decrease (-), 1930-1940.....acres.....	607	-68,518	76,497	3,732	2,360	.....	4,727
11 percent.....	11.4	-78.9	104.9	63.2	0.7	.....	3.9
12 Land undrained, unfit for any crop.....acres....1940..	100	317	9,444	.....	.....	.....	2,009
13 1930..	500	40	9,500	.....	.....	(²)	23,496
14 Increase or decrease (-), 1930-1940.....acres.....	-400	277	-56	-3,000	.....	.....	-21,487
15 percent.....	-80.0	692.5	-0.6	-100.0	.....	.....	-91.4
16 Land partly drained, for partial crop.....acres....1940..	790	2,770	468	.....	.....	.....	500
17 1930..	200	2,160	28,578	4,900	8,730	(²)	38,767
18 Increase or decrease (-), 1930-1940.....acres.....	590	610	-28,110	-4,900	-8,730	.....	-38,267
19 percent.....	295.0	28.2	-98.4	-100.0	-100.0	.....	-88.7
20 Improved land.....acres....1940..	5,710	18,348	134,285	9,632	257,180	9,347	108,552
21 1930..	5,003	86,927	90,605	10,650	286,938	(²)	124,943
22 1920..	(²)	6,867	116,441	7,453	194,315	3,156	75,797
Unimproved land:							
23 Woodland and cut-over land.....acres....1940..	680	1,112	16,957	.....	77,974	1,076	16,295
24 1930..	800	910	7,878	1,350	54,585	(²)	34,011
25 1920..	(²)	3,445	37,894	2,244	180,722	351	34,531
26 Other unimproved land.....acres....1940..	400	1,936	8,117	.....	.....	1,259	3,394
27 1930..	200	1,190	12,545	1,800	.....	(²)	24,314
28 1920..	(²)	4,798	.....	.....	.....	3,506	15,086
29 Land in occupied farms.....acres....1940..	6,500	20,642	132,300	9,632	271,500	11,682	127,163
30 1930..	5,503	88,427	98,420	13,800	297,914	(²)	140,798
31 Increase or decrease (-), 1930-1940.....acres.....	1,097	-67,785	33,880	-4,168	-26,414	.....	-13,635
32 percent.....	19.9	-76.6	34.4	-30.2	-8.9	.....	-9.7
33 Land in planted crops.....acres....1940..	3,860	17,597	86,000	8,856	142,900	8,383	98,826
34 1930..	2,300	59,970	77,580	7,450	264,857	(²)	105,204
35 Increase or decrease (-), 1930-1940.....acres.....	1,560	-42,373	8,420	1,406	-121,957	.....	-6,378
36 percent.....	67.8	-70.6	10.8	18.9	-46.0	.....	-6.1
37 Land idle.....acres....1940..	2,050	2,199	30,659	557	77,974	2,415	18,310
38 1930..	2,463	27,263	18,313	5,300	54,645	(²)	67,356
39 Increase or decrease (-), 1930-1940.....acres.....	-413	-25,064	12,346	-4,743	23,329	.....	-49,046
40 percent.....	-16.8	-91.9	67.4	-89.5	42.7	.....	-72.8
41 Land available for settlement.....acres....1940..	.....	600	.....	.....	.....	.....	199
42 1930..	.....	600	12,080	.....	43,610	.....	3,227
43 Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-12,080	.....	-43,610	.....	-3,028
44 percent.....	.....	.....	-100.0	.....	-100.0	.....	-93.8
LAND CLASSIFIED BY WORKS, 1940							
45 Land drained by open ditches only.....acres.....	4,200	21,396	112,105	9,632	182,411	11,682	101,704
46 Length of these ditches.....miles.....	12.2	96.9	153.2	17.1	326.4	27.5	159.9
47 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48 Land drained by open ditches and own levees.....acres.....	.....	.....	38,718	.....	152,743	.....	14,599
49 Length of these ditches.....miles.....	.....	.....	63.0	.....	267.2	.....	23.5
50 Length of these levees.....miles.....	.....	.....	13.3	.....	54.2	.....	11.0
51 Part protected by levees of an outside agency.....acres.....	.....	.....	38,718	.....	126,175	.....	.....
52 Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55 Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	2,048
56 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	0.4
57 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	6.1
58 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59 Land drained by open ditches and tile.....acres.....	.....	.....	8,536	.....	.....	.....	.....
60 Length of these open ditches.....miles.....	.....	.....	16.0	.....	.....	.....	.....
61 Length of these tile.....miles.....	.....	.....	1.2	.....	.....	.....	.....
62 Part protected by levees of an outside agency.....acres.....	.....	.....	8,536	.....	.....	.....	.....
63 Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64 Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65 Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66 Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68 Land in enterprises operating pumping plants ³.....acres.....	2,600	.....	.....	.....	.....	.....	9,890
69 Length of open ditches owned by these enterprises.....miles.....	4.0	.....	.....	.....	.....	.....	12.0
70 Length of tile owned by these enterprises.....miles.....	15.0	.....	.....	.....	.....	.....	.....
71 Length of levees owned by these enterprises.....miles.....	3.0	.....	.....	.....	.....	.....	20.0
72 Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹ Includes Bates, Boone, Cass, Clay, Cole, Henry, Jackson, Moniteau, Osage, Pettis, Pike, Putnam, St. Louis, Sullivan, and Wayne Counties in 1940; Bates, Boone, Caldwell, Callaway, Cass, Clay, Cole, Franklin, Henry, Jackson, Macon, Moniteau, Osage, Pettis, Pike, Putnam, St. Louis, Sullivan, Wayne, and Worth Counties in 1930; and Andrew, Bates, Buchanan, Caldwell, Callaway, Cass, Clay, Grundy, Henry, Howard, Jackson, Linn, Osage, Pike, Putnam, St. Louis, Schuyler, and Wayne Counties in 1920.
² Included in "Other counties."
³ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — MISSOURI

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Adair	Andrew	Atchison	Bollinger ¹	Buchanan ¹	Dutler	Caldwell
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	2 338	4	10	7	1	2	6	3
2 Open ditches:								
3 Completed.....miles.....1940..	5,191.5	19.7	51.8	110.0	43.4	18.0	351.6	9.0
4 1930..	4,960.5	17.5	68.6	111.3	41.0	19.2	260.0	(²)
5 1920..	3,438.7	12.3	(³)	103.8	9.4	(³)	177.4	(³)
6 Additional length authorized.....miles.....1940..	23.8		1.1					
7 Tile drains:								
8 Completed.....miles.....1940..	170.3							1.5
9 1930..	123.4	4.0	(³)	10.0		(³)		(³)
10 1920..	38.8					(³)		(³)
11 Additional length authorized.....miles.....1940..								
12 Levees and dikes:								
13 Completed.....miles.....1940..	687.1		6.0	6.0	16.5	1.0	66.5	
14 1930..	931.4			30.5	18.0		57.0	
15 1920..	456.9		(³)	8.2	11.6	(³)	49.9	(³)
16 Additional length authorized.....miles.....1940..	2.0							
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	2,115							
19 1930..	2,533							
20 1920..	2,785			125				
21 Pump capacity.....gal. per min. 1940..	4 502,000							
22 1930..	607,430							
23 1920..	552,000			30,000				
24 Land served by pumps.....acres.....1940..	64,527							
25 1930..	71,604							
26 1920..	70,308			3,000				
27 Wells pumped for drainage.....number.....1940..	1							
28 1930..								
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	49,050,414	112,500	354,246	566,175	590,070	285,163	1,960,341	31,189
30 1930..	47,340,174	135,059	509,800	858,741	257,873	214,000	2,741,660	(³)
31 1920..	20,723,128	53,328	(³)	386,748	5,000	(³)	1,264,672	(³)
32 Estimated cost when completed.....dollars.....1940..	49,106,914	112,500	360,746	566,175	590,070	285,163	1,960,341	31,189
33 1930..	47,902,514	135,059	509,800	958,741	257,873	224,240	2,741,660	(³)
34 1920..	24,749,735	70,328	(³)	512,988	5,000	(³)	2,264,672	(³)
35 Average cost per acre when completed.....dollars.....1940..	15.91	9.34	18.96	6.53	21.58	26.94	8.53	7.93
36 1930..	15.21	11.99	20.97	11.98	9.43	20.93	11.80	(³)
37 1920..	9.53	7.99	(³)	10.92	0.15	(³)	9.73	(³)
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	25,763,005	112,500	255,746	488,500		273,163	141,341	25,189
40 Average amount per acre.....dollars..	13.85	9.34	17.85	11.70		32.57	4.89	7.26
41 Enterprises having open ditches and levees.....dollars..	19,857,603	105,000	77,675	77,675	590,070	12,000	1,819,000	
42 Average amount per acre.....dollars..	19.15	22.34	1.73	21.58	5.45	9.06		
43 Enterprises having tile only.....dollars..	127,000							
44 Average amount per acre.....dollars..	15.28							
45 Enterprises having tile and levees.....dollars..	868,607							
46 Average amount per acre.....dollars..	8.67							
47 Enterprises having open ditches and tile.....dollars..	189,699							
48 Average amount per acre.....dollars..	19.39							
49 Enterprises having ditches, tile, and levees.....dollars..	2,301,000							
50 Average amount per acre.....dollars..	32.12							
MAINTENANCE AND OPERATION								
51 Cost of maintenance and operation in 1939:								
52 By enterprises operating pumping plants.....dollars..	29,131							
53 Enterprises reporting.....number..	11							
54 Land in these enterprises.....acres..	71,637							
55 Average cost per acre.....dollars..	0.41							
56 By enterprises not operating pumping plants.....dollars..	400,609	(⁶)	4,117	6,032	6,561	2,483	14,525	(⁶)
57 Enterprises reporting.....number..	165	1	6	5	1	2	6	1
58 Land in these enterprises.....acres..	2,069,843	(⁶)	8,920	68,471	27,339	10,586	229,701	(⁶)
59 Average cost per acre.....dollars..	0.19	(⁶)	0.46	0.09	0.24	0.23	0.06	(⁶)
60 Federal aid in maintenance:								
61 Enterprises reporting.....number..	92		1	4	1		1	
62 Land in these enterprises.....acres..	1,548,099		(⁶)	75,135	27,339		(⁶)	
FINANCIAL CONDITION								
63 Drainage taxes collected in 1939.....dollars..	1,290,413	(⁶)	16,382	35,175	21,586	14,229	40,607	
64 Enterprises reporting.....number..	179	2	7	5	1	2	6	
65 Land in these enterprises.....acres..	2,230,253	(⁶)	12,883	68,471	27,339	10,586	229,701	
66 Average amount collected per acre.....dollars..	0.58	(⁶)	1.27	0.51	0.79	1.34	0.18	
67 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	7 435,261		1,344	1,200		1,635	(⁶)	
68 Enterprises reporting.....number..	129		5	3		2	2	
69 Land in these enterprises.....acres..	7 1,773,470		11,340	20,802		10,586	(⁶)	
70 Portion delinquent in these enterprises.....percent..	24.5		11.8	5.8		15.4	(⁶)	
71 Total indebtedness, Dec. 31, 1939.....dollars..	8,174,365	20,327	168,246	162,500	100,352	60,220	(⁶)	(⁶)
72 Enterprises reporting.....number..	169	3	7	4	1	2	1	1
73 Land in these enterprises.....acres..	1,892,734	5,143	14,393	23,471	27,339	10,586	(⁶)	(⁶)
74 Average indebtedness per acre.....dollars..	4.32	3.95	11.69	6.92	3.67	5.69	(⁶)	(⁶)
75 Indebtedness in arrears, Dec. 31, 1939.....dollars..	1,927,224		7,300	(⁶)			(⁶)	(⁶)
76 Enterprises reporting.....number..	61		3	1			1	1
77 Land in these enterprises.....acres..	598,352		5,677	(⁶)			(⁶)	(⁶)
78 Average arrearage per acre.....dollars..	3.22		1.28	(⁶)			(⁶)	(⁶)
79 Reduction of debt by refinancing, prior to 1940.....dollars..	8,653,382	(⁶)	30,734	(⁶)	258,175	14,767		
80 Enterprises reporting.....number..	62	2	5	1	1	1		
81 Land in these enterprises.....acres..	1,014,414	(⁶)	13,416	(⁶)	27,339	8,386		
82 Average reduction per acre.....dollars..	8.53	(⁶)	2.29	(⁶)	9.44	1.76		

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 286. ³Included in "Other counties." ⁴One enterprise did not report gallons per minute. ⁵Data in lines 46 and 47 are not included in lines 34 to 45. ⁶Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1. ⁷Includes enterprises with 115,576 acres delinquent, not distributed by counties.

CENSUS OF DRAINAGE - MISSOURI

COUNTY TABLE II--DRAINAGE ENTERPRISES--WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939--Continued

ITEM (See definitions in Introduction)		Callaway	Cape Girardeau ¹	Carroll	Chariton	Clark	Daviess	Dunklin	Franklin ²	Gentry
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	4	2	9	14	6	3	26	1	4
2	Open ditches:									
3	Completed.....miles.....1940..	10.9	74.4	109.9	99.0	85.9	68.7	458.2	4.0	52.5
4	.....1930..	(²)	80.5	125.6	109.7	91.5	43.0	504.1	(²)	55.6
5	.....1920..	(²)	71.9	78.6	53.2	44.7		300.6		
6	Additional length authorized.....miles.....1940..									
7	Tile drains:									
8	Completed.....miles.....1940..	0.1		5.0						
9	.....1930..			3.2		50.5				
10	.....1920..	(²)		6.1		0.6		0.7		
11	Additional length authorized.....miles.....1940..									
12	Levees and dikes:									
13	Completed.....miles.....1940..	15.6	28.3	7.0	34.4	8.0		87.8	18.0	
14	.....1930..	(²)	26.0	19.5	38.1	26.0	3.0	139.2	(²)	
15	.....1920..	(²)	34.6	10.3		19.0		66.0		
16	Additional length authorized.....miles.....1940..									
17	Pumping plants:									
18	Engine capacity.....horsepower.....1940..					225				
19	.....1930..					225				
20	.....1920..					550				
21	Pump capacity.....gal. per min.....1940..					52,000				
22	.....1930..					52,000				
23	.....1920..					100,000				
24	Land served by pumps.....acres.....1940..					5,280				
25	.....1930..					5,100				
26	.....1920..					6,100				
27	Wells pumped for drainage.....number.....1940..									
28	.....1930..									
CAPITAL INVESTED										
29	Capital invested to January 1.....dollars.....1940..	82,686	719,518	839,730	971,873	508,475	782,713	2,986,039	70,000	639,235
30	.....1930..	(²)	668,797	1,044,940	1,119,917	502,110	815,000	2,852,470	(²)	866,998
31	.....1920..	(²)	374,000	328,700	270,420	444,378		1,147,685		
32	Estimated cost when completed.....dollars.....1940..	82,686	719,518	839,730	971,873	508,475	782,713	2,986,039	70,000	639,235
33	.....1930..	(²)	668,797	1,045,940	1,119,917	664,110	815,000	2,852,470	(²)	866,998
34	.....1920..	(²)	374,000	348,700	270,420	444,378		1,147,685		
35	Average cost per acre when completed.....dollars.....1940..	17.68	15.15	9.02	13.56	16.80	20.34	11.26	16.28	23.50
36	.....1930..	(²)	15.38	10.82	14.94	14.09	21.41	11.37	(²)	30.66
37	.....1920..	(²)	10.04	6.68	5.46	17.44		4.58		
38	Invested in and required for completion, 1940:									
39	Enterprises having open ditches only.....dollars.....		14,000	411,514	351,466	171,475	782,713	1,620,451		639,235
40	Average amount per acre.....dollars.....		6.74	7.77	6.92	13.66	20.34	8.02		23.50
41	Enterprises having open ditches and levees.....dollars.....	69,987	705,518	368,216	620,407	125,000		1,365,588	70,000	
42	Average amount per acre.....dollars.....	18.44	15.53	10.47	29.76	17.49		21.60	16.28	
43	Enterprises having tile only.....dollars.....									
44	Average amount per acre.....dollars.....									
45	Enterprises having tile and levees.....dollars.....			20,000						
46	Average amount per acre.....dollars.....			9.09						
47	Enterprises having open ditches and tile.....dollars.....			40,000						
48	Average amount per acre.....dollars.....			14.28						
49	Enterprises having ditches, tile, and levees.....dollars.....	12,699								
50	Average amount per acre.....dollars.....	14.36								
51	Enterprises operating pumping plants ³.....dollars.....					232,000				
52	Average amount per acre.....dollars.....					20.08				
MAINTENANCE AND OPERATION										
53	Cost of maintenance and operation in 1939:									
54	By enterprises operating pumping plants.....dollars.....					(⁴)				
55	Enterprises reporting.....number.....					1				
56	Land in these enterprises.....acres.....					(⁴)				
57	Average cost per acre.....dollars.....					(⁴)				
58	By enterprises not operating pumping plants.....dollars.....	1,250	7,894	4,825	836	(⁴)	(⁴)	72,066	4,759	2,175
59	Enterprises reporting.....number.....	4	2	4	5	2	2	24	1	3
60	Land in these enterprises.....acres.....	4,678	47,495	70,785	47,722	(⁴)	(⁴)	202,638	4,300	25,159
61	Average cost per acre.....dollars.....	0.27	0.17	0.07	0.02	(⁴)	(⁴)	0.36	1.11	0.09
62	Federal aid in maintenance:									
63	Enterprises reporting.....number.....		1	6		2		10		3
64	Land in these enterprises.....acres.....		45,417	49,868		(⁴)		115,818		25,159
FINANCIAL CONDITION										
65	Drainage taxes collected in 1939.....dollars.....	1,429	26,864	28,463	14,913	(⁴)	14,553	117,940	6,307	8,337
66	Enterprises reporting.....number.....	4	2	4	4	2	3	17	1	3
67	Land in these enterprises.....acres.....	4,678	47,495	70,785	13,572	(⁴)	38,478	206,520	4,300	25,159
68	Average amount collected per acre.....dollars.....	0.30	0.56	0.40	1.10	(⁴)	0.38	0.57	1.47	0.33
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....		175	12,294	3,792	(⁴)	13,800	25,712	1,325	4,232
70	Enterprises reporting.....number.....		1	3	4	2	3	14	1	3
71	Land in these enterprises.....acres.....		2,078	66,640	9,902	(⁴)	38,478	143,376	4,300	25,159
72	Portion delinquent in these enterprises.....percent.....		8.4	18.4	38.3	(⁴)	35.9	17.9	30.6	16.8
73	Total indebtedness, Dec. 31, 1939.....dollars.....		134,167	78,382	50,000	173,500	315,500	468,707	36,000	197,500
74	Enterprises reporting.....number.....		2	4	4	4	3	12	1	3
75	Land in these enterprises.....acres.....		47,495	42,885	13,572	20,769	38,478	174,605	4,300	25,159
76	Average indebtedness per acre.....dollars.....		2.82	1.83	3.68	8.36	8.20	2.68	8.37	7.85
77	Indebtedness in arrears, Dec. 31, 1939.....dollars.....		1,000	(⁴)		(⁴)	(⁴)	(⁴)		(⁴)
78	Enterprises reporting.....number.....		1	1		2	1	1		1
79	Land in these enterprises.....acres.....		2,078	(⁴)		(⁴)	(⁴)	(⁴)		(⁴)
80	Average arrearage per acre.....dollars.....		0.48	(⁴)		(⁴)	(⁴)	(⁴)		(⁴)
81	Reduction of debt by refinancing, prior to 1940.....dollars.....		308,687		(⁴)	67,100	(⁴)	919,682		132,191
82	Enterprises reporting.....number.....		1		1	3	2	3		3
83	Land in these enterprises.....acres.....		45,417		(⁴)	20,006	(⁴)	76,198		25,159
84	Average reduction per acre.....dollars.....		6.80		(⁴)	3.35	(⁴)	12.07		5.25

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Data in lines 46 and 47 are not included in lines 34 to 45.

⁴Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE - MISSOURI

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COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Grundy	Harrison	Holt	Howard	Johnson	Knox	Lafayette	Lewis
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	12	3	9	5	3	5	3	6
2 Open ditches:								
3 Completed.....miles.....1940..	80.5	19.6	84.3	13.0	50.0	17.4	22.4	43.6
4 1930..	75.5	22.8	84.3	9.5	78.0	16.5	32.0	47.0
5 1920..	(1)	.....	67.8	(1)	89.8	12.8	23.1	32.7
6 Additional length authorized.....miles.....1940..	.....	.....	3.3	.....	.....	.....	.....	.....
7 Tile drains:								
8 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	2.0
9 1930..	5.0	.....	.....	.....	0.8	.....	.....	2.3
10 1920..	(1)	.....	.....	(1)	.....	.....	.....	1.3
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:								
13 Completed.....miles.....1940..	.....	.....	0.5	27.2	.....	.....	.....	19.0
14 1930..	.....	.....	58.5	16.5	2.2	.....	.....	27.0
15 1920..	(1)	.....	12.7	(1)	3.0	.....	1.2	8.4
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:								
18 Engine capacity.....horsepower....1940..	.....	.....	.....	.....	.....	.....	.....	225
19 1930..	.....	.....	.....	.....	.....	.....	.....	150
20 1920..	.....	.....	.....	.....	.....	.....	.....	(2)
21 Pump capacity.....gal. per min..1940..	.....	.....	.....	.....	.....	.....	.....	40,000
22 1930..	.....	.....	.....	.....	.....	.....	.....	22,000
23 1920..	.....	.....	.....	.....	.....	.....	.....	(2)
24 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	8,524
25 1930..	.....	.....	.....	.....	.....	.....	.....	8,500
26 1920..	.....	.....	.....	.....	.....	.....	.....	6,984
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
28 1930..	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	857,325	451,628	938,079	122,037	289,369	97,957	38,299	539,243
30 1930..	745,270	455,750	676,910	72,000	716,567	93,777	43,500	802,393
31 1920..	(1)	.....	397,850	(1)	323,378	55,082	50,965	396,113
32 Estimated cost when completed.....dollars.....1940..	857,325	451,628	944,079	122,037	289,369	97,957	38,299	539,243
33 1930..	745,270	455,750	676,910	77,000	716,567	93,777	43,500	812,393
34 1920..	(1)	.....	398,850	(1)	351,553	55,082	50,965	396,113
35 Average cost per acre when completed.....dollars.....1940..	14.73	20.48	14.77	13.40	9.02	13.21	5.44	27.21
36 1930..	17.61	20.33	14.31	8.11	17.39	8.16	6.19	41.34
37 1920..	(1)	.....	9.56	(1)	10.14	8.09	4.22	24.57
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	857,325	451,628	844,079	.....	289,369	97,957	38,299	108,243
40 Average amount per acre.....dollars..	14.73	20.48	14.62	.....	9.02	13.21	5.44	14.11
41 Enterprises having open ditches and levees.....dollars..	.....	.....	100,000	122,037	.....	.....	.....	125,000
42 Average amount per acre.....dollars..	.....	.....	16.25	13.40	.....	.....	.....	57.05
43 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
44 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
45 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
48 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
49 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
50 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
51 Enterprises operating pumping plants ³.....dollars..	.....	.....	.....	.....	.....	.....	.....	306,000
52 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	30.74
MAINTENANCE AND OPERATION								
53 Cost of maintenance and operation in 1939:								
54 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	(4)
55 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	2
56 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	(4)
57 Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	(4)
58 By enterprises not operating pumping plants.....dollars..	1,935	(4)	17,908	1,930	.....	.....	(4)	(4)
59 Enterprises reporting.....number.....	6	2	4	3	.....	.....	2	2
60 Land in these enterprises.....acres.....	44,490	(4)	29,134	6,012	.....	.....	(4)	(4)
61 Average cost per acre.....dollars..	0.04	(4)	0.61	0.32	.....	.....	(4)	(4)
62 Federal aid in maintenance:								
63 Enterprises reporting.....number.....	.....	.....	1	3	.....	.....	.....	2
64 Land in these enterprises.....acres.....	.....	.....	(4)	5,000	.....	.....	.....	(4)
FINANCIAL CONDITION								
65 Drainage taxes collected in 1939.....dollars..	28,318	(4)	28,295	5,574	(4)	.....	(4)	(4)
66 Enterprises reporting.....number.....	5	2	5	3	1	.....	2	2
67 Land in these enterprises.....acres.....	42,640	(4)	33,931	6,530	(4)	.....	(4)	(4)
68 Average amount collected per acre.....dollars..	0.66	(4)	0.83	0.85	(4)	.....	(4)	(4)
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres...	4,530	(4)	9,294	(4)	(4)	.....	.....	5,866
70 Enterprises reporting.....number.....	3	1	5	1	1	.....	.....	4
71 Land in these enterprises.....acres.....	19,249	(4)	33,931	(4)	(4)	.....	.....	17,517
72 Portion delinquent in these enterprises.....percent..	23.5	(4)	27.4	(4)	(4)	.....	.....	33.5
73 Total indebtedness, Dec. 31, 1939.....dollars..	194,527	(4)	41,300	(4)	(4)	.....	.....	117,747
74 Enterprises reporting.....number.....	6	2	3	2	1	.....	.....	5
75 Land in these enterprises.....acres.....	48,772	(4)	5,777	(4)	(4)	.....	.....	19,708
76 Average indebtedness per acre.....dollars..	3.99	(4)	7.15	(4)	(4)	.....	.....	5.97
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	79,224	(4)	(4)	(4)	.....	.....	.....	17,747
78 Enterprises reporting.....number.....	3	1	1	1	.....	.....	.....	3
79 Land in these enterprises.....acres.....	28,405	(4)	(4)	(4)	.....	.....	.....	12,487
80 Average arrearage per acre.....dollars..	2.79	(4)	(4)	(4)	.....	.....	.....	1.42
81 Reduction of debt by refinancing, prior to 1940.....dollars..	(4)	.....	.....	(4)	(4)	.....	.....	(4)
82 Enterprises reporting.....number.....	2	.....	.....	1	1	.....	.....	2
83 Land in these enterprises.....acres.....	(4)	.....	.....	(4)	(4)	.....	.....	(4)
84 Average reduction per acre.....dollars..	(4)	.....	.....	(4)	(4)	.....	.....	(4)

¹Included in "Other counties."
²Pump located in Marion County.
³Data in lines 46 and 47 are not included in lines 34 to 45.
⁴Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE—MISSOURI

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Lincoln	Linn	Livingston	Macon	Marion	Mercer	Mississippi	New Madrid	Nodaway
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	7	3	7	3	3	6	17	20	12
2 Open ditches:									
3 Completed.....miles.....1940..	51.3	23.1	88.8	32.0	50.0	31.5	292.3	656.9	98.3
4 1930..	57.3	18.0	82.3	(¹)	49.0	29.8	207.0	612.1	87.2
5 1920..	29.2	(¹)	74.7	19.0	17.7	.....	210.5	698.6	36.2
6 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	6.0	.....	11.5	1.9
7 Tile drains:									
8 Completed.....miles.....1940..	8.5	.....	1.5	.....	26.0	.....	99.5	.....	.....
9 1930..	.....	.....	.....	.....	24.5	.....	.....	.....	.....
10 1920..	.....	(¹)	.....	.....	26.9	.....	2.8	.....	.....
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:									
13 Completed.....miles.....1940..	36.0	.....	.....	.....	35.0	.....	33.0	85.0	.....
14 1930..	52.5	.....	3.0	(¹)	37.2	.....	39.8	90.6	.....
15 1920..	24.0	(¹)	.....	.....	23.6	.....	20.8	45.7	.....
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:									
18 Engine capacity.....horsepower....1940..	375	.....	.....	.....	1,150	.....	.....	.....	.....
19 1930..	550	.....	.....	.....	1,200	.....	.....	.....	.....
20 1920..	(²)	.....	.....	.....	1,500	.....	.....	.....	.....
21 Pump capacity.....gal. per min..1940..	148,000	.....	.....	.....	232,000	.....	.....	.....	.....
22 1930..	166,000	.....	.....	.....	300,000	.....	.....	.....	.....
23 1920..	(²)	.....	.....	.....	225,000	.....	.....	.....	.....
24 Land served by pumps.....acres.....1940..	13,460	.....	.....	.....	25,173	.....	.....	.....	.....
25 1930..	11,900	.....	.....	.....	22,953	.....	.....	.....	.....
26 1920..	15,000	.....	.....	.....	23,794	.....	.....	.....	.....
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
30 Capital invested to January 1.....dollars.....1940..	593,144	320,650	901,031	286,900	901,000	160,640	2,073,879	9,205,648	513,217
31 1930..	615,500	544,166	1,052,580	(¹)	1,237,424	171,310	2,203,610	6,825,333	630,253
32 1920..	273,400	(¹)	278,710	140,000	919,605	.....	1,435,050	3,640,650	130,000
33 Estimated cost when completed.....dollars.....1940..	593,144	320,650	901,031	286,900	901,000	185,640	2,073,879	9,214,648	523,217
34 1930..	659,500	544,166	1,052,580	(¹)	1,257,424	171,310	2,203,610	6,825,333	643,253
35 1920..	273,400	(¹)	326,710	140,000	919,605	.....	1,679,300	3,976,150	130,000
36 Average cost per acre when completed.....dollars.....1940..	22.51	18.07	10.07	10.27	35.79	10.76	9.45	23.86	16.18
37 1930..	25.78	29.15	11.31	(¹)	54.78	11.71	9.37	17.93	15.75
38 1920..	16.27	(¹)	6.78	8.12	38.65	.....	8.20	10.71	8.02
39 Invested in and required for completion, 1940:									
40 Enterprises having open ditches only.....dollars..	28,700	320,650	895,031	286,900	.....	185,640	615,846	4,998,551	523,217
41 Average amount per acre.....dollars..	9.29	18.07	10.06	10.27	.....	10.76	8.12	25.64	16.18
42 Enterprises having open ditches and levees.....dollars..	252,500	.....	.....	.....	.....	.....	750,000	4,216,097	.....
43 Average amount per acre.....dollars..	39.45	.....	.....	.....	.....	.....	12.72	22.05	.....
44 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Enterprises having open ditches and tile.....dollars..	.....	.....	6,000	.....	.....	.....	708,031	.....	.....
49 Average amount per acre.....dollars..	.....	.....	12.93	.....	.....	.....	8.36	.....	.....
50 Enterprises having ditches, tile, and levees.....dollars..	37,000	.....	.....	.....	.....	.....	.....	.....	.....
51 Average amount per acre.....dollars..	10.88	.....	.....	.....	.....	.....	.....	.....	.....
52 Enterprises operating pumping plants ³.....dollars..	274,944	.....	.....	.....	901,000	.....	.....	.....	.....
53 Average amount per acre.....dollars..	20.43	.....	.....	.....	35.79	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
54 Cost of maintenance and operation in 1939:									
55 By enterprises operating pumping plants.....dollars..	(⁴)	.....	.....	.....	15,311	.....	.....	.....	.....
56 Enterprises reporting.....number..	2	.....	.....	.....	3	.....	.....	.....	.....
57 Land in these enterprises.....acres..	(⁴)	.....	.....	.....	25,173	.....	.....	.....	.....
58 Average cost per acre.....dollars..	(⁴)	.....	.....	.....	0.61	.....	.....	.....	.....
59 By enterprises not operating pumping plants.....dollars..	1,000	(⁴)	2,755	(⁴)	.....	(⁴)	5,500	89,935	868
60 Enterprises reporting.....number..	4	2	3	1	.....	2	3	9	5
61 Land in these enterprises.....acres..	11,688	(⁴)	75,464	(⁴)	.....	(⁴)	79,107	335,411	14,811
62 Average cost per acre.....dollars..	0.08	(⁴)	0.04	(⁴)	.....	(⁴)	0.07	0.27	0.06
63 Federal aid in maintenance:									
64 Enterprises reporting.....number..	1	.....	.....	.....	2	.....	16	22	.....
65 Land in these enterprises.....acres..	(⁴)	.....	.....	.....	(⁴)	.....	190,726	373,449	.....
FINANCIAL CONDITION									
66 Drainage taxes collected in 1939.....dollars..	33,907	(⁴)	(⁴)	(⁴)	22,860	(⁴)	37,043	217,426	29,318
67 Enterprises reporting.....number..	5	2	2	1	3	2	9	16	9
68 Land in these enterprises.....acres..	24,188	(⁴)	(⁴)	(⁴)	25,173	(⁴)	146,146	369,011	23,359
69 Average amount collected per acre.....dollars..	1.40	(⁴)	(⁴)	(⁴)	0.91	(⁴)	0.25	0.59	1.26
70 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	997	(⁴)	71,359	.....	8,528	(⁴)	(⁴)	28,131	2,243
71 Enterprises reporting.....number..	4	2	3	.....	3	1	1	5	7
72 Land in these enterprises.....acres..	20,988	(⁴)	79,994	.....	25,173	(⁴)	(⁴)	124,925	21,407
73 Portion delinquent in these enterprises.....percent..	4.8	(⁴)	89.2	.....	33.9	(⁴)	(⁴)	22.5	10.5
74 Total indebtedness, Dec. 31, 1939.....dollars..	173,378	(⁴)	410,000	(⁴)	68,976	42,500	390,038	1,235,104	178,734
75 Enterprises reporting.....number..	5	2	4	2	3	3	8	14	9
76 Land in these enterprises.....acres..	24,188	(⁴)	80,458	(⁴)	25,173	8,021	145,650	343,231	23,209
77 Average indebtedness per acre.....dollars..	7.17	(⁴)	5.10	(⁴)	2.74	5.30	2.68	3.60	7.70
78 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(⁴)	(⁴)	252,600	.....	(⁴)	.....	(⁴)	69,650	8,100
79 Enterprises reporting.....number..	2	2	4	.....	2	.....	1	3	3
80 Land in these enterprises.....acres..	(⁴)	(⁴)	80,458	.....	(⁴)	.....	(⁴)	92,480	4,666
81 Average arrearage per acre.....dollars..	(⁴)	(⁴)	3.14	.....	(⁴)	.....	(⁴)	0.75	1.74
82 Reduction of debt by refinancing, prior to 1940.....dollars..	(⁴)	(⁴)	.....	.....	.....	(⁴)	.....	1,868,825	31,819
83 Enterprises reporting.....number..	2	1	.....	.....	.....	1	.....	8	3
84 Land in these enterprises.....acres..	(⁴)	(⁴)	.....	.....	.....	(⁴)	.....	229,543	12,229
85 Average reduction per acre.....dollars..	(⁴)	(⁴)	.....	.....	.....	(⁴)	.....	8.14	2.60

¹Included in "Other counties."

²Pump located in Pike County.

³Data in lines 46 and 47 are not included in lines 34 to 45.

⁴Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE — MISSOURI

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Pemiscot	Perry ¹	Platte ¹	Ray	Ripley	St. Charles	Saline
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	13	1	1	4	3	5	7
2 Open ditches:							
3 Completed.....miles.....1940..	600.6	40.0	4.0	38.0	28.0	23.5	56.5
4 1930..	580.2	30.0	5.0	30.7	28.5	40.5	69.3
5 1920..	246.8	20.0	3.2	17.8	31.2	18.7	21.3
6 Additional length authorized.....miles.....1940..							
7 Tile drains:							
8 Completed.....miles.....1940..				9.5		0.1	
9 1930..				0.5			
10 1920..							
11 Additional length authorized.....miles.....1940..							
12 Levees and dikes:							
13 Completed.....miles.....1940..	15.0			12.2		4.0	17.5
14 1930..	47.0		10.0	7.8		3.0	19.0
15 1920..	20.0	10.0		1.3			9.4
16 Additional length authorized.....miles.....1940..							
17 Pumping plants:							
18 Engine capacity.....horsepower.....1940..							
19 1930..							75
20 1920..							60
21 Pump capacity.....gal. per min. 1940..							7000
22 1930..							7000
23 1920..							
24 Land served by pumps.....acres.....1940..							575
25 1930..							1000
26 1920..							
27 Wells pumped for drainage.....number.....1940..							
28 1930..							
29 1920..							
CAPITAL INVESTED							
30 Capital invested to January 1.....dollars.....1940..	6,441,883	94,000	12,480	229,500	171,760	183,285	486,155
31 1930..	5,650,231	165,880	37,500	238,500	99,015	204,182	453,535
32 1920..	2,359,968	122,000	15,000	77,175	90,260	79,339	82,542
33 Estimated cost when completed.....dollars.....1940..	6,441,883	94,000	12,480	229,500	171,760	183,285	486,155
34 1930..	5,650,231	165,880	37,500	238,500	99,015	204,182	524,535
35 1920..	3,624,505	122,000	15,000	77,175	90,260	80,339	82,542
36 Average cost per acre when completed.....dollars.....1940..	23.98	5.09	2.01	14.82	7.09	8.69	17.68
37 1930..	20.87	6.64	5.68	16.84	3.22	7.72	15.72
38 1920..	13.42	4.88	3.05	10.36	3.05	4.40	11.49
39 Invested in and required for completion, 1940:							
40 Enterprises having open ditches only.....dollars..	4,366,354	94,000	12,480		171,760	106,361	280,000
41 Average amount per acre.....dollars.....	22.84	5.09	2.01		7.09	7.20	16.88
42 Enterprises having open ditches and levees.....dollars..	2,075,529			54,500		66,900	206,155
43 Average amount per acre.....dollars.....	26.78			9.20		21.29	18.90
44 Enterprises having tile only.....dollars.....							
45 Average amount per acre.....dollars.....							
46 Enterprises having tile and levees.....dollars.....				35,000			
47 Average amount per acre.....dollars.....				8.62			
48 Enterprises having open ditches and tile.....dollars.....						11,024	
49 Average amount per acre.....dollars.....						3.34	
50 Enterprises having ditches, tile, and levees.....dollars..				140,000			
51 Average amount per acre.....dollars.....				25.45			
52 Enterprises operating pumping plants.....dollars.....							
53 Average amount per acre.....dollars.....							
MAINTENANCE AND OPERATION							
54 Cost of maintenance and operation in 1939:							
55 By enterprises operating pumping plants.....dollars..							
56 Enterprises reporting.....number.....							
57 Land in these enterprises.....acres.....							
58 Average cost per acre.....dollars.....							
59 By enterprises not operating pumping plants.....dollars..	71,135	1,500	64	840		(²)	794
60 Enterprises reporting.....number.....	8	1	1	3		2	4
61 Land in these enterprises.....acres.....	258,561	18,480	6,213	11,422		(²)	17,530
62 Average cost per acre.....dollars.....	0.28	0.08	0.01	0.07		(²)	0.04
63 Federal aid in maintenance:							
64 Enterprises reporting.....number.....	8				2		1
65 Land in these enterprises.....acres.....	250,574				(²)	(²)	(²)
FINANCIAL CONDITION							
66 Drainage taxes collected in 1939.....dollars.....	135,014	1,650	1,000	8,730		(²)	(²)
67 Enterprises reporting.....number.....	9	1	1	3		2	2
68 Land in these enterprises.....acres.....	258,561	18,480	6,213	11,422		(²)	(²)
69 Average amount collected per acre.....dollars.....	0.52	0.09	0.16	0.76		(²)	(²)
70 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	26,152		900	(²)		(²)	(²)
71 Enterprises reporting.....number.....	8	1	1	2		2	2
72 Land in these enterprises.....acres.....	182,512		6,213	(²)		(²)	(²)
73 Portion delinquent in these enterprises.....percent.....	14.3		14.5	(²)		(²)	(²)
74 Total indebtedness, Dec. 31, 1939.....dollars.....	630,142			18,096		(²)	160,600
75 Enterprises reporting.....number.....	6			3		1	4
76 Land in these enterprises.....acres.....	167,406			10,273		(²)	20,515
77 Average indebtedness per acre.....dollars.....	3.76			1.76		(²)	7.83
78 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	(²)			(²)			(²)
79 Enterprises reporting.....number.....	1			1			2
80 Land in these enterprises.....acres.....	(²)			(²)			(²)
81 Average arrearage per acre.....dollars.....	(²)			(²)			(²)
82 Reduction of debt by refinancing, prior to 1940.....dollars..	1,790,060						(²)
83 Enterprises reporting.....number.....	7						1
84 Land in these enterprises.....acres.....	234,060						(²)
85 Average reduction per acre.....dollars.....	7.65						(²)

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE — MISSOURI

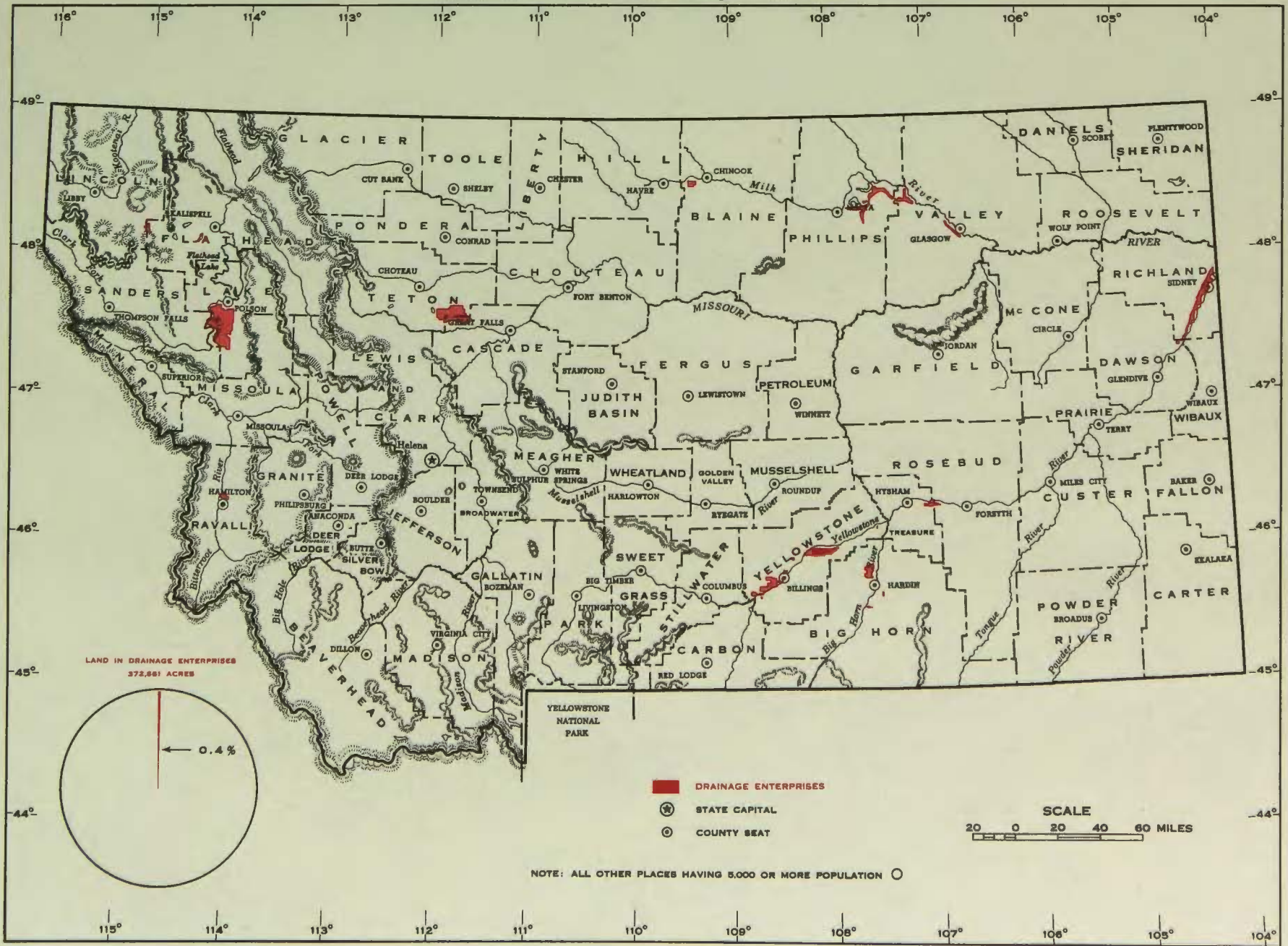
COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Schuyler	Scotland	Scott	Shelby	Stoddard	Worth	Other counties ¹
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	3	9	11	3	29	3	20
2	Open ditches:							
3	Completed.....miles.....1940..	16.2	96.9	232.2	17.1	593.6	27.5	195.4
4	.....1930..	15.8	96.4	192.3	14.7	570.0	(²)	260.2
5	.....1920..	(²)	37.5	245.2	12.7	459.5	2.3	158.5
6	Additional length authorized.....miles.....1940..							
7	Tile drains:							
8	Completed.....miles.....1940..	15.0		1.2				0.4
9	.....1930..			1.2				
10	.....1920..	(²)						0.4
11	Additional length authorized.....miles.....1940..							
12	Levees and dikes:							
13	Completed.....miles.....1940..	3.0		13.3		54.2		37.1
14	.....1930..			16.0		52.0		81.8
15	.....1920..	(²)		25.0	10.2	0.5		41.5
16	Additional length authorized.....miles.....1940..	2.0						
17	Pumping plants:							
18	Engine capacity.....horsepower.....1940..	60						80
19	.....1930..							333
20	.....1920..							550
21	Pump capacity.....gal. per min.....1940..	10,000						20,000
22	.....1930..							60,430
23	.....1920..							190,000
24	Land served by pumps.....acres.....1940..	2,200						9,890
25	.....1930..							22,576
26	.....1920..							14,430
27	Wells pumped for drainage.....number.....1940..	1						
28	.....1930..							
CAPITAL INVESTED								
29	Capital invested to January 1.....dollars.....1940..	119,500	445,689	2,520,494	124,796	5,434,445	242,000	2,754,428
30	.....1930..	87,571	491,893	1,635,057	104,000	5,125,588	(²)	3,573,514
31	.....1920..	(²)	144,324	989,981	90,588	2,996,940	16,000	1,680,657
32	Estimated cost when completed.....dollars.....1940..	119,500	445,689	2,520,494	124,796	5,434,445	242,000	2,754,428
33	.....1930..	87,571	491,893	1,746,057	104,000	5,125,588	(²)	3,588,614
34	.....1920..	(²)	144,324	1,008,981	90,588	2,996,940	170,000	2,111,182
35	Average cost per acre when completed.....dollars.....1940..	17.57	20.83	15.82	12.96	16.21	20.72	21.48
36	.....1930..	14.59	5.53	15.73	7.54	15.01	(²)	19.58
37	.....1920..	(²)	9.55	6.54	9.34	7.99	24.24	13.40
38	Invested in and required for completion, 1940:							
39	Enterprises having open ditches only.....dollars..	64,500	445,689	1,473,698	124,796	909,221	242,000	1,644,416
40	Average amount per acre.....dollars.....	15.36	20.83	13.14	12.96	4.96	20.72	16.17
41	Enterprises having open ditches and levees.....dollars..			949,244		4,525,224		485,956
42	Average amount per acre.....dollars.....			24.52		29.63		33.29
43	Enterprises having tile only.....dollars.....							
44	Average amount per acre.....dollars.....							
45	Enterprises having tile and levees.....dollars.....							72,000
46	Average amount per acre.....dollars.....							35.16
47	Enterprises having open ditches and tile.....dollars..			97,552				
48	Average amount per acre.....dollars.....			11.43				
49	Enterprises having ditches, tile, and levees.....dollars..							
50	Average amount per acre.....dollars.....							
51	Enterprises operating pumping plants ³.....dollars..	55,000						552,056
52	Average amount per acre.....dollars.....	21.15						55.82
MAINTENANCE AND OPERATION								
53	Cost of maintenance and operation in 1939:							
54	By enterprises operating pumping plants.....dollars..	(⁴)						(⁴)
55	Enterprises reporting.....number.....	1						2
56	Land in these enterprises.....acres.....	(⁴)						(⁴)
57	Average cost per acre.....dollars.....	(⁴)						(⁴)
58	By enterprises not operating pumping plants.....dollars..	(⁴)	1,779	15,653		(⁴)	(⁴)	11,587
59	Enterprises reporting.....number.....	2	4	10		1	1	11
60	Land in these enterprises.....acres.....	(⁴)	6,913	135,371		(⁴)	(⁴)	41,901
61	Average cost per acre.....dollars.....	(⁴)	0.26	0.12		(⁴)	(⁴)	0.20
62	Federal aid in maintenance:							
63	Enterprises reporting.....number.....				1		1	2
64	Land in these enterprises.....acres.....			(⁴)		(⁴)		(⁴)
FINANCIAL CONDITION								
65	Drainage taxes collected in 1939.....dollars..	(⁴)	4,695	54,305		(⁴)	(⁴)	87,750
66	Enterprises reporting.....number.....	2	3	9		2	1	12
67	Land in these enterprises.....acres.....	(⁴)	4,452	141,856		(⁴)	(⁴)	49,391
68	Average amount collected per acre.....dollars..	(⁴)	1.05	0.38		(⁴)	(⁴)	1.78
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	(⁴)	1,214	10,159	(⁴)		(⁴)	18,094
70	Enterprises reporting.....number.....	1	3	6	1		1	10
71	Land in these enterprises.....acres.....	(⁴)	4,558	73,611	(⁴)		(⁴)	57,590
72	Portion delinquent in these enterprises.....percent..	(⁴)	26.6	13.8	(⁴)		(⁴)	31.4
73	Total indebtedness, Dec. 31, 1939.....dollars..	(⁴)	29,500	265,064	(⁴)	1,026,979	(⁴)	463,405
74	Enterprises reporting.....number.....	1	3	5	1	11	1	11
75	Land in these enterprises.....acres.....	(⁴)	2,720	76,851	(⁴)	208,245	(⁴)	61,390
76	Average indebtedness per acre.....dollars.....	(⁴)	10.84	3.45	(⁴)	4.93	(⁴)	7.55
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..		(⁴)		(⁴)	282,500		200,600
78	Enterprises reporting.....number.....		2		1	10		4
79	Land in these enterprises.....acres.....		(⁴)		(⁴)	77,902		20,378
80	Average arrearage per acre.....dollars.....		(⁴)		(⁴)	3.63		9.84
81	Reduction of debt by refinancing, prior to 1940.....dollars..	(⁴)	(⁴)	(⁴)		(⁴)	(⁴)	176,064
82	Enterprises reporting.....number.....	1	1	1		1	2	4
83	Land in these enterprises.....acres.....	(⁴)	(⁴)	(⁴)		(⁴)	(⁴)	32,749
84	Average reduction per acre.....dollars.....	(⁴)	(⁴)	(⁴)		(⁴)	(⁴)	5.38

¹Includes Bates, Boone, Cass, Clay, Cole, Henry, Jackson, Monticau, Osage, Pettis, Pike, Putnam, St. Louis, Sullivan, and Wayne Counties in 1940; Bates, Boone, Caldwell, Callaway, Cass, Clay, Cole, Franklin, Henry, Jackson, Macon, Monticau, Osage, Pettis, Pike, Putnam, St. Louis, Sullivan, Wayne, and Worth Counties in 1930; and Andrew, Bates, Buchanan, Caldwell, Callaway, Cass, Clay, Grundy, Henry, Howard, Jackson, Linn, Osage, Pike, Putnam, St. Louis, Schuyler, and Wayne Counties in 1920. ²Included in "Other counties." ³Data in lines 46 and 47 are not included in lines 34 to 45. ⁴Where there are less than 3 enterprises reporting, data are included only in State totals.

MONTANA

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE — MONTANA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	93,642,240	93,523,840	93,523,840				
Land in drainage enterprises.....acres.....	372,661	167,629	168,682	205,032	122.3	-1,053	-0.6
Improved.....acres.....	330,694	148,768	141,252	181,926	122.3	7,516	5.3
Unimproved:							
Timber and cut-over.....acres.....	7,903			7,903			
Other.....acres.....	34,064	18,861	27,430	15,203	80.6	-8,569	-31.2
Drainage sufficient for normal crop.....acres.....	351,531	152,871	(1)	198,660	130.0		
Partly drained, for partial crop.....acres.....	4,167	8,370	(1)	-4,203	-50.2		
Unfit to raise any crop for lack of drainage.....acres.....	16,963	6,388	2 19,630	10,575	165.5	-13,242	-67.4
In occupied farms.....acres.....	362,711	150,844	(1)	211,867	140.4		
In planted crops.....acres.....	291,952	114,266	(1)	177,686	155.5		
Idle.....acres.....	24,401	18,170	(1)	6,231	34.3		
Available for settlement.....acres.....		7,243	(1)	-7,243	-100.0		
Open ditches, completed.....miles.....	420.9	284.2	102.1	136.7	48.1	182.1	178.4
Tile drains, completed.....miles.....	76.7	50.7		-2.9	-3.8	26.0	51.3
Capital invested in enterprises.....dollars.....	2,827,839	1,879,296	664,990	948,543	50.5	1,214,306	182.6
Average per acre.....dollars.....	7.59	11.21	3.94	-3.62	-32.3	7.27	184.5

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	1940
	Acres	Acres	Acres	Acres
All enterprises.....	374,189	167,929	168,682	372,661
100 to 199 acres.....		120		
200 to 499 acres.....	1,275	387		1,275
500 to 999 acres.....	5,336	4,093	1,307	5,336
1,000 to 1,999 acres.....	17,267	34,157	23,711	15,739
2,000 to 4,999 acres.....	22,145			
5,000 to 9,999 acres.....	20,059	11,792	19,664	20,059
10,000 to 19,999 acres.....	44,775	117,080	24,000	44,775
20,000 to 49,999 acres.....	143,853			
100,000 acres and over.....	119,479		100,000	119,479

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	372,661	100.0	2,827,839	100.0
Drainage districts.....	47,418	12.7	1,140,558	40.3
County drains.....	6,000	1.6	16,000	0.6
Irrigation enterprises:				
Federal ¹	288,291	80.0	1,503,581	53.2
Other.....	13,952	3.7	55,000	1.9
Individually owned projects.....	7,000	1.9	112,700	4.0

¹Including projects or divisions of projects of United States Bureau of Reclamation operated by water users.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	372,661	100.0	167,629	100.0	168,682	100.0	2,827,839	100.0	1,879,296	100.0	664,990	100.0
Gravity drainage only by—												
Open ditches.....	150,568	40.4	73,095	43.6	168,682	100.0	1,727,397	61.1	669,541	35.6	664,990	100.0
Tile drains.....	5,016	1.3	3,817	2.3			370,000	13.1	59,904	3.2		
Open ditches and tile drains..	217,077	58.3	90,717	54.1			730,442	25.8	1,149,851	61.2		

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

CENSUS OF DRAINAGE—MONTANA

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	372,661	100.0	167,629	100.0	2,827,839	100.0	1,878,296	100.0	1,851	6,720
Enterprises in arrears.....	47,945	12.9	7,070	4.2	942,576	33.3	28,000	1.5	1,057	.....
With some delinquent land.....	32,805	8.8	.....	.....	654,072	23.1	.....	.....	1,057	.....
With no delinquent land.....	3,140	0.9	.....	.....	78,504	2.8	.....	.....	.....	.....
With no report on delinquency.....	12,000	3.2	7,070	4.2	210,000	7.4	28,000	1.5	.....	.....
Enterprises not in arrears.....	324,716	87.1	160,559	95.8	1,885,263	66.7	1,851,296	98.5	794	6,720
With some delinquent land.....	5,209	1.4	70,500	42.1	181,431	6.8	929,616	49.5	794	6,720
With no delinquent land.....	319,009	85.6	90,059	53.7	1,683,832	59.5	921,680	49.0	.....	.....
With no report on delinquency.....	498	0.1	.....	.....	10,000	0.4	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	372,661	2,827,839	1,503,091	3,640	125,232	1,851	48,707
Enterprises in debt.....	275,204	2,114,789	1,503,091	3,640	125,232	1,401	30,412
In arrears, amount of arrearage stated.....	47,945	942,576	559,881	3,640	117,700	1,057	21,714
Collecting drainage taxes in 1939.....	47,945	942,576	559,881	3,640	117,700	1,057	21,714
Not in arrears.....	227,259	1,172,213	943,210	.....	7,532	344	8,698
Collecting drainage taxes in 1939.....	187,957	737,559	594,471	.....	7,532	44	8,698
No collections reported.....	39,302	434,654	348,739	.....	.....	300	.....
Enterprises not in debt.....	96,573	696,550	.....	.....	.....	450	16,697
Collecting drainage taxes in 1939.....	19,385	478,383	.....	.....	.....	450	16,697
No collections reported.....	77,188	218,167	.....	.....	.....	.....	.....
Enterprises not reporting as to debt.....	884	16,500	.....	.....	.....	.....	1,588
Collecting drainage taxes in 1939.....	884	16,500	.....	.....	.....	.....	1,588

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	372,661	100.0	2,827,839	100.0
Improvement of land already in farms.....	54,227	14.6	1,157,258	40.9
Reclamation of swamp land not previously in farms.....	6,100	1.6	109,500	3.9
Protection against overflow.....	6,000	1.6	16,000	0.6
Removal of alkali or seepage from irrigation.....	306,334	82.2	1,545,081	54.6

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	372,661	100.0	374,189	1,528	2,827,839	100.0
1900-1904.....	4,450	1.2	4,450	.....	66,000	2.3
1905-1909.....	15,794	4.2	15,794	.....	208,500	7.4
1910-1914.....	3,007	0.8	3,007	.....	48,000	1.7
1915-1919.....	125,479	33.7	125,479	.....	71,263	2.5
1920-1924.....	107,176	28.8	108,704	1,528	1,532,598	54.2
1925-1929.....	99,583	26.7	99,583	.....	697,692	24.7
1930-1934.....	8,811	2.4	8,811	.....	97,100	3.4
1935-1939.....	8,361	2.2	8,361	.....	106,626	3.8

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

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STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other un-improved land	In occupied farms		In planted crops	Idle	Land available for settlement		
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	372,661	351,531	94.3	4,167	16,963	330,694	88.7	7,903	34,064	362,711	97.3	291,952	24,401	.....
1900-1904.....	4,450	4,450	100.0	.....	.....	4,450	100.0	.....	.....	4,450	100.0	4,450	.....	.....
1905-1909.....	15,794	14,394	91.1	300	1,100	15,194	96.2	.....	600	15,794	100.0	12,943	880	.....
1910-1914.....	3,007	3,007	100.0	.....	.....	3,007	100.0	.....	.....	3,007	100.0	2,507	.....	.....
1915-1919.....	125,479	124,279	99.0	500	700	94,678	75.4	7,453	23,348	122,727	97.8	72,439	8,957	.....
1920-1924.....	107,176	96,941	90.4	453	9,782	102,354	95.5	.....	4,822	100,775	94.0	92,152	8,062	.....
1925-1929.....	99,583	92,059	92.4	2,914	4,610	94,479	94.9	450	4,654	99,533	99.9	93,284	4,845	.....
1930-1934.....	8,811	8,811	97.7	.....	200	8,611	97.7	.....	200	8,811	100.0	7,500	820	.....
1935-1939.....	8,961	7,790	93.2	.....	571	7,921	94.7	.....	440	7,614	91.1	6,677	837	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	372,661	100.0	2,827,839	100.0
Method:				
By district forces.....	331,431	89.0	2,235,920	79.1
By contract.....	20,541	5.5	248,428	8.8
Work apportioned to landowners.....	13,899	3.7	243,585	8.6
"None," or not reporting.....	6,790	1.8	99,906	3.5
Whether systematic:				
Reporting "yes".....	206,840	55.5	2,161,172	76.4
Reporting "no".....	165,821	44.5	666,667	23.6

STATE TABLE 11.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	372,661	372,661	295,151	77,510	32,713	0.09	0.11
Gravity drainage only.....	372,661	372,661	295,151	77,510	32,713	0.09	0.11
Open ditches only.....	150,568	150,568	129,358	21,210	22,739	0.15	0.18
Open ditches and levees.....	.....	.....	.....	.....	.....	.....	.....
Tile drains only.....	5,016	5,016	4,016	1,000	1,635	0.32	0.41
Tile drains and levees.....	.....	.....	.....	.....	.....	.....	.....
Open ditches and tile drains.....	187,577	187,577	132,277	55,300	1,832	0.01	0.01
Open ditches, tile drains, and levees.....	29,500	29,500	29,500	.....	6,507	0.22	0.22

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	372,661	200,203	53.7
Capital invested.....dollars..	2,827,839	1,043,243	36.9
Drainage works:			
Open ditches.....miles....	420.9	162.0	38.5
Tile drains.....miles....	73.8	58.0	78.6
Levees.....miles....	0.8	0.8	100.0

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS.		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	7,221	243,889	11.5	3.6	.....
Work Projects Administration.....	3,759	178,889	7.0	2.2	.....
Other kind or combination.....	3,462	65,000	4.5	1.4	.....

CENSUS OF DRAINAGE - MONTANA

COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		THE STATE	Big Horn	Blaine ¹	Cascade ¹	Dawson ¹	Deer Lodge ¹
LAND AREA							
1	Approximate land area.....acres....1940..	93,642,240	3,221,120	2,730,880	1,701,120	1,509,120	472,320
2	Drainage enterprises.....number...1940..	239	3	1	1	1	1
3	Land in enterprises.....acres....1940..	372,661	14,184	7,159	13,335	884	1,000
4	.....1930..	167,629	12,100	.....	6,592	903	3,000
5	.....1920..	168,682	.....	.....	.....	.....	1,000
6	Area of all enterprises, overlapping included.....acres....1940..	374,189	14,184	7,159	13,335	884	1,000
7	Amount of overlapping.....acres....1940..	1,528	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	351,531	14,184	7,014	12,395	734	1,000
9	.....1930..	152,871	12,100	.....	6,400	753	2,000
10	Increase or decrease (-), 1930-1940.....acres.....	198,660	2,084	7,014	5,995	-19	-1,000
11	.....percent.....	130.0	17.2	.....	93.7	-2.5	-50.0
12	Land undrained, unfit for any crop.....acres....1940..	16,963	.....	145	940	100	.....
13	.....1930..	6,388	.....	.....	192	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	10,575	.....	145	748	100	.....
15	.....percent.....	165.5	.....	.....	389.6	.....	.....
16	Land partly drained, for partial crop.....acres....1940..	4,167	.....	.....	.....	50	.....
17	.....1930..	8,370	.....	.....	.....	150	1,000
18	Increase or decrease (-), 1930-1940.....acres.....	-4,203	.....	.....	.....	-100	-1,000
19	.....percent.....	-50.2	.....	.....	.....	-66.7	-100.0
20	Improved land.....acres....1940..	330,694	14,184	7,014	12,920	734	1,000
21	.....1930..	148,768	11,100	.....	6,000	883	1,200
22	.....1920..	141,252	.....	.....	.....	.....	1,000
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	7,903	.....	.....	.....	50	.....
24	.....1930..	.....	.....	.....	.....	.....	.....
25	.....1920..	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres....1940..	34,064	.....	145	415	100	.....
27	.....1930..	18,861	1,000	.....	592	50	1,800
28	.....1920..	27,430	.....	.....	.....	.....	(³)
29	Land in occupied farms.....acres....1940..	362,711	14,184	7,159	13,335	884	1,000
30	.....1930..	150,844	12,100	.....	6,040	903	1,200
31	Increase or decrease (-), 1930-1940.....acres.....	211,867	2,084	7,159	7,295	-19	-200
32	.....percent.....	140.4	17.2	.....	120.8	-2.1	-16.7
33	Land in planted crops.....acres....1940..	291,952	12,950	5,918	11,560	734	500
34	.....1930..	114,266	.....	.....	4,500	800	1,200
35	Increase or decrease (-), 1930-1940.....acres.....	177,686	12,950	5,918	7,060	-66	-700
36	.....percent.....	155.5	.....	.....	156.9	-8.2	-58.3
37	Land idle.....acres....1940..	24,401	234	180	1,000	150	.....
38	.....1930..	18,170	.....	.....	1,692	50	1,800
39	Increase or decrease (-), 1930-1940.....acres.....	6,231	234	180	-692	100	-1,800
40	.....percent.....	34.3	.....	.....	-40.9	200.0	-100.0
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....
42	.....1930..	7,243	.....	.....	400	.....	1,800
43	Increase or decrease (-), 1930-1940.....acres.....	-7,243	.....	.....	-400	.....	-1,800
44	.....percent.....	-100.0	.....	.....	-100.0	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	150,568	12,884	.....	13,335	884	.....
46	Length of these ditches.....miles.....	315.7	51.5	.....	21.0	2.0	.....
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	5,016	.....	.....	.....	.....	1,000
53	Length of these tile.....miles.....	13.2	.....	.....	.....	.....	5.0
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	187,577	1,300	7,159	.....	.....	.....
60	Length of these open ditches.....miles.....	58.2	0.5	15.0	.....	.....	.....
61	Length of these tile.....miles.....	6.6	0.4	1.5	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	29,500	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	47.0	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	54.0	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	0.8	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 34.

CENSUS OF DRAINAGE - MONTANA

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

Flathead	Lake ¹	Lincoln ¹	Phillips ¹	Ravalli ¹	Richland ¹	Rosebud ¹	Sheridan ¹	Teton ¹	Treasure ¹	Valley ¹	Yellowstone	
3,313,280	980,000	2,377,600	3,368,960	1,525,760	1,321,600	3,220,480	1,088,000	1,468,160	629,760	3,252,480	1,686,400	1
4	1	1	1	1	1	1	1	1	1	1	1	18
6,564	119,479	390	34,560	6,000	36,388	3,139	387	43,405	3,654	19,440	62,663	3
4,120	.....	3,000	.....	1,000	37,097	3,539	387	35,383	3,531	.....	56,977	4
(³)	.....	(³)	.....	(³)	1,600	.....	.....	.....	.....	.....	47,732	5
6,564	119,479	390	34,560	6,000	36,388	3,139	387	43,405	3,654	19,440	64,221	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,528	7
6,210	118,279	390	34,560	6,000	29,388	2,909	387	35,615	3,384	19,440	59,642	8
2,220	.....	3,000	.....	1,000	32,597	2,650	387	35,083	2,650	.....	52,031	9
3,990	118,279	-2,610	34,560	5,000	-3,209	259	.....	532	734	19,440	7,611	10
179.7	.....	-87.0	.....	500.0	-9.8	9.8	.....	1.5	27.7	.....	14.6	11
.....	700	.....	.....	.....	4,500	230	.....	7,790	270	.....	2,288	12
1,700	.....	.....	.....	.....	1,500	450	.....	300	450	.....	1,796	13
-1,700	700	.....	.....	.....	3,000	-220	.....	7,490	-180	.....	492	14
-100.0	.....	.....	.....	.....	200.0	-48.9	.....	(⁴)	-40.0	.....	27.4	15
354	500	.....	.....	.....	2,500	.....	.....	.....	.....	.....	763	16
200	.....	.....	.....	.....	3,000	439	.....	.....	431	.....	3,150	17
154	500	.....	.....	.....	-500	-439	.....	.....	-431	.....	-2,387	18
77.0	.....	.....	.....	.....	-16.7	-100.0	.....	.....	-100.0	.....	-75.8	19
6,110	88,678	390	34,560	6,000	31,888	3,139	387	43,405	3,654	19,440	57,191	20
2,420	.....	3,000	.....	1,000	34,597	3,089	387	30,740	3,081	.....	51,301	21
(³)	.....	(³)	.....	(³)	1,600	.....	.....	.....	.....	.....	42,932	22
400	7,453	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25
64	23,348	.....	.....	.....	4,500	.....	.....	.....	.....	.....	5,502	26
1,700	.....	.....	.....	.....	2,500	450	.....	4,643	450	.....	5,676	27
(³)	.....	(³)	.....	(³)	(³)	.....	.....	.....	.....	.....	4,800	28
6,564	116,727	390	34,560	6,000	36,388	3,139	387	43,405	3,654	19,440	55,495	29
4,120	.....	3,000	.....	1,000	35,097	3,539	387	30,000	3,531	.....	49,927	30
2,444	116,727	-2,610	34,560	5,000	1,291	-400	.....	13,405	123	19,440	5,568	31
59.3	.....	-87.0	.....	500.0	3.7	-11.3	.....	44.7	3.5	.....	11.2	32
6,110	66,473	390	34,000	5,960	31,888	2,197	320	40,785	2,796	19,000	50,365	33
2,220	.....	3,000	.....	900	30,000	2,850	387	20,490	2,850	.....	45,059	34
3,890	66,479	-2,610	34,000	5,060	1,888	-653	-67	20,295	-54	19,000	5,296	35
175.2	.....	-87.0	.....	562.2	6.3	-22.9	-17.3	99.0	-1.9	.....	11.8	36
.....	8,957	.....	.....	.....	4,500	.....	.....	2,620	429	.....	6,331	37
1,900	.....	.....	.....	.....	1,000	500	.....	5,607	.....	.....	5,621	38
-1,900	8,957	.....	.....	.....	3,500	-500	.....	-2,987	429	.....	710	39
-100.0	.....	.....	.....	.....	350.0	-100.0	.....	-53.3	.....	.....	12.6	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	.....	.....	5,043	.....	.....	.....	42
.....	.....	.....	.....	.....	.....	.....	.....	-5,043	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	-100.0	.....	.....	.....	44
6,564	.....	390	.....	6,000	36,388	3,139	387	43,405	3,654	.....	23,538	45
22.5	.....	1.0	.....	2.0	63.0	2.0	2.0	99.0	3.0	.....	46.7	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,016	52
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.2	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
.....	119,479	.....	34,560	.....	.....	.....	.....	.....	.....	19,440	5,639	59
.....	30.0	.....	6.0	.....	.....	.....	.....	.....	.....	1.2	5.5	60
.....	2.5	.....	0.1	.....	.....	.....	.....	.....	.....	0.5	1.6	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29,500	63
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47.0	64
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54.0	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	68
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72

³Data are not available, included only in State totals.
⁴Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — MONTANA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930,

ITEM (See definitions in Introduction)	THE STATE	Big Horn	Blaine ¹	Cascade ¹	Dawson ¹	Deer Lodge ¹
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	2 39	3	1	1	1	1
Open ditches:						
2 Completed.....miles.....1940..	420.9	52.0	15.0	21.0	2.0	.....
3 1930..	284.2	50.0	.....	3.0	2.0	..... 3.0
4 1920..	102.1	.....	.....	.....	.....	(³)
5 Additional length authorized.....miles.....1940..	63.6	1.6	.....	1.0	.....	.....
Tile drains:						
6 Completed.....miles.....1940..	73.8	0.4	1.5	.....	.....	5.0
7 1930..	76.7	.....	.....	.....	.....	8.0
8 1920..	50.7	.....	.....	.....	.....	(³)
9 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
Levees and dikes:						
10 Completed.....miles.....1940..	0.8	.....	.....	.....	.....	.....
11 1930..	.....	.....	.....	.....	.....	.....
12 1920..	.....	.....	.....	.....	.....	.....
13 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
Pumping plants:						
14 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....
15 1930..	.....	.....	.....	.....	.....	.....
16 1920..	.....	.....	.....	.....	.....	.....
17 Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....
18 1930..	.....	.....	.....	.....	.....	.....
19 1920..	.....	.....	.....	.....	.....	.....
20 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....
21 1930..	.....	.....	.....	.....	.....	.....
22 1920..	.....	.....	.....	.....	.....	.....
23 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....
24 1930..	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED						
25 Capital invested to January 1.....dollars.....1940..	2,827,839	232,160	25,000	80,319	7,756	40,000
26 1930..	1,879,296	225,000	.....	20,746	12,545	120,000
27 1920..	664,990	.....	.....	.....	.....	3,000
28 Estimated cost when completed.....dollars.....1940..	2,928,579	237,160	25,000	84,339	7,756	40,000
29 1930..	1,989,427	225,000	.....	20,746	12,545	120,000
30 1920..	846,466	.....	.....	.....	.....	3,000
31 Average cost per acre when completed.....dollars.....1940..	7.86	16.72	3.49	6.32	8.77	40.00
32 1930..	11.87	18.60	.....	3.15	13.89	40.00
33 1920..	5.02	.....	.....	.....	.....	3.00
Invested in and required for completion, 1940:						
34 Enterprises having open ditches only.....dollars..	1,780,537	231,500	.....	84,339	7,756	.....
35 Average amount per acre.....dollars.....	11.83	17.97	.....	6.32	8.77	.....
36 Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....
37 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....
38 Enterprises having tile only.....dollars.....	370,000	.....	.....	.....	.....	40,000
39 Average amount per acre.....dollars.....	73.76	.....	.....	.....	.....	40.00
40 Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....
41 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....
42 Enterprises having open ditches and tile.....dollars..	252,570	5,630	25,000	.....	.....	.....
43 Average amount per acre.....dollars.....	1.35	4.35	3.49	.....	.....	.....
44 Enterprises having ditches, tile, and levees.....dollars..	525,372	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars.....	17.81	.....	.....	.....	.....	.....
46 Enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....
47 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION						
Cost of maintenance and operation in 1939:						
48 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....
49 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....
50 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....
51 Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....
52 By enterprises not operating pumping plants.....dollars..	32,713	(⁴)	300	500	222	.....
53 Enterprises reporting.....number.....	25	2	1	1	1	.....
54 Land in these enterprises.....acres.....	295,151	(⁴)	7,159	13,335	894	.....
55 Average cost per acre.....dollars.....	0.11	(⁴)	0.04	0.04	0.25	.....
Federal aid in maintenance:						
56 Enterprises reporting.....number.....	4	.....	.....	.....	.....	.....
57 Land in these enterprises.....acres.....	7,221	.....	.....	.....	.....	.....
FINANCIAL CONDITION						
58 Drainage taxes collected in 1939.....dollars..	48,707	10,174	1,250	232	.....	.....
59 Enterprises reporting.....number.....	22	3	1	1	.....	.....
60 Land in these enterprises.....acres.....	256,171	14,184	7,159	13,335	.....	.....
61 Average amount collected per acre.....dollars..	0.19	0.72	0.17	0.02	.....	.....
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	1,851	.....	.....	.....	.....	.....
63 Enterprises reporting.....number.....	7	.....	.....	.....	.....	.....
64 Land in these enterprises.....acres.....	38,014	.....	.....	.....	.....	.....
65 Portion delinquent in these enterprises.....percent.....	4.9	.....	.....	.....	.....	.....
66 Total indebtedness, Dec. 31, 1939.....dollars..	1,503,091	(⁴)	6,449	80,319	7,756	.....
67 Enterprises reporting.....number.....	17	1	1	1	1	.....
68 Land in these enterprises.....acres.....	275,204	(⁴)	7,159	13,335	894	.....
69 Average indebtedness per acre.....dollars..	5.46	(⁴)	0.90	6.02	8.77	.....
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	3,640	(⁴)	.....	.....	.....	.....
71 Enterprises reporting.....number.....	5	1	.....	.....	.....	.....
72 Land in these enterprises.....acres.....	47,945	(⁴)	.....	.....	.....	.....
73 Average arrearage per acre.....dollars.....	0.08	(⁴)	.....	.....	.....	.....
74 Reduction of debt by refinancing, prior to 1940.....dollars..	6 125,232	.....	7,532	.....	.....	.....
75 Enterprises reporting.....number.....	2	.....	1	.....	.....	.....
76 Land in these enterprises.....acres.....	6 8,610	.....	7,159	.....	.....	.....
77 Average reduction per acre.....dollars.....	6 14.54	.....	1.05	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 34.
³ Data are not available, included only in State totals.

CENSUS OF DRAINAGE — MONTANA

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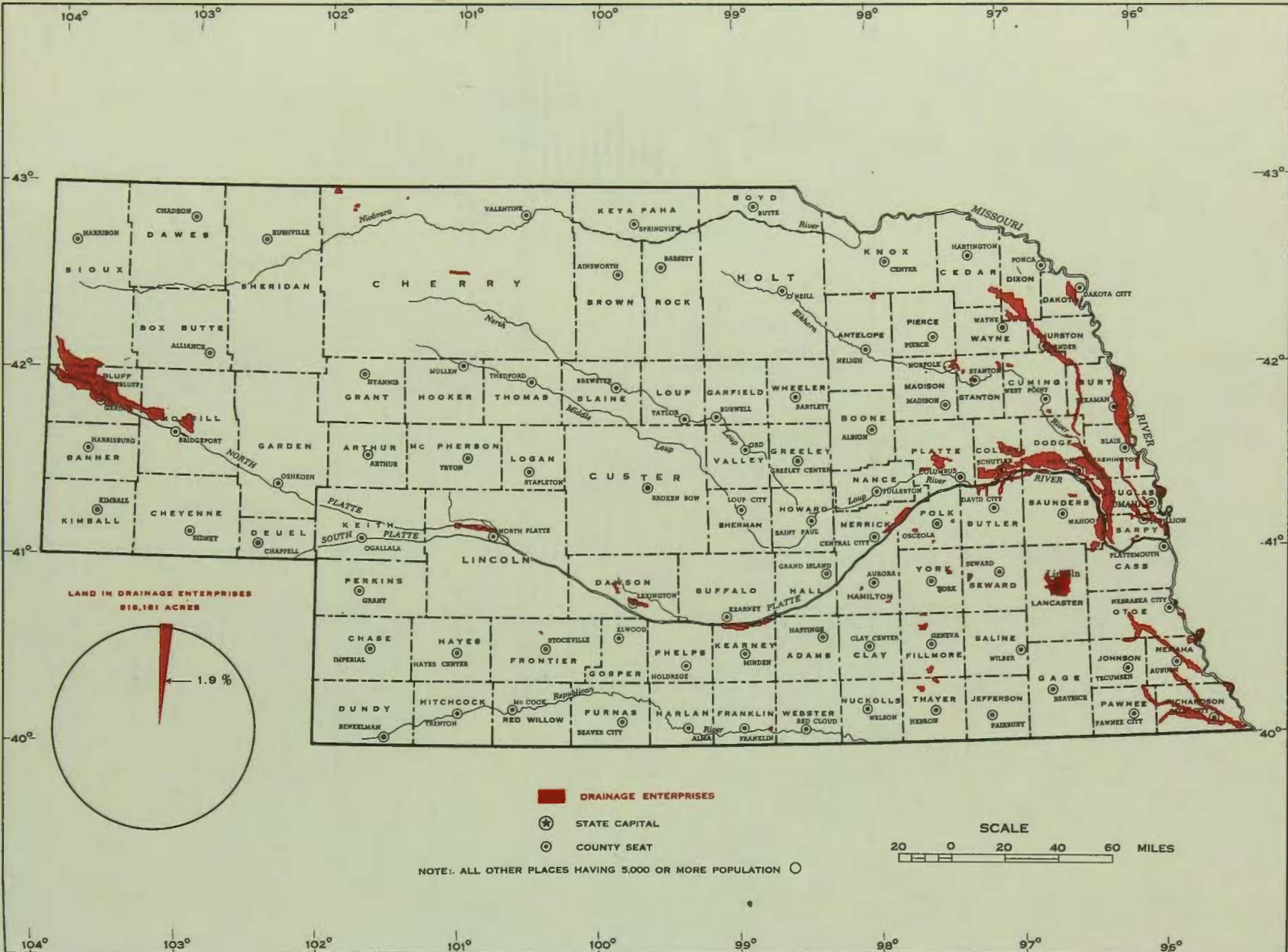
AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

Flathead	Lake ¹	Lincoln ¹	Phillips ¹	Ravalli ¹	Richland ¹	Rosebud ¹	Sheridan ¹	Teton ¹	Treasure ¹	Valley ¹	Yellowstone	
4	1	1	1	1	1	1	1	1	1	1	18	1
22.5	30.0	1.0	6.0	2.0	63.0	2.0	2.0	99.0	3.0	1.2	99.2	2
11.1		7.5		8.0	39.3		1.8	24.8	1.0		132.7	3
(²)		(²)		(²)	(²)						41.2	4
	50.0							11.0				5
	2.5		0.1							0.5	63.8	6
(²)	3.0	(²)		(²)	(²)	1.1			2.0		62.6	7
											48.8	8
												9
											0.8	10
												11
												12
												13
												14
												15
												16
												17
												18
												19
												20
												21
												22
												23
												24
73,400	55,263	4,800	23,324	16,000	399,852	10,000	3,700	401,592	20,000	4,443	1,430,230	25
30,600		36,000		10,000	270,771	14,100	3,700	169,250	13,900		952,684	26
(²)		(²)		(²)	76,569						409,362	27
73,400	102,763	4,800	23,324	16,000	399,852	10,000	3,700	445,812	20,000	4,443	1,430,230	28
50,600		36,000		10,000	360,902	14,100	3,700	169,250	13,900		952,684	29
(²)		(²)		(²)	76,569						486,815	30
11.18	0.86	12.31	0.67	2.67	10.99	3.18	9.56	10.27	5.47	0.23	22.81	31
12.28		12.00		10.00	9.73	3.98	9.56	4.78	3.94		16.72	32
(²)		(²)		(²)	47.86						10.20	33
73,400		4,800		16,000	399,852	10,000	3,700	445,812	20,000		483,478	34
11.18		12.31		2.67	10.99	3.18	9.56	10.27	5.47		20.54	35
												36
												37
											330,000	38
											82.17	39
												40
												41
	102,763		23,324							4,443	91,380	42
	0.86		0.67							0.23	16.20	43
											525,372	44
											17.81	45
												46
												47
												48
												49
												50
(⁴)		260			7,180			3,485			18,838	51
(⁴)	1	1			1			1			16	52
(⁴)	119,479				36,388			43,405			59,763	53
(⁴)	(²)				0.20			0.08			0.32	54
												55
											4	56
											7,221	57
(⁴)		757						1,165			34,229	58
(⁴)	1	1						1			14	59
(⁴)	119,479							43,405			56,755	60
(⁴)	0.01							0.03			0.60	61
(⁴)											1,651	62
(⁴)											6	63
(⁴)											36,160	64
(⁴)											4.6	65
(⁴)		61,894			327,205			401,592			560,876	66
(⁴)	1	1			1			1			9	67
(⁴)	119,479				36,388			43,405			40,700	68
(⁴)	0.52				8.99			9.25			13.78	69
(⁴)											2,026	70
(⁴)											3	71
(⁴)											34,091	72
(⁴)											0.06	73
												74
												75
												76
												77

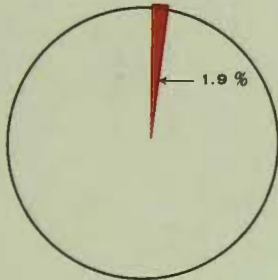
¹ Where there are less than 3 enterprises reporting, data are shown only in State totals, except as stated in footnote 1.
² Less than 1 cent per acre.
³ Not distributed by counties.

NEBRASKA

LOCATION OF LAND IN DRAINAGE ENTERPRISES



LAND IN DRAINAGE ENTERPRISES
918,181 ACRES



■ DRAINAGE ENTERPRISES

★ STATE CAPITAL

● COUNTY SEAT

NOTE: ALL OTHER PLACES HAVING 5,000 OR MORE POPULATION ○

SCALE

20 0 20 40 60 MILES

CENSUS OF DRAINAGE — NEBRASKA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	49,057,920	49,157,120	49,157,120				
Land in drainage enterprises.....acres.....	916,181	879,459	607,730	36,722	4.2	271,729	44.7
Improved.....acres.....	855,205	833,511	551,517	21,694	2.6	281,394	51.1
Unimproved:							
Timber and cut-over.....acres.....	17,993	8,031	6,342	9,962	124.0	1,689	26.6
Other.....acres.....	42,983	37,917	49,871	5,066	13.4	-11,954	-24.0
Drainage sufficient for normal crop.....acres.....	878,741	829,681	(1)	49,060	5.9		
Partly drained, for partial crop.....acres.....	20,812	39,639	(1)	-18,827	-47.5		
Unfit to raise any crop for lack of drainage.....acres.....	16,628	10,139	14,019	6,489	64.0	-3,880	-27.7
In occupied farms.....acres.....	649,948	864,159	(1)	-14,211	-1.6		
In planted crops.....acres.....	688,976	743,178	(1)	-54,202	-7.3		
Idle.....acres.....	114,696	45,755	(1)	68,941	150.7		
Available for settlement.....acres.....	2,000	5,320	(2)	-3,320	-62.4		
Open ditches, completed.....miles.....	1,406.7	1,202.3	734.5	204.4	17.0	467.8	63.7
Tile drains, completed.....miles.....	26.3	93.4	359.4	-67.1	-71.8	-266.0	-74.0
Drainage pumping plants, capacity.....horsepower.....	70	70				70	
.....gal. per min.....	2,200	2,200				2,200	
Capital invested in enterprises.....dollars.....	7,578,999	6,847,070	4,588,578	731,929	10.7	2,258,492	49.2
Average per acre.....dollars.....	8.27	7.79	7.55	0.48	6.2	0.24	3.2

¹ Not available.

² Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
All enterprises.....	1,005,541	893,899	708,450	916,181	1,000 to 1,999 acres.....	42,039	139,639	173,192	36,919
Less than 100 acres.....	80	80	320	80	2,000 to 4,999 acres.....	146,617	149,998	115,106	136,917
100 to 199 acres.....	160	160	2,900	2,900	5,000 to 9,999 acres.....	168,646	225,381	275,562	160,464
200 to 499 acres.....	2,900	2,494	14,570	11,229	10,000 to 19,999 acres.....	233,213	172,646	128,500	191,808
500 to 999 acres.....	12,894	15,649			20,000 to 49,999 acres.....	173,771			203,433
					50,000 to 99,999 acres.....				170,431

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	916,181	100.0	7,578,999	100.0
Drainage districts.....	457,843	50.0	4,741,288	62.6
County drains.....	264,143	28.8	1,593,672	21.0
Irrigation enterprises:				
Federal ¹	194,195	21.2	1,242,039	16.4
Other.....				
Individually owned projects.....	(2)		2,000	(3)

¹ Includes projects or divisions of projects of United States Bureau of Reclamation operated by water users.

² Entirely included in an enterprise organized under a drainage law.

³ Less than one-tenth of 1 percent.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	916,181	100.0	879,459	100.0	607,730	100.0	7,578,999	100.0	6,847,070	100.0	4,588,578	100.0
Gravity drainage only by—												
Open ditches.....	785,411	85.7	710,607	80.8	583,982	96.1	6,447,266	85.1	5,355,402	78.2	3,988,180	87.0
Tile drains.....			2,900	0.3	6,020	1.0			70,500	1.0	143,000	3.1
Open ditches and tile drains..	98,632	10.8	133,683	15.2	17,728	2.9	938,262	12.4	1,276,134	18.7	457,398	10.0
Part only by pumping by—												
Open ditches.....			32,269	3.7			193,471	2.6	143,034	2.1		
Tile drains.....												
Open ditches and tile drains..	32,138	3.5										
Total area served by pumps.....	300	(2)	300	(2)								

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

² Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE — NEBRASKA

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises ¹	CAPACITY			Land served
		Engine or motor		Pump	
	Number	Hp.	Percent	G. p. m.	Acres
All pumping enterprises.....	1940.. 1	70	100.0	2,200	300
	1930.. 1	70	100.0	2,200	300
	1920.. ..	.....	.....	.....	.....
Electric.....	1940.. 1	70	100.0	2,200	300
	1930.. 1	70	100.0	2,200	300
	1920.. ..	.....	.....	.....	.....

¹Where there are less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity	Land served
		Capacity			
		G. p. m.	Percent	Hp.	Acres
All pumping enterprises.....	1940.. 3	2,200	100.0	70	300
	1930.. 3	2,200	100.0	70	300
Centrifugal.....	1940.. 3	2,200	100.0	70	300
	1930.. 3	2,200	100.0	70	300

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	916,181	100.0	879,459	100.0	7,578,999	100.0	6,847,070	100.0	31,960	12,960
Enterprises in arrears.....	27,653	3.0	31,024	3.5	160,318	2.1	468,669	6.8	9,280	5,000
With some delinquent land.....	27,653	3.0	11,233	1.3	160,318	2.1	50,000	0.7	9,280	5,000
With no delinquent land.....	.....	.....	9,291	1.0	.....	.....	155,000	2.3	.....	.....
With no report on delinquency.....	.....	.....	10,500	1.2	.....	.....	263,669	3.8	.....	.....
Enterprises not in arrears.....	885,228	96.6	848,435	96.5	7,373,681	97.3	6,378,401	93.2	22,680	7,960
With some delinquent land.....	264,265	28.8	81,340	9.3	2,917,001	38.5	582,547	8.5	22,680	7,960
With no delinquent land.....	620,963	67.8	725,718	82.5	4,456,680	58.8	5,215,603	76.2	.....	.....
With no report on delinquency.....	.....	.....	41,377	4.7	.....	.....	580,251	8.5	.....	.....
Enterprises not reporting on arrearage.....	3,300	0.4	.....	.....	45,000	0.6	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no report on delinquency.....	3,300	0.4	.....	.....	45,000	0.6	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	916,181	7,578,999	1,278,621	40,250	119,000	31,960	180,173
Enterprises in debt.....	431,905	3,826,612	1,278,621	40,250	119,000	29,970	107,873
In arrears, amount of arrearage stated.....	27,653	160,318	87,828	40,250	.....	9,280	2,581
Collecting drainage taxes in 1939.....	11,483	101,500	34,203	8,250	.....	1,280	2,581
No collections reported.....	16,170	58,818	53,625	32,000	.....	8,000	.....
Not in arrears.....	403,452	3,646,294	1,190,747	.....	119,000	20,690	105,168
Collecting drainage taxes in 1939.....	387,823	3,386,794	1,045,747	.....	35,000	16,813	105,168
No collections reported.....	15,629	259,500	145,000	.....	84,000	3,877	.....
Not reporting as to arrears.....	800	20,000	46	.....	.....	.....	124
Collecting drainage taxes in 1939.....	800	20,000	46	.....	.....	.....	124
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Enterprises not in debt.....	481,776	3,727,387	.....	.....	.....	1,990	22,300
Collecting drainage taxes in 1939.....	44,684	433,626	.....	.....	.....	730	22,300
No collections reported.....	437,092	3,293,761	.....	.....	.....	1,260	.....
Enterprises not reporting as to debt.....	2,500	25,000	.....	.....	.....	.....	.....
Collecting drainage taxes in 1939.....	.....	.....	.....	.....	.....	.....	.....
No collections reported.....	2,500	25,000	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	916,181	100.0	7,578,999	100.0
Improvement of land already in farms.....	304,421	33.2	2,024,442	26.7
Reclamation of swamp land not previously in farms.....	20,807	2.3	167,798	2.2
Protection against overflow.....	384,795	42.0	3,714,208	49.0
Removal of alkali or seepage from irrigation.....	206,158	22.5	1,672,551	22.1

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	916,181	100.0	1,005,541	89,360	7,578,999	100.0
1880-1889.....			680	680	6,000	0.1
1890-1899.....	57,465	6.3	87,845	30,380	621,284	8.2
1900-1904.....	3,890	0.4	3,890		8,800	0.1
1905-1909.....	235,671	25.7	264,376	28,705	1,913,692	25.3
1910-1914.....	134,146	14.6	153,559	19,413	1,110,125	14.6
1915-1919.....	192,288	21.0	195,028	3,740	1,545,440	20.4
1920-1924.....	100,052	10.9	105,214	5,162	1,049,555	13.8
1925-1929.....	161,425	17.6	162,705	1,280	1,159,515	15.3
1930-1934.....	19,755	2.2	19,755		136,648	1.8
1935-1939.....	11,489	1.3	11,489		27,940	0.4

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT				USE OF LAND					
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	916,181	878,741	95.9	20,812	16,628	855,205	93.3	17,993	42,983	849,948	92.8	688,976	114,696	2,000
1880-1889 ²	57,465	54,440	94.7	3,025		55,350	96.3	1,600	515	32,345	56.3	28,580	25,160	1,000
1890-1899.....	3,890	1,270	32.6	1,310	1,310	2,580	66.3		1,310	2,580	66.3	2,066	1,310	
1900-1904.....	235,671	225,063	95.5	6,885	3,723	221,319	93.9	6,345	8,007	232,345	98.6	180,375	23,089	
1910-1914.....	134,146	127,978	95.4	4,701	1,467	128,931	96.1	2,125	3,090	132,720	98.9	115,363	4,232	
1915-1919.....	192,288	189,013	98.3	1,976	1,299	185,857	96.6	2,063	4,368	185,177	96.3	152,473	19,012	
1920-1924.....	100,052	94,607	94.6	1,295	4,150	85,969	85.9	3,729	10,354	87,816	87.8	72,832	7,150	
1925-1929.....	161,425	158,280	98.0	280	2,865	147,598	91.4	442	13,385	148,466	92.0	112,846	33,879	
1930-1934.....	19,755	18,741	94.9	200	814	18,591	94.1	350	814	19,405	98.2	16,454	864	
1935-1939.....	11,489	9,349	81.4	1,140	1,000	9,010	78.4	1,339	1,140	9,094	79.2	7,987		1,000

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² Entire acreage overlapped by a later enterprise.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	916,181	913,681	452,079	461,602	61,999	0.07	0.14
Gravity drainage only.....	884,043	881,543	419,941	451,602	59,839	0.07	0.13
Open ditches only.....	425,979	423,479	147,695	275,784	19,797	0.05	0.18
Open ditches and levees.....	359,432	359,432	181,709	177,723	32,709	0.09	0.08
Open ditches and tile drains.....	95,632	95,632	87,537	8,095	7,133	0.07	0.07
Open ditches, tile drains, and levees.....	3,000	3,000	3,000		200	0.07	0.07
Part pumping and part gravity.....	32,138	32,138	32,138		2,160	0.07	0.07

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	916,181	100.0	7,578,999	100.0
Method:				
By district forces.....	710,052	77.5	6,152,841	81.2
By contract.....	8,364	0.9	192,000	2.5
Work apportioned to landowners.....	24,935	2.7	124,682	1.7
"None," or not reporting.....	172,800	18.9	1,109,476	14.6
Whether systematic:				
Reporting "yes".....	589,519	64.3	5,138,270	68.2
Reporting "no".....	248,145	27.1	1,789,446	23.6
Not reporting.....	78,517	8.6	621,283	8.2

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	916,181	248,695	27.1
Capital invested.....dollars..	7,578,999	1,798,221	23.7
Drainage works:			
Open ditches.....miles....	1,406.7	325.0	23.1
Tile drains.....miles....	26.3	15.0	57.0
Levees.....miles....	230.3	45.0	19.5

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	30,459	451,818	43.0	7.5	2.0
Work Projects Administration.....	9,489	279,000	28.0	7.5
Civilian Conservation Corps.....	15,170	58,818	10.0
Other.....	4,800	114,000	5.0	2.0

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	/	THE STATE	Antelope ¹	Burt	Butler	Cass ¹	Cherry	Colfax	Cuming
LAND AREA									
1	Approximate land area.....acres.....1940..	49,057,920	545,920	303,360	372,480	353,280	3,828,480	259,200	365,440
2	Drainage enterprises.....number.....1940..	2145	1	4	5	1	5	9	4
3	Land in enterprises.....acres.....1940..	916,181	1,760	65,760	13,214	1,580	7,975	49,610	12,866
4	1930..	879,459	(³)	49,372	18,840	(³)	11,655	26,950	9,931
5	1920..	607,730	(³)	76,992	10,840	(³)	(³)	46,340	11,100
6	Area of all enterprises, overlapping included.....acres.....1940..	1,005,541	1,760	67,900	13,214	1,580	7,975	50,870	12,866
7	Amount of overlapping.....acres.....1940..	89,360	.....	2,140	.....	.....	.....	1,260	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	878,741	1,760	61,940	12,820	1,580	7,975	48,310	12,866
9	1930..	829,681	(³)	49,332	13,736	(³)	10,199	26,330	9,731
10	Increase or decrease (-), 1930-1940.....acres.....	49,060	(³)	12,608	-916	(³)	-2,224	21,980	3,135
11	percent.....	5.9	.....	25.6	-6.7	.....	-21.8	83.5	32.2
12	Land undrained, unfit for any crop.....acres.....1940..	16,628	.....	1,272	394	.....	.....	500	.....
13	1930..	10,139	.....	.....	.....	.....	700	.....	200
14	Increase or decrease (-), 1930-1940.....acres.....	6,489	.....	1,272	394	.....	-700	500	-200
15	percent.....	64.0	.....	.....	.....	.....	-100.0	.....	-100.0
16	Land partly drained, for partial crop.....acres.....1940..	20,812	.....	2,548	.....	.....	.....	800	.....
17	1930..	39,639	.....	40	5,104	(³)	756	620	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-18,827	.....	2,508	-5,104	(³)	-756	180	.....
19	percent.....	-47.5	.....	(⁴)	-100.0	.....	-100.0	29.0	.....
20	Improved land.....acres.....1940..	855,205	1,700	64,488	12,736	1,580	7,975	47,540	11,853
21	1930..	833,511	(³)	49,372	18,144	(³)	9,080	26,950	9,931
22	1920..	551,517	(³)	60,161	10,840	(³)	(³)	41,860	8,100
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	17,993	60	332	84	.....	.....	150	810
24	1930..	8,031	.....	.....	.....	(³)	.....	.....	.....
25	1920..	6,342	(³)	.....	.....	(³)	(³)	.....	.....
26	Other unimproved land.....acres.....1940..	42,983	.....	940	394	.....	.....	1,920	203
27	1930..	37,917	.....	.....	696	(³)	2,575	.....	.....
28	1920..	49,871	(³)	18,831	.....	(³)	(³)	4,480	3,000
29	Land in occupied farms.....acres.....1940..	849,948	1,700	65,760	13,214	1,580	7,975	49,410	11,853
30	1930..	864,159	(³)	49,372	18,840	(³)	11,155	26,950	9,931
31	Increase or decrease (-), 1930-1940.....acres.....	-14,211	(³)	16,388	-5,626	(³)	-3,180	22,460	1,922
32	percent.....	-1.6	.....	33.2	-29.5	.....	-28.5	83.3	19.4
33	Land in planted crops.....acres.....1940..	688,976	1,700	54,690	10,811	1,400	5,555	39,475	9,625
34	1930..	743,178	(³)	44,112	17,744	(³)	8,072	23,308	8,775
35	Increase or decrease (-), 1930-1940.....acres.....	-54,202	(³)	10,578	-6,933	(³)	-2,517	16,167	850
36	percent.....	-7.3	.....	24.0	-39.1	.....	-31.2	69.4	9.7
37	Land idle.....acres.....1940..	114,696	60	1,272	394	180	2,420	2,080	1,013
38	1930..	45,755	.....	.....	600	(³)	1,975	.....	.....
39	Increase or decrease (-), 1930-1940.....acres.....	68,941	60	1,272	-206	(³)	445	2,080	1,013
40	percent.....	150.7	.....	.....	-34.3	.....	22.5	.....	.....
41	Land available for settlement.....acres.....1940..	2,000	.....	.....	.....	.....	.....	.....	.....
42	1930..	5,320	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-3,320	.....	.....	.....	.....	.....	.....	.....
44	percent.....	-62.4	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	425,979	1,760	3,520	3,960	1,580	7,975	38,170	12,866
46	Length of these ditches.....miles.....	713.9	2.0	5.0	6.0	1.5	47.9	47.0	28.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	359,432	.....	62,240	9,254	.....	.....	11,440	.....
49	Length of these ditches.....miles.....	548.2	.....	87.0	21.0	.....	.....	20.0	.....
50	Length of these levees.....miles.....	226.3	.....	36.0	5.0	.....	.....	15.5	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	95,632	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	1,116	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	21.1	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	3,000	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	4.0	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	0.8	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	4.0	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	32,138	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	29.0	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	4.4	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 126.
³Included in "Other counties."
⁴Percent not shown when more than 1,000.
⁵Data included in lines 68 to 72 are not included in data in lines 45 to 67.

CENSUS OF DRAINAGE - NEBRASKA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Dawson	Dixon	Dodge	Douglas	Fillmore	Lancaster	Lincoln ¹	Madison	Morrill
LAND AREA										
1	Approximate land area.....acres.....1940..	629,120	307,200	338,560	214,400	369,280	540,800	1,616,000	366,080	897,920
2	Drainage enterprises.....number.....1940..	3	3	15	8	3	3	2	4	3
3	Land in enterprises.....acres.....1940..	8,986	34,408	98,380	52,950	8,310	42,080	12,191	5,760	31,306
4	.....1930..	6,240	33,928	134,620	54,512	(²)	17,920	9,500	5,460	31,290
5	.....1920..	.....	(²)	122,760	49,250	(²)	8,000	.....	(²)	(²)
6	Area of all enterprises, overlapping included.....acres.....1940..	9,086	34,408	146,625	53,650	8,310	43,800	12,191	5,760	31,306
7	Amount of overlapping.....acres.....1940..	80	.....	48,245	700	.....	1,720	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	8,986	34,408	97,950	47,160	8,310	39,800	12,191	5,760	30,966
9	.....1930..	4,000	33,768	134,620	52,952	(²)	13,920	9,500	5,460	30,810
10	Increase or decrease (-), 1930-1940.....acres.....	4,986	640	-36,670	-5,792	(²)	25,880	2,691	300	156
11	.....percent.....	124.6	1.9	-27.2	-10.9	.....	185.9	28.3	5.5	0.5
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	4,400	.....	.....	.....	.....	340
13	.....1930..	.....	160	.....	1,040	(²)	.....	.....	.....	125
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-160	.....	3,360	(²)	.....	.....	.....	215
15	.....percent.....	.....	-100.0	.....	323.1	.....	.....	.....	.....	172.0
16	Land partly drained, for partial crop.....acres.....1940..	.....	.....	430	1,390	.....	2,280	.....	.....	.....
17	.....1930..	2,240	.....	.....	520	.....	4,000	.....	.....	355
18	Increase or decrease (-), 1930-1940.....acres.....	-2,240	.....	430	870	.....	-1,720	.....	.....	-355
19	.....percent.....	-100.0	.....	.....	167.3	.....	-43.0	.....	.....	-100.0
20	Improved land.....acres.....1940..	8,454	27,719	97,950	46,314	8,180	40,380	11,035	3,265	29,322
21	.....1930..	3,000	33,768	134,620	52,972	(²)	15,120	9,500	5,460	25,973
22	.....1920..	.....	(²)	122,440	48,350	(²)	7,000	.....	(²)	(²)
Undrained land:										
23	Woodland and cut-over land.....acres.....1940..	.....	2,005	210	2,166	50	1,700	.....	215	.....
24	.....1930..	.....	.....	.....	1,500	.....	1,500	.....	.....	.....
25	.....1920..	.....	(²)	320	800	(²)	.....	.....	(²)	(²)
26	Other unimproved land.....acres.....1940..	532	4,684	220	4,470	80	1,156	.....	2,280	1,984
27	.....1930..	3,240	160	.....	40	(²)	1,300	.....	.....	5,317
28	.....1920..	.....	(²)	.....	.....	(²)	1,000	.....	(²)	(²)
29	Land in occupied farms.....acres.....1940..	8,986	27,719	98,040	46,484	8,230	17,300	12,191	3,265	27,553
30	.....1930..	6,240	33,928	134,620	54,472	(²)	17,600	9,500	5,460	30,880
31	Increase or decrease (-), 1930-1940.....acres.....	2,746	-6,209	-36,580	-7,988	(²)	-300	2,691	-2,195	-3,327
32	.....percent.....	44.0	-18.3	-27.2	-14.7	.....	-1.7	28.3	-40.2	-10.8
33	Land in planted crops.....acres.....1940..	8,034	23,756	86,668	39,272	7,487	14,311	8,983	3,265	19,414
34	.....1930..	3,000	30,932	130,200	51,812	(²)	13,600	7,000	5,270	21,376
35	Increase or decrease (-), 1930-1940.....acres.....	5,034	-7,176	-43,532	-12,540	(²)	711	1,983	-2,005	-1,962
36	.....percent.....	167.8	-23.2	-33.4	-24.2	.....	5.2	28.3	-38.0	-9.2
37	Land idle.....acres.....1940..	532	2,005	1,670	3,636	130	25,280	1,156	2,495	11,892
38	.....1930..	3,000	.....	.....	1,540	(²)	1,020	.....	.....	6,410
39	Increase or decrease (-), 1930-1940.....acres.....	-2,468	2,005	1,670	2,096	(²)	24,260	1,156	2,495	5,482
40	.....percent.....	-82.3	.....	.....	136.1	.....	(³)	.....	.....	85.5
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	1,000	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	1,000	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	930	34,408	43,120	2,000	4,810	42,080	.....	960	18,670
46	Length of these ditches.....miles.....	1.8	34.5	61.7	9.5	6.0	34.0	.....	4.0	20.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	6,512	.....	55,260	50,950	.....	.....	.....	4,800	.....
49	Length of these ditches.....miles.....	9.2	.....	62.3	74.0	.....	.....	.....	5.0	.....
50	Length of these levees.....miles.....	1.0	.....	26.8	41.5	.....	.....	.....	2.0	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,544	.....	.....	.....	3,500	.....	12,191	.....	12,636
60	Length of these open ditches.....miles.....	6.1	.....	.....	.....	4.8	.....	25.0	.....	11.0
61	Length of these tile.....miles.....	0.2	.....	.....	.....	0.1	.....	7.7	.....	1.7
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² Included in "Other counties."
³ Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - NEBRASKA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Nebraska	Platte	Polk	Richardson	Sarpy	Saunders	
LAND AREA							
1	Approximate land area.....acres.....1940..	255,360	430,080	277,120	350,720	147,200	483,840
2	Drainage enterprises.....number.....1940..	5	3	3	7	9	8
3	Land in enterprises.....acres.....1940..	30,688	17,094	3,080	56,264	27,000	38,288
4	.....1930..	19,916	9,040	3,800	35,673	30,000	32,020
5	.....1920..	20,134	(¹)	(¹)	35,838	32,850	30,930
6	Area of all enterprises, overlapping included.....acres.....1940..	31,108	17,094	3,080	56,584	34,980	40,268
7	Amount of overlapping.....acres.....1940..	420	.....	.....	320	7,980	1,980
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres.....1940..	29,088	17,094	3,080	55,307	24,100	29,593
9	.....1930..	18,365	7,520	3,800	32,173	29,560	25,774
10	Increase or decrease (-), 1930-1940.....acres.....	10,723	9,574	-720	23,134	-5,460	3,819
11	.....percent.....	58.4	127.3	-18.9	71.9	-18.5	14.8
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	.....	1,550	3,507
13	.....1930..	160	100	.....	2,500	.....	1,496
14	Increase or decrease (-), 1930-1940.....acres.....	-160	-100	.....	-2,500	1,550	2,011
15	.....percent.....	-100.0	-100.0	.....	-100.0	.....	134.4
16	Land partly drained, for partial crop.....acres.....1940..	1,600	.....	.....	957	1,350	5,188
17	.....1930..	1,381	1,420	.....	1,000	440	4,750
18	Increase or decrease (-), 1930-1940.....acres.....	209	-1,420	.....	-43	910	438
19	.....percent.....	15.0	-100.0	.....	-4.3	206.8	9.2
20	Improved land.....acres.....1940..	29,088	16,000	2,940	54,547	24,500	29,593
21	.....1930..	18,525	8,040	3,800	33,473	23,780	25,774
22	.....1920..	18,121	(¹)	(¹)	27,581	32,050	29,040
Unimproved land:							
23	Woodland and cut-over land.....acres.....1940..	1,600	1,094	140	1,717	1,150	718
24	.....1930..	1,391	.....	.....	2,200	880	280
25	.....1920..	2,013	(¹)	(¹)	2,269	200	280
26	Other unimproved land.....acres.....1940..	.....	.....	.....	.....	1,350	7,977
27	.....1930..	.....	1,000	.....	.....	5,340	5,966
28	.....1920..	.....	(¹)	(¹)	5,988	600	1,640
29	Land in occupied farms.....acres.....1940..	30,688	16,000	2,940	56,264	24,860	38,268
30	.....1930..	19,916	9,040	3,800	35,173	24,680	32,020
31	Increase or decrease (-), 1930-1940.....acres.....	10,772	6,960	-860	21,091	180	6,248
32	.....percent.....	54.1	77.0	-22.6	60.0	0.7	19.5
33	Land in planted crops.....acres.....1940..	24,526	13,968	2,670	46,956	11,490	26,587
34	.....1930..	18,125	6,300	3,470	33,160	21,360	22,504
35	Increase or decrease (-), 1930-1940.....acres.....	6,401	7,668	-800	13,796	-9,870	4,083
36	.....percent.....	35.3	121.7	-23.0	41.6	-46.2	18.1
37	Land idle.....acres.....1940..	1,600	839	140	397	13,010	3,087
38	.....1930..	900	.....	.....	900	5,900	1,400
39	Increase or decrease (-), 1930-1940.....acres.....	700	839	140	-503	7,110	1,687
40	.....percent.....	77.8	.....	.....	-55.9	120.5	120.5
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	1,000	.....
42	.....1930..	.....	.....	.....	.....	5,320	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	-4,320	.....
44	.....percent.....	.....	.....	.....	.....	-81.2	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	5,880	17,094	3,080	20,089	15,250	7,230
46	Length of these ditches.....miles.....	9.5	35.0	6.0	37.5	33.3	13.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	24,808	.....	.....	36,175	11,750	31,058
49	Length of these ditches.....miles.....	32.0	.....	.....	48.0	28.5	71.5
50	Length of these levees.....miles.....	16.5	.....	.....	19.0	5.0	19.5
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

CENSUS OF DRAINAGE - NEBRASKA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Scotts Bluff	Sioux ¹	Stanton	Thayer ¹	Washington	Other counties ²
LAND AREA							
1	Approximate land area.....acres....1940..	464,640	1,320,320	275,840	369,280	246,400	4,778,880
2	Drainage enterprises.....number...1940..	5	1	3	2	5	21
3	Land in enterprises.....acres....1940..	134,451	32,138	4,640	4,520	23,620	97,262
4	.....1930..	142,377	32,269	4,680	(³)	37,745	121,721
5	.....1920..	16,124	4,344	.....	(³)	25,840	114,358
6	Area of all enterprises, overlapping included.....acres....1940..	154,324	32,138	4,640	4,520	25,220	100,304
7	Amount of overlapping.....acres....1940..	19,873	.....	.....	.....	1,600	3,042
CONDITION AND USE OF LAND							
8	Land with drainage sufficient for normal crop.....acres....1940..	131,855	31,369	4,640	1,900	21,406	96,527
9	.....1930..	133,236	30,439	4,680	(³)	37,745	112,031
10	Increase or decrease (-), 1930-1940.....acres.....	-1,381	930	-40	(³)	-16,339	-15,504
11	.....percent.....	-1.0	3.0	-0.8	.....	-43.3	-13.8
12	Land undrained, unfit for any crop.....acres....1940..	2,396	769	.....	1,310	.....	190
13	.....1930..	2,043	345	.....	(³)	.....	1,270
14	Increase or decrease (-), 1930-1940.....acres.....	353	424	.....	(³)	.....	-1,080
15	.....percent.....	17.3	122.9	.....	.....	.....	-85.0
16	Land partly drained, for partial crop.....acres....1940..	200	.....	.....	1,310	2,214	545
17	.....1930..	7,098	1,485	.....	(³)	.....	8,420
18	Increase or decrease (-), 1930-1940.....acres.....	-6,898	-1,485	.....	(³)	2,214	-7,875
19	.....percent.....	-97.2	-100.0	.....	.....	.....	-93.5
20	Improved land.....acres....1940..	127,929	27,567	4,180	3,210	22,368	92,792
21	.....1930..	140,994	31,029	4,680	(³)	37,745	111,781
22	.....1920..	14,110	3,904	.....	(³)	22,760	105,200
Unimproved land:							
23	Woodland and cut-over land.....acres....1940..	.....	.....	260	.....	481	3,051
24	.....1930..	.....	.....	.....	.....	.....	280
25	.....1920..	.....	.....	.....	(³)	80	280
26	Other unimproved land.....acres....1940..	6,522	4,571	200	1,310	771	1,419
27	.....1930..	1,383	1,240	.....	(³)	.....	9,660
28	.....1920..	2,014	440	.....	(³)	3,000	8,878
29	Land in occupied farms.....acres....1940..	127,423	27,567	4,180	3,210	23,620	93,668
30	.....1930..	142,377	31,209	4,680	(³)	37,745	114,571
31	Increase or decrease (-), 1930-1940.....acres.....	-14,954	-3,642	-500	(³)	-14,125	-20,903
32	.....percent.....	-10.5	-11.7	-10.7	.....	-37.4	-18.2
33	Land in planted crops.....acres....1940..	111,114	22,386	3,411	2,853	18,977	69,592
34	.....1930..	114,698	22,354	3,260	(³)	34,266	98,480
35	Increase or decrease (-), 1930-1940.....acres.....	-3,584	32	151	(³)	-15,289	-28,888
36	.....percent.....	-3.1	0.1	4.6	.....	-44.6	-29.3
37	Land idle.....acres....1940..	23,137	9,752	460	1,310	289	4,460
38	.....1930..	11,365	1,000	1,000	(³)	.....	7,030
39	Increase or decrease (-), 1930-1940.....acres.....	11,772	7,037	-540	(³)	289	-2,570
40	.....percent.....	103.6	259.2	-54.0	.....	.....	-36.6
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940							
45	Land drained by open ditches only.....acres.....	70,285	.....	4,640	1,900	7,160	56,562
46	Length of these ditches.....miles.....	141.0	.....	12.0	3.0	13.5	101.2
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	16,460	38,725
49	Length of these ditches.....miles.....	.....	.....	.....	.....	31.5	58.2
50	Length of these levees.....miles.....	.....	.....	.....	.....	21.0	17.5
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	61,166	.....	.....	2,620	.....	1,975
60	Length of these open ditches.....miles.....	60.0	.....	.....	3.0	.....	1.7
61	Length of these tile.....miles.....	8.9	.....	.....	0.5	.....	2.0
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	3,000	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	4.0	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	0.8	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	4.0	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	32,138	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	29.0	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	4.4	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² Includes Cedar, Dakota, Franklin, Frontier, Hamilton, Johnson, Kearney, Merrick, Otoe, Pawnee, Seward, Thurston, Wayne, and York Counties in 1940; Antelope, Cass, Cedar, Dakota, Fillmore, Franklin, Frontier, Hamilton, Seward, Thayer, Wayne, and York Counties in 1930; and Antelope, Cass, Cherry, Dakota, Dixon, Fillmore, Knox, Madison, Morrill, Nance, Platte, Polk, Seward, Thayer, Wayne, and York Counties in 1920.
³ Included in "Other counties."
⁴ Data included in lines 68 to 72 are not included in data in lines 45 to 67.

CENSUS OF DRAINAGE — NEBRASKA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939;

	ITEM (See definitions in Introduction)	THE STATE	Antelope ¹	Burt	Butler	Cass ¹	Cherry	Colfax	Cuming
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	2 145	1	4	5	1	5	9	4
2	Open ditches:								
3	Completed.....miles.....1940..	1,406.7	2.0	92.0	27.0	1.5	47.9	67.0	28.0
4	.....1930..	1,202.3	(³)	127.0	29.0	(³)	44.5	50.0	11.3
5	.....1920..	734.5	(³)	109.8	9.3	(³)	(³)	30.2	10.8
6	Additional length authorized.....miles.....1940..								
7	Tile drains:								
8	Completed.....miles.....1940..	26.3							
9	.....1930..	93.4						5.0	2.0
10	.....1920..	359.4	(³)	152.2		(³)	(³)		
11	Additional length authorized.....miles.....1940..								
12	Levees and dikes:								
13	Completed.....miles.....1940..	230.3		36.0	5.0			15.5	
14	.....1930..	116.8		56.0					
15	.....1920..	26.8		10.0					
16	Additional length authorized.....miles.....1940..								
17	Pumping plants:								
18	Engine capacity.....horsepower.....1940..	70							
19	.....1930..	70							
20	.....1920..								
21	Pump capacity.....gal. per min.....1940..	2,200							
22	.....1930..	2,200							
23	.....1920..								
24	Land served by pumps.....acres.....1940..	300							
25	.....1930..	300							
26	.....1920..								
27	Wells pumped for drainage.....number.....1940..	3							
28	.....1930..	3							
CAPITAL INVESTED									
29	Capital invested to January 1.....dollars.....1940..	7,578,999	3,200	513,500	43,400	6,000	87,882	133,503	52,752
30	.....1930..	6,847,070	(³)	499,866	48,421	(³)	101,394	124,738	76,474
31	.....1920..	4,588,578	(³)	825,605	62,257	(³)	(³)	90,092	56,506
32	Estimated cost when completed.....dollars.....1940..	7,578,999	3,200	513,500	43,400	6,000	87,882	133,503	52,752
33	.....1930..	6,946,020	(³)	499,866	48,421	(³)	101,394	124,738	76,474
34	.....1920..	4,886,681	(³)	850,605	62,257	(³)	(³)	90,092	56,506
35	Average cost per acre when completed.....dollars.....1940..	8.27	1.82	7.81	3.28	3.80	11.02	2.69	4.10
36	.....1930..	7.90	(³)	10.12	2.57	(³)	8.70	4.63	7.70
37	.....1920..	6.04	(³)	10.77	5.74	(³)	(³)	1.94	5.09
38	Invested in and required for completion, 1940:								
39	Enterprises having open ditches only.....dollars..	3,235,075	3,200	24,000	5,000	6,000	87,882	91,608	52,752
40	Average amount per acre.....dollars.....	7.59	1.82	6.82	1.26	3.80	11.02	2.40	4.10
41	Enterprises having open ditches and levees.....dollars..	3,212,191		489,500	38,400			41,895	
42	Average amount per acre.....dollars.....	8.94		7.86	4.15			3.66	
43	Enterprises having tile only.....dollars.....								
44	Average amount per acre.....dollars.....								
45	Enterprises having tile and levees.....dollars.....								
46	Average amount per acre.....dollars.....								
47	Enterprises having open ditches and tile.....dollars..	845,262							
48	Average amount per acre.....dollars.....	8.84							
49	Enterprises having ditches, tile, and levees.....dollars..	93,000							
50	Average amount per acre.....dollars.....	31.00							
51	Enterprises operating pumping plants ⁴.....dollars..	193,471							
52	Average amount per acre.....dollars.....	6.02							
MAINTENANCE AND OPERATION									
53	Cost of maintenance and operation in 1939:								
54	By enterprises operating pumping plants.....dollars..	2,160							
55	Enterprises reporting.....number.....	1							
56	Land in these enterprises.....acres.....	32,138							
57	Average cost per acre.....dollars.....	0.07							
58	By enterprises not operating pumping plants.....dollars..	59,839		(⁵)	1,450				
59	Enterprises reporting.....number.....	44		2	3				
60	Land in these enterprises.....acres.....	419,941		(⁵)	6,144				
61	Average cost per acre.....dollars.....	0.14		(⁵)	0.24				
62	Federal aid in maintenance:								
63	Enterprises reporting.....number.....	4							
64	Land in these enterprises.....acres.....	30,459							
FINANCIAL CONDITION									
65	Drainage taxes collected in 1939.....dollars..	130,173		(⁵)	(⁵)		(⁵)		
66	Enterprises reporting.....number.....	46		2	2		1		
67	Land in these enterprises.....acres.....	444,790		(⁵)	(⁵)		(⁵)		
68	Average amount collected per acre.....dollars.....	0.29		(⁵)	(⁵)		(⁵)		
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	31,960		(⁵)					
70	Enterprises reporting.....number.....	27		2					
71	Land in these enterprises.....acres.....	291,918		(⁵)					
72	Portion delinquent in these enterprises.....percent..	10.9		(⁵)					
73	Total indebtedness, Dec. 31, 1939.....dollars..	1,278,621		(⁵)			(⁵)		
74	Enterprises reporting.....number.....	36		2			1		
75	Land in these enterprises.....acres.....	431,905		(⁵)			(⁵)		
76	Average indebtedness per acre.....dollars.....	2.96		(⁵)			(⁵)		
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..	40,250							
78	Enterprises reporting.....number.....	4							
79	Land in these enterprises.....acres.....	27,653							
80	Average arrearage per acre.....dollars.....	1.46							
81	Reduction of debt by refinancing, prior to 1940 ⁵.....dollars..	119,000							
82	Enterprises reporting.....number.....	3							
83	Land in these enterprises.....acres.....	14,969							
84	Average reduction per acre.....dollars.....	7.95							

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 126.

³Included in "Other counties."

⁴Data included in lines 46 and 47 are not included in data in lines 34 to 45.

⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

⁶Not distributed by counties, except as stated in footnote 1.

CENSUS OF DRAINAGE — NEBRASKA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Dawson	Dixon	Dodge	Douglas	Fillmore	Lancaster	Lincoln ¹	Madison	Morrill
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	3	3	15	8	3	3	2	4	3
2 Open ditches:									
3 Completed.....miles.....1940..	17.1	34.5	124.0	83.5	10.8	34.0	25.0	9.0	31.0
4 1930..	10.0	16.0	108.9	63.8	(²)	32.0	24.0	9.3	38.0
5 1920..		(²)	77.6	49.2	(²)	7.0		(²)	(²)
6 Additional length authorized.....miles.....1940..									
7 Tile drains:									
8 Completed.....miles.....1940..	0.2				0.1		7.7		1.7
9 1930..			45.0	15.0	(²)		3.0	0.5	
10 1920..		(²)	206.0		(²)			(²)	(²)
11 Additional length authorized.....miles.....1940..									
12 Levees and dikes:									
13 Completed.....miles.....1940..	1.0		26.8	41.5				2.0	
14 1930..				15.0					
15 1920..									
16 Additional length authorized.....miles.....1940..									
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..									
19 1930..									
20 1920..									
21 Pump capacity.....gal. per min.....1940..									
22 1930..									
23 1920..									
24 Land served by pumps.....acres.....1940..									
25 1930..									
26 1920..									
27 Wells pumped for drainage.....number.....1940..									
28 1930..									
29 1920..									
CAPITAL INVESTED									
25 Capital invested to January 1.....dollars.....1940..	106,185	183,402	556,320	566,500	8,700	552,658	273,381	116,014	159,886
26 1930..	30,000	175,122	452,620	475,156	(²)	235,000	250,000	48,402	174,494
27 1920..		(²)	481,075	259,607	(²)	35,500		(²)	(²)
28 Estimated cost when completed.....dollars.....1940..	106,185	183,402	556,320	566,500	8,700	552,658	273,381	116,014	159,886
29 1930..	45,000	230,022	452,620	475,156	(²)	235,000	250,000	48,402	174,494
30 1920..		(²)	481,075	259,607	(²)	35,500		(²)	(²)
31 Average cost per acre when completed.....dollars.....1940..	11.82	5.33	5.65	10.70	1.05	13.13	22.42	20.14	5.11
32 1930..	7.21	6.78	3.36	8.72	(²)	13.11	26.32	8.86	5.58
33 1920..		(²)	3.92	5.27	(²)	4.44		(²)	(²)
34 Invested in and required for completion, 1940:									
35 Enterprises having open ditches only.....dollars..	23,302	183,402	212,392	52,500	5,400	552,658		2,014	83,818
36 Average amount per acre.....dollars..	25.05	5.33	4.92	26.25	1.12	13.13		2.10	4.49
37 Enterprises having open ditches and levees.....dollars..	47,673		343,928	514,000				114,000	
38 Average amount per acre.....dollars..	7.32		6.22	10.09				23.75	
39 Enterprises having tile only.....dollars..									
40 Average amount per acre.....dollars..									
41 Enterprises having tile and levees.....dollars..									
42 Average amount per acre.....dollars..									
43 Enterprises having open ditches and tile.....dollars..	35,210				3,300		273,381		76,068
44 Average amount per acre.....dollars..	22.80				0.94		22.42		6.02
45 Enterprises having ditches, tile, and levees.....dollars..									
46 Average amount per acre.....dollars..									
47 Enterprises operating pumping plants.....dollars..									
48 Average amount per acre.....dollars..									
MAINTENANCE AND OPERATION									
48 Cost of maintenance and operation in 1939:									
49 By enterprises operating pumping plants.....dollars..									
50 Enterprises reporting.....number.....									
51 Land in these enterprises.....acres.....									
52 Average cost per acre.....dollars.....									
53 By enterprises not operating pumping plants.....dollars..	600		(³)	(³)		(³)	1,596	(³)	(³)
54 Enterprises reporting.....number.....	3		2	2		2	2	1	2
55 Land in these enterprises.....acres.....	8,986		(³)	(³)		(³)	12,191	(³)	(³)
56 Average cost per acre.....dollars.....	0.07		(³)	(³)		(³)	0.13	(³)	(³)
57 Federal aid in maintenance:									
58 Enterprises reporting.....number.....							1	1	1
59 Land in these enterprises.....acres.....							9,489	(³)	(³)
FINANCIAL CONDITION									
58 Drainage taxes collected in 1939.....dollars..	3,800	(³)	(³)	(³)		(³)		(³)	(³)
59 Enterprises reporting.....number.....	3	2	2	2		1		1	1
60 Land in these enterprises.....acres.....	8,986	(³)	(³)	(³)		(³)		(³)	(³)
61 Average amount collected per acre.....dollars..	0.42	(³)	(³)	(³)		(³)		(³)	(³)
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	(³)	(³)	(³)	(³)		(³)	3,877	(³)	(³)
63 Enterprises reporting.....number.....	2	2	1	1		1	1	1	1
64 Land in these enterprises.....acres.....	(³)	(³)	(³)	(³)		(³)	9,489	(³)	(³)
65 Portion delinquent in these enterprises.....percent..	(³)	(³)	(³)	(³)		(³)	40.8	(³)	(³)
66 Total indebtedness, Dec. 31, 1939.....dollars..	62,836	(³)	(³)	(³)		(³)	144,500		(³)
67 Enterprises reporting.....number.....	3	2	1	1		1	1		2
68 Land in these enterprises.....acres.....	8,986	(³)	(³)	(³)		(³)	9,489		(³)
69 Average indebtedness per acre.....dollars..	7.00	(³)	(³)	(³)		(³)	15.23		(³)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..		(³)							(³)
71 Enterprises reporting.....number.....		1							1
72 Land in these enterprises.....acres.....		(³)							(³)
73 Average arrearage per acre.....dollars.....		(³)							(³)
74 Reduction of debt by refinancing, prior to 1940.....dollars..							84,000		
75 Enterprises reporting.....number.....							1		
76 Land in these enterprises.....acres.....							9,489		
77 Average reduction per acre.....dollars.....							8.85		

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²Included in "Other counties."
³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE — NEBRASKA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Nemaha	Platte	Polk	Richardson	Sarpy	Saunders
DRAINAGE WORKS						
1 Drainage enterprises.....number.....1940..	5	3	3	7	9	8
Open ditches:						
2 Completed.....miles.....1940..	41.5	35.0	6.0	85.5	61.8	84.5
3	1930..	56.6	7.2	7.5	68.5	65.8
4	1920..	55.0	(1)	(1)	50.5	54.6
5 Additional length authorized.....miles.....1940..						
File drains:						
6 Completed.....miles.....1940..						
7						
8		1.2	0.2			0.3
9 Additional length authorized.....miles.....1940..		(1)	(1)			
Levees and dikes:						
10 Completed.....miles.....1940..	16.5			19.0	5.0	19.5
11					5.0	8.3
12				1.3	2.0	9.8
13 Additional length authorized.....miles.....1940..						
Pumping plants:						
14 Engine capacity.....horsepower.....1940..						
15						
16						
17 Pump capacity.....gal. per min.....1940..						
18						
19						
20 Land served by pumps.....acres.....1940..						
21						
22						
23 Wells pumped for drainage.....number.....1940..						
24						
25						
CAPITAL INVESTED						
25 Capital invested to January 1.....dollars.....1940..	181,468	71,963	17,425	724,716	464,840	234,951
26	1930..	375,000	47,259	9,712	698,150	393,253
27	1920..	346,000	(1)	(1)	339,124	262,177
28 Estimated cost when completed.....dollars.....1940..	181,468	71,963	17,425	724,716	464,840	234,951
29	1930..	375,000	47,259	9,712	698,150	393,253
30	1920..	346,000	(1)	(1)	339,124	266,177
31 Average cost per acre when completed.....dollars.....1940..	5.91	4.21	5.66	12.88	17.22	6.14
32	1930..	18.83	5.23	2.56	19.57	13.11
33	1920..	17.18	(1)	(1)	9.46	8.10
Invested in and required for completion, 1940:						
34 Enterprises having open ditches only.....dollars..	30,000	71,963	17,425	192,216	294,840	31,000
35 Average amount per acre.....dollars..	5.10	4.21	5.66	9.57	19.33	4.29
36 Enterprises having open ditches and levees.....dollars..	151,468			532,500	170,000	203,951
37 Average amount per acre.....dollars..	6.10			14.72	14.47	6.57
38 Enterprises having tile only.....dollars..						
39 Average amount per acre.....dollars..						
40 Enterprises having tile and levees.....dollars..						
41 Average amount per acre.....dollars..						
42 Enterprises having open ditches and tile.....dollars..						
43 Average amount per acre.....dollars..						
44 Enterprises having ditches, tile, and levees.....dollars..						
45 Average amount per acre.....dollars..						
46 Enterprises operating pumping plants.....dollars..						
47 Average amount per acre.....dollars..						
MAINTENANCE AND OPERATION						
48 Cost of maintenance and operation in 1939:						
49 By enterprises operating pumping plants.....dollars..						
50 Enterprises reporting.....number.....						
51 Land in these enterprises.....acres.....						
52 Average cost per acre.....dollars.....						
53 By enterprises not operating pumping plants.....dollars..	(2)			800	3,300	3,849
54 Enterprises reporting.....number.....	1			3	3	5
55 Land in these enterprises.....acres.....	(2)			39,015	9,030	31,058
56 Average cost per acre.....dollars.....	(2)			0.02	0.36	0.12
Federal aid in maintenance:						
57 Enterprises reporting.....number.....						
Land in these enterprises.....acres.....						
FINANCIAL CONDITION						
58 Drainage taxes collected in 1939.....dollars..	(2)	(2)		(2)	6,868	5,455
59 Enterprises reporting.....number.....	2	1		2	3	5
60 Land in these enterprises.....acres.....	(2)	(2)		(2)	9,030	31,058
61 Average amount collected per acre.....dollars..	(2)	(2)		(2)	0.76	0.18
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	(2)	(2)			(2)	(2)
63 Enterprises reporting.....number.....	1	1			1	1
64 Land in these enterprises.....acres.....	(2)	(2)			(2)	(2)
65 Portion delinquent in these enterprises.....percent..	(2)	(2)			(2)	(2)
66 Total indebtedness, Dec. 31, 1939.....dollars..	(2)	(2)		(2)	8,546	(2)
67 Enterprises reporting.....number.....	2	1		1	4	2
68 Land in these enterprises.....acres.....	(2)	(2)		(2)	15,170	(2)
69 Average indebtedness per acre.....dollars..	(2)	(2)		(2)	0.56	(2)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..		(2)				
71 Enterprises reporting.....number.....		1				
72 Land in these enterprises.....acres.....		(2)				
73 Average arrearage per acre.....dollars..		(2)				
74 Reduction of debt by refinancing, prior to 1940.....dollars..						
75 Enterprises reporting.....number.....						
76 Land in these enterprises.....acres.....						
77 Average reduction per acre.....dollars..						

¹Included in "Other counties."

²Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE — NEBRASKA

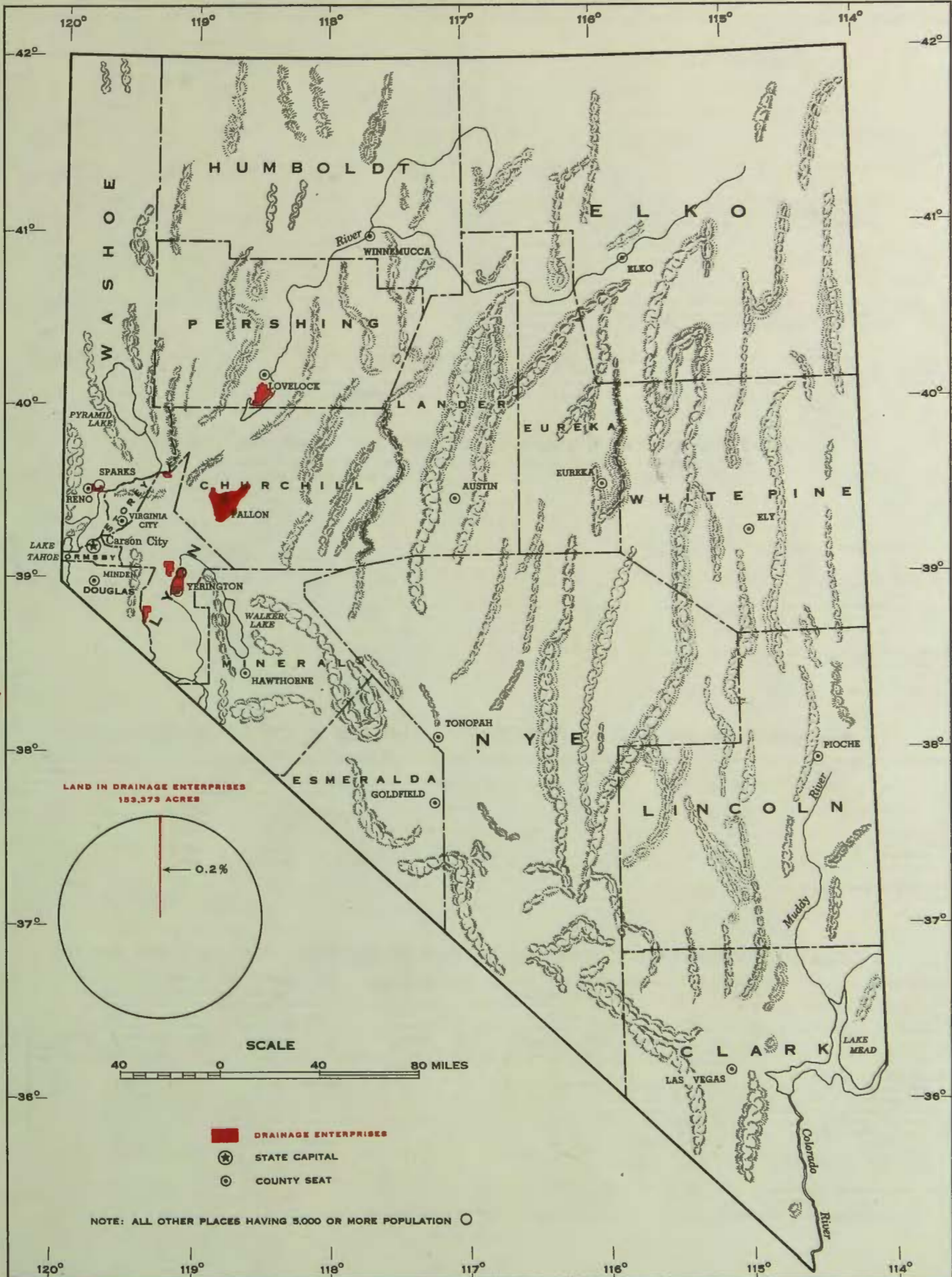
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAIN-TENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Scotts Bluff	Sioux ¹	Stanton	Thayer ¹	Washington	Other counties ²
DRAINAGE WORKS							
1	Drainage enterprises.....number.....1940..	5	1	3	2	5	21
Open ditches:							
2	Completed.....miles.....1940..	205.0	29.0	12.0	6.0	45.0	161.1
3	.....1930..	143.0	19.0	5.3	(³)	76.1	169.1
4	.....1920..	49.3	5.9	.....	(³)	32.6	176.8
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
Tile drains:							
6	Completed.....miles.....1940..	9.7	4.4	.....	0.5	.....	2.0
7	.....1930..	10.5	5.0	.....	(³)	.....	5.7
8	.....1920..	0.5	.....	.....	(³)	.....	0.7
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
Levees and dikes:							
10	Completed.....miles.....1940..	4.0	.....	.....	.....	21.0	17.5
11	.....1930..	.....	.....	0.5	.....	11.0	21.0
12	.....1920..	.....	.....	.....	.....	1.5	2.2
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....
Pumping plants:							
14	Engine capacity.....horsepower.....1940..	.....	70	.....	.....	.....	.....
15	.....1930..	.....	70	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	2,200	.....	.....	.....	.....
18	.....1930..	.....	2,200	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	300	.....	.....	.....	.....
21	.....1930..	.....	300	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	3	.....	.....	.....	.....
24	.....1930..	.....	3	.....	.....	.....	.....
CAPITAL INVESTED							
25	Capital invested to January 1.....dollars.....1940..	1,106,182	193,471	65,647	7,400	266,500	881,153
26	.....1930..	911,080	143,034	127,323	(³)	150,630	1,206,883
27	.....1920..	380,000	118,048	.....	(³)	203,874	1,071,310
28	Estimated cost when completed.....dollars.....1940..	1,106,182	193,471	65,647	7,400	266,500	881,153
29	.....1930..	921,080	143,034	127,323	(³)	150,630	1,222,933
30	.....1920..	560,800	198,058	.....	(³)	203,874	1,078,310
31	Average cost per acre when completed.....dollars.....1940..	8.23	6.02	14.15	1.64	11.28	9.06
32	.....1930..	6.47	4.43	27.20	(³)	3.99	10.05
33	.....1920..	34.78	45.59	.....	(³)	7.89	9.43
Invested in and required for completion, 1940:							
34	Enterprises having open ditches only.....dollars.....	619,679	.....	65,647	2,400	37,000	496,977
35	Average amount per acre.....dollars.....	8.82	.....	14.15	1.26	5.17	8.61
36	Enterprises having open ditches and levees.....dollars.....	.....	.....	.....	.....	229,500	335,376
37	Average amount per acre.....dollars.....	.....	.....	.....	.....	13.94	8.66
38	Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....
39	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....
40	Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars.....	393,503	.....	.....	5,000	.....	58,800
43	Average amount per acre.....dollars.....	6.43	.....	.....	1.91	.....	29.77
44	Enterprises having ditches, tile, and levees.....dollars.....	93,000	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars.....	31.00	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants ⁴.....dollars.....	.....	193,471	.....	.....	.....	.....
47	Average amount per acre.....dollars.....	.....	6.02	.....	.....	.....	.....
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48	By enterprises operating pumping plants.....dollars.....	.....	2,160	.....	.....	.....	.....
49	Enterprises reporting.....number.....	.....	1	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	.....	32,138	.....	.....	.....	.....
51	Average cost per acre.....dollars.....	.....	0.07	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars.....	14,795	.....	.....	.....	(⁵)	5,996
53	Enterprises reporting.....number.....	8	.....	.....	.....	.....	3
54	Land in these enterprises.....acres.....	134,451	.....	.....	.....	(⁵)	14,150
55	Average cost per acre.....dollars.....	0.11	.....	.....	.....	(⁵)	0.42
Federal aid in maintenance:							
56	Enterprises reporting.....number.....	.....	1	.....	.....	.....	.....
57	Land in these enterprises.....acres.....	(⁵)	.....	.....	.....	.....	.....
FINANCIAL CONDITION							
58	Drainage taxes collected in 1939.....dollars.....	13,492	764	(⁵)	.....	(⁵)	22,575
59	Enterprises reporting.....number.....	5	1	.....	.....	.....	7
60	Land in these enterprises.....acres.....	134,451	32,138	(⁵)	1	(⁵)	27,387
61	Average amount collected per acre.....dollars.....	0.10	0.02	(⁵)	.....	(⁵)	0.82
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	2,940	.....	(⁵)	.....	(⁵)	1,106
63	Enterprises reporting.....number.....	4	.....	.....	1	.....	4
64	Land in these enterprises.....acres.....	56,045	.....	(⁵)	.....	(⁵)	17,702
65	Portion delinquent in these enterprises.....percent.....	5.2	.....	(⁵)	.....	(⁵)	6.2
66	Total indebtedness, Dec. 31, 1939.....dollars.....	584,656	130,927	(⁵)	.....	(⁵)	50,000
67	Enterprises reporting.....number.....	5	1	.....	.....	.....	3
68	Land in these enterprises.....acres.....	134,451	32,138	(⁵)	.....	(⁵)	15,397
69	Average indebtedness per acre.....dollars.....	4.35	4.07	(⁵)	.....	(⁵)	3.25
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	(⁵)	.....	.....	.....	.....	.....
71	Enterprises reporting.....number.....	.....	1	.....	.....	.....	.....
72	Land in these enterprises.....acres.....	(⁵)	.....	.....	.....	.....	.....
73	Average arrearage per acre.....dollars.....	(⁵)	.....	.....	.....	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars.....	.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²Includes Cedar, Dakota, Franklin, Frontier, Hamilton, Johnson, Kearney, Merrick, Otoe, Pawnee, Seward, Thurston, Wayne, and York Counties in 1940; Antelope, Cass, Cedar, Dakota, Fillmore, Franklin, Frontier, Hamilton, Seward, Thayer, Wayne, and York Counties in 1930; and Antelope, Cass, Cherry, Dakota, Dixon, Fillmore, Knox, Madison, Morrill, Nance, Platte, Polk, Seward, Thayer, Wayne, and York Counties in 1920. ³Included in "Other counties." ⁴Data included in lines 46 and 47 are not included in data in lines 34 to 45. ⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

NEVADA

Location of Land in Drainage Enterprises.



CENSUS OF DRAINAGE—NEVADA

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	70,273,280	70,285,440	70,285,440	.....	.....	.....	.....
Land in drainage enterprises.....acres.....	153,373	162,980	15,940	-9,607	-5.9	147,040	922.5
Improved.....acres.....	89,721	122,918	7,970	-33,197	-27.0	114,948	(¹)
Unimproved:							
Timber and cut-over.....acres.....	18,200	.....	.....	18,200	.....	.....	.....
Other.....acres.....	45,452	40,062	7,970	5,390	13.4	32,092	402.6
Drainage sufficient for normal crop.....acres.....	133,677	160,109	(²)	-26,432	-16.5	.....	.....
Partly drained, for partial crop.....acres.....	19,696	2,732	(²)	16,964	620.9	.....	.....
Unfit to raise any crop for lack of drainage.....acres.....	.....	139	(³) 5,261	-139	-100.0	-5,122	-97.4
In occupied farms.....acres.....	148,617	155,491	(²)	-6,874	-4.4	.....	.....
In planted crops.....acres.....	78,221	111,512	(²)	-33,291	-29.8	.....	.....
Idle.....acres.....	38,798	45,306	(²)	-6,508	-14.4	.....	.....
Available for settlement.....acres.....	4,756	7,489	(²)	-2,733	-36.5	.....	.....
Open ditches, completed.....miles.....	426.4	334.8	16.6	91.6	27.4	318.2	(¹)
Tile drains, completed.....miles.....	.....	4.0	4.0	-4.0	-100.0	.....	.....
Drainage pumping plants, capacity.....horsepower.....	22	18	.....	4	22.2	18	.....
gal. per min.....	2,700	900	.....	1,800	200.0	900	.....
Capital invested in enterprises.....dollars.....	1,337,647	1,349,774	117,851	-12,127	-0.9	1,231,923	(¹)
Average per acre.....dollars.....	8.72	8.28	7.39	0.44	5.3	0.89	12.0

¹ More than 1,000 percent.

² Not available.

³ Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	LAND IN ENTERPRISES ¹		
	1940	1930	1920
	Acres	Acres	Acres
All enterprises.....	153,373	162,980	15,940
200 to 499 acres.....	400	.....	.....
500 to 999 acres.....	600	.....	.....
2,000 to 4,999 acres.....	6,940	7,740	.....
5,000 to 9,999 acres.....	7,551	.....	.....
10,000 to 19,999 acres.....	11,278	.....	.....
20,000 to 49,999 acres.....	49,320	77,956	15,940
50,000 to 99,999 acres.....	77,284	77,284	.....

¹ No overlapping of enterprises was indicated in Nevada.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	153,373	100.0	1,337,647	100.0
Drainage districts.....	24,398	15.9	95,000	7.1
Irrigation enterprises:				
Federal.....	82,224	53.6	1,135,329	84.9
Other.....	44,151	28.8	79,318	5.9
Individually owned projects.....	2,600	1.7	28,000	2.1
Other.....	.....	.....	.....	.....

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	153,373	100.0	162,980	100.0	15,940	100.0	1,337,647	100.0	1,349,774	100.0	117,851	100.0
Gravity drainage only by—												
Open ditches.....	76,089	49.6	85,686	52.6	15,940	100.0	288,186	21.5	400,091	29.6	117,851	100.0
Tile drains.....	.....	.....	.....	.....				
Open ditches and tile drains.....	.....	.....	.....	.....				
All drained by pumping.....												
Part only by pumping by—												
Open ditches.....	77,284	50.4	77,284	47.4	.....	.....	1,049,461	78.5	949,683	70.4	.....	.....
Tile drains.....	.....	.....								
Open ditches and tile drains.....	.....	.....								
Total area served by pumps.....	200	0.1	50	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

CENSUS OF DRAINAGE—NEVADA

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940 AND 1930

KIND OF POWER	Enter-prises	CAPACITY			Land served	
		Engine or motor		Pump		
		Number	Hp.	Percent		G. p. m.	Acres
All pumping enterprises.....	1940..	1	22	100.0	2,700	200
	1930..	1	18	100.0	900	50
Electric.....	1940..	1	22	100.0	2,700	200
	1930..	1	18	100.0	900	50
Other.....	1940..	.....	.....	.....	.....	.....
	1930..	.....	.....	.....	.....	.....

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Number	PUMPS		Engine or motor capacity	Land served	
		Capacity				
		G. p. m.	Percent			Hp.	Acres
All pumping enterprises.....	1940..	3	2,700	100.0	22	200
	1930..	2	900	100.0	18	50
Centrifugal and screw.....	1940..	3	2,700	100.0	22	200
	1930..	2	900	100.0	18	50
Other.....	1940..	.....	.....	.....	.....	.....
	1930..	.....	.....	.....	.....	.....

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	153,373	100.0	162,980	100.0	1,337,647	100.0	1,349,774	100.0	16,983	7,400
Enterprises in arrears.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Enterprises not in arrears.....	153,373	100.0	162,980	100.0	1,337,647	100.0	1,349,774	100.0	16,983	7,400
With some delinquent land.....	125,975	82.1	30,000	18.4	1,214,107	90.8	95,000	7.0	16,983	7,400
With no delinquent land.....	27,398	17.9	132,980	81.6	123,540	9.2	1,254,774	93.0	.....	.....

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	153,373	1,337,647	648,856	.....	.....	16,983	36,533
Enterprises in debt.....	125,975	1,214,107	648,856	.....	.....	16,983	36,533
In arrears.....	.....	.....	.....	.....	.....	.....	.....
Not in arrears.....	125,975	1,214,107	648,856	.....	.....	16,983	36,533
Collecting drainage taxes in 1939.....	125,975	1,214,107	648,856	.....	.....	16,983	36,533
Enterprises not in debt.....	27,398	123,540	.....	.....	.....	.....	.....
No collections reported.....	27,398	123,540	.....	.....	.....	.....	.....

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	153,373	100.0	1,337,647	100.0	Protection against overflow.....	2,000	1.3	16,000	1.2
Improvement of land already in farms....	69,149	45.1	186,318	13.9	Removal of alkali or seepage from irrigation.....	82,224	53.6	1,135,329	84.9

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land in enterprises		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	153,373	100.0	1,337,647	100.0
1870-1879.....	2,600	1.7	28,000	2.1
1915-1919.....	106,622	69.5	1,230,329	92.0
1920-1924.....	7,551	4.9	10,676	0.8
1925-1929.....	24,922	16.2	64,421	4.8
1930-1934.....	400	0.3	540	(¹)
1935-1939.....	11,278	7.4	3,681	0.3

¹ Less than one-tenth of 1 percent.

CENSUS OF DRAINAGE—NEVADA

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND					
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other un-improved land	In occupied farms	In planted crops	Idle	Land available for settlement		
	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises.....	153,373	133,677	87.2	19,696	89,721	58.5	18,200	45,452	148,617	96.9	78,221	38,798	4,756
1870-1879.....	2,600	2,600	100.0	.....	2,600	100.0	.....	.....	2,600	100.0	2,100	.....	.....
1915-1919.....	106,622	95,198	89.3	11,424	69,670	65.3	.....	36,952	101,866	95.5	58,670	38,798	4,756
1920-1924.....	7,551	6,801	90.1	750	2,951	39.1	3,200	1,400	7,551	100.0	2,951	.....	.....
1925-1929.....	24,922	21,000	84.3	3,922	10,600	42.5	10,000	4,322	24,922	100.0	10,600	.....	.....
1930-1934.....	400	400	100.0	.....	400	100.0	.....	.....	400	100.0	400	.....	.....
1935-1939.....	11,278	7,678	68.1	3,600	3,500	31.0	5,000	2,778	11,278	100.0	3,500	.....	.....

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	153,373	153,373	124,035	29,338	24,277	0.16	0.20
Gravity drainage only:							
Open ditches only.....	76,089	76,089	46,751	29,338	4,743	0.06	0.10
Open ditches and levees.....	.....	.....	.....	.....	.....	.....	.....
Pumping for all or part of drainage:							
Part pumping and part gravity.....	77,284	77,284	77,284	.....	19,534	0.25	0.25

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	153,373	100.0	1,337,647	100.0
Method:				
By district forces.....	150,373	98.0	1,309,107	97.9
By contract.....	2,000	1.3	16,000	1.2
Work apportioned to landowners.....	1,000	0.7	12,540	0.9
Whether systematic:				
Reporting "yes".....	153,373	100.0	1,337,647	100.0

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT		ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent			Amount	Percent
Land in enterprises.....acres....	153,373	89,775	58.5	Drainage works:			
Capital invested.....dollars..	1,337,647	1,146,005	85.7	Open ditches.....miles..	426.4	342.4	80.3
				Tile drains.....miles..	.....	.....	.....
				Levees.....miles..	23.0	23.0	100.0

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	150,373	1,309,107	414.4	23.0
Civilian Conservation Corps.....	150,373	1,309,107	414.4	23.0
Other.....

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Churchill ¹	Lyon	Pershing ¹	Washoe	
LAND AREA						
1	Approximate land area.....acres....1940..	70,273,280	3,140,480	1,287,680	3,835,520	4,019,840
2	Drainage enterprises.....number...1940..	² 9	1	4	1	3
3	Land in enterprises.....acres....1940..	153,373	77,284	48,691	24,398	3,000
4	.....1930..	162,980	77,284	52,896	30,000	2,800
5	.....1920..	15,940	15,940	.....	.....	.....
6	Area of all enterprises, overlapping included.....acres....1940..	153,373	77,284	48,691	24,398	3,000
7	Amount of overlapping.....acres....1940..	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND						
8	Land with drainage sufficient for normal crop.....acres....1940..	133,677	68,182	40,297	22,198	3,000
9	.....1930..	160,109	74,674	52,635	30,000	2,800
10	Increase or decrease (-), 1930-1940.....acres.....	-26,432	-6,492	-12,338	-7,802	200
11	.....percent.....	-16.5	-8.7	-23.4	-26.0	7.1
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	.....	.....	.....
13	.....1930..	139	.....	139	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-139	.....	-139	.....	.....
15	.....percent.....	-100.0	.....	-100.0	.....	.....
16	Land partly drained, for partial crop.....acres....1940..	19,696	9,102	8,394	2,200	.....
17	.....1930..	2,732	2,610	122	.....	.....
18	Increase or decrease (-), 1930-1940.....acres.....	16,964	6,492	8,272	2,200	.....
19	.....percent.....	620.9	248.7	6,780.3	.....	.....
20	Improved land.....acres....1940..	89,721	46,471	20,250	20,000	3,000
21	.....1930..	122,918	43,706	51,412	25,000	2,800
22	.....1920..	7,970	7,970	.....	.....	.....
Unimproved land:						
23	Woodland and cut-over land.....acres....1940..	18,200	.....	18,200	.....	.....
24	.....1930..	.....	.....	.....	.....	.....
25	.....1920..	.....	.....	.....	.....	.....
26	Other unimproved land.....acres....1940..	45,452	30,813	10,241	4,398	.....
27	.....1930..	40,062	33,578	1,484	5,000	.....
28	.....1920..	7,970	7,970	.....	.....	.....
29	Land in occupied farms.....acres....1940..	148,617	72,707	48,512	24,398	3,000
30	.....1930..	155,491	72,707	52,717	27,267	2,800
31	Increase or decrease (-), 1930-1940.....acres.....	-6,874	.....	-4,205	-2,869	200
32	.....percent.....	-4.4	.....	-8.0	-10.5	7.1
33	Land in planted crops.....acres....1940..	78,221	46,471	20,250	9,000	2,500
34	.....1930..	111,512	43,706	50,306	15,000	2,500
35	Increase or decrease (-), 1930-1940.....acres.....	-33,291	2,765	-30,056	-6,000	.....
36	.....percent.....	-29.8	6.3	-59.7	-40.0	.....
37	Land idle.....acres....1940..	38,798	26,236	1,562	11,000	.....
38	.....1930..	45,306	29,001	1,305	15,000	.....
39	Increase or decrease (-), 1930-1940.....acres.....	-6,508	-2,765	257	-4,000	.....
40	.....percent.....	-14.4	-9.5	19.7	-26.7	.....
41	Land available for settlement.....acres....1940..	4,756	4,577	179	.....	.....
42	.....1930..	7,489	4,577	179	2,733	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-2,733	.....	.....	-2,733	.....
44	.....percent.....	-36.5	.....	.....	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940						
45	Land drained by open ditches only.....acres.....	76,089	.....	48,691	24,398	3,000
46	Length of these ditches.....miles.....	124.8	.....	82.8	30.0	12.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	77,284	77,284	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	301.6	301.6	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	23.0	23.0	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission by each enterprise affected.
² Eliminating duplication of intercounty enterprises, this number would be 8 for the State. The total number of schedules tabulated was 9.
³ Amounts shown in lines 68, 69, and 71 are not included in lines 45 and 46.

CENSUS OF DRAINAGE—NEVADA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)		THE STATE	Churchill ¹	Lyon	Pershing ¹	Washoe
DRAINAGE WORKS						
1	Drainage enterprises.....number.....1940..	29	1	4	1	3
Open ditches:						
2	Completed.....miles.....1940..	426.4	301.6	82.8	30.0	12.0
3	.....1930..	384.8	249.0	32.8	40.0	13.0
4	.....1920..	16.6	16.6	.....	.....	.....
5	Additional length authorized.....miles.....1940..	18.5	10.0	8.5	.....	.....
Tile drains:						
6	Completed.....miles.....1940..	.....	.....	.....	.....	.....
7	.....1930..	4.0	4.0	.....	.....	.....
8	.....1920..	4.0	4.0	.....	.....	.....
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....
Levees and dikes:						
10	Completed.....miles.....1940..	23.0	23.0	.....	.....	.....
11	.....1930..	33.0	23.0	.....	.....	10.0
12	.....1920..	.....	.....	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....
Pumping plants:						
14	Engine capacity.....horsepower.....1940..	22	22	.....	.....	.....
15	.....1930..	18	18	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min. 1940..	2,700	2,700	.....	.....	.....
18	.....1930..	900	900	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	200	200	.....	.....	.....
21	.....1930..	50	50	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....
CAPITAL INVESTED						
25	Capital invested to January 1.....dollars.....1940..	1,337,647	1,049,461	164,646	95,000	28,540
26	.....1930..	1,349,774	949,683	152,091	95,000	153,000
27	.....1920..	117,851	117,851	.....	.....	.....
28	Estimated cost when completed.....dollars.....1940..	1,357,657	1,054,471	179,646	95,000	28,540
29	.....1930..	1,400,174	955,083	197,091	95,000	153,000
30	.....1920..	117,851	117,851	.....	.....	.....
31	Average cost per acre when completed.....dollars.....1940..	8.85	13.64	3.69	3.89	9.51
32	.....1930..	8.59	12.36	3.73	3.17	54.64
33	.....1920..	7.39	7.39	.....	.....	.....
Invested in and required for completion, 1940:						
34	Enterprises having open ditches only.....dollars.....	303,186	.....	179,646	95,000	28,540
35	Average amount per acre.....dollars.....	3.98	.....	3.69	3.89	9.51
36	Enterprises having open ditches and levees.....dollars.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....
39	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....
40	Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars.....	.....	.....	.....	.....	.....
43	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....
44	Enterprises having ditches, tile, and levees.....dollars.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants ³.....dollars.....	1,054,471	1,054,471	.....	.....	.....
47	Average amount per acre.....dollars.....	13.64	13.64	.....	.....	.....
MAINTENANCE AND OPERATION						
Cost of maintenance and operation in 1939:						
48	By enterprises operating pumping plants.....dollars.....	19,534	19,534	.....	.....	.....
49	Enterprises reporting.....number.....	1	1	.....	.....	.....
50	Land in these enterprises.....acres.....	77,284	77,284	.....	.....	.....
51	Average cost per acre.....dollars.....	0.25	0.25	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars.....	4,743	.....	4,433	.....	310
53	Enterprises reporting.....number.....	6	.....	3	.....	3
54	Land in these enterprises.....acres.....	46,751	.....	43,751	.....	3,000
55	Average cost per acre.....dollars.....	0.10	.....	0.10	.....	0.10
Federal aid in maintenance:						
56	Enterprises reporting.....number.....	6	1	4	1	.....
57	Land in these enterprises.....acres.....	150,373	77,284	48,691	24,398	.....
FINANCIAL CONDITION						
58	Drainage taxes collected in 1939.....dollars.....	36,533	25,261	11,272	.....	.....
59	Enterprises reporting.....number.....	5	1	4	.....	.....
60	Land in these enterprises.....acres.....	125,975	77,284	48,691	.....	.....
61	Average amount collected per acre.....dollars.....	0.29	0.33	0.23	.....	.....
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	16,983	8,203	8,780	.....	.....
63	Enterprises reporting.....number.....	5	1	4	.....	.....
64	Land in these enterprises.....acres.....	125,975	77,284	48,691	.....	.....
65	Portion delinquent in these enterprises.....percent.....	13.5	10.6	18.0	.....	.....
66	Total indebtedness, Dec. 31, 1939.....dollars.....	648,856	567,922	80,934	.....	.....
67	Enterprises reporting.....number.....	5	1	4	.....	.....
68	Land in these enterprises.....acres.....	125,975	77,284	48,691	.....	.....
69	Average indebtedness per acre.....dollars.....	5.15	7.35	1.66	.....	.....
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	.....	.....	.....	.....	.....
71	Enterprises reporting.....number.....	.....	.....	.....	.....	.....
72	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....
73	Average arrearage per acre.....dollars.....	.....	.....	.....	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars.....	.....	.....	.....	.....	.....
75	Enterprises reporting.....number.....	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission by each enterprise affected.
² Eliminating duplication of intercounty enterprises, this number would be 8 for the State. The total number of schedules tabulated was 9.
³ Costs shown in lines 46 and 47 are not included in lines 34 and 35.

CENSUS OF DRAINAGE — NEW MEXICO

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	77,767,040	78,401,920	78,401,920				
Land in drainage enterprises.....acres.....	305,885	176,292	140,219	129,593	73.5	36,073	25.7
Improved.....acres.....	240,810	146,557	92,477	94,253	64.3	54,080	58.5
Unimproved:							
Timber and cut-over.....acres.....	2,874			2,874			
Other.....acres.....	62,201	29,735	47,742	32,466	109.2	-18,007	-37.7
Drainage sufficient for normal crop.....acres.....	284,474	144,750	(¹)	139,724	96.5		
Partly drained, for partial crop.....acres.....	9,601	16,322	(¹)	-6,721	-41.2		
Unfit to raise any crop for lack of drainage.....acres.....	11,810	15,220	² 20,572	-3,410	-22.4	-5,352	-26.0
In occupied farms.....acres.....	286,890	151,516	(¹)	135,374	89.3		
In planted crops.....acres.....	187,727	137,570	(¹)	50,157	36.4		
Idle.....acres.....	79,093	30,996	(¹)	48,097	155.2		
Available for settlement.....acres.....	26,242	13,400	(¹)	12,842	95.8		
Open ditches, completed.....miles.....	625.2	282.9	124.0	342.3	121.0	158.9	128.1
Tile drains, completed.....miles.....	308.9	305.4	282.2	3.5	1.1	23.2	8.2
Drainage pumping plants, capacity.....horsepower.....							
gal. per min.....							
Capital invested in enterprises.....dollars.....	5,722,121	3,279,371	1,710,796	2,442,750	74.5	1,568,575	91.7
Average per acre.....dollars.....	18.71	18.60	12.20	0.11	0.6	6.40	52.5

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	LAND IN ENTERPRISES ¹			SIZE	LAND IN ENTERPRISES ¹		
	1940	1930	1920		1940	1930	1920
All enterprises.....	Acres 305,885	Acres 176,292	Acres 140,219	5,000 to 9,999 acres.....	Acres 37,590	Acres 29,450	Acres 34,579
1,000 to 1,999 acres.....				10,000 to 19,999 acres.....	14,975		
2,000 to 4,999 acres.....	8,267	8,740		20,000 to 49,999 acres.....	148,043	54,102	31,640
				50,000 to 99,999 acres.....	97,010	84,000	74,000

¹No overlapping of drainage enterprises indicated in New Mexico.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	305,885	100.0	5,722,121	100.0
Drainage districts.....	172,796	56.5	3,374,407	59.0
Irrigation enterprises:				
Federal.....	125,889	41.2	2,335,214	40.8
Other.....	7,200	2.3	12,500	0.2

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
All enterprises.....	Acres 305,885	Percent 100.0	Acres 176,292	Percent 100.0	Acres 140,219	Percent 100.0	Dollars 5,722,121	Percent 100.0	Dollars 3,279,371	Percent 100.0	Dollars 1,710,796	Percent 100.0
Gravity drainage only by—												
Open ditches.....	193,084	63.1	92,740	52.6	140,219	100.0	3,752,393	65.6	1,872,576	57.1	1,710,796	100.0
Tile drains.....	4,443	1.5	25,972	14.7			158,477	2.8	491,935	15.0		
Open ditches and tile drains..	108,358	35.4	57,580	32.7			1,811,251	31.6	914,860	27.9		

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT	
	1940		1930		1940		1930		1940	1930
All enterprises.....	Acres 305,885	Percent 100.0	Acres 176,292	Percent 100.0	Dollars 5,722,121	Percent 100.0	Dollars 3,279,371	Percent 100.0	Acres 4,279	Acres 20,235
Enterprises in arrears—with some delinquent land.....			50,909	28.8			1,161,555	35.4		19,760
Enterprises not in arrears.....	182,897	59.8	125,483	71.2	3,576,786	62.5	2,117,816	64.6	4,279	475
With some delinquent land.....	37,727	12.3	7,688	4.4	970,595	17.0	100,000	3.0	4,279	475
With no delinquent land.....	145,170	47.5	117,795	66.8	2,606,191	45.5	2,017,816	61.6		
Enterprises not reporting on arrearage—with no report on delinquency.....	122,988	40.2			2,145,335	37.5				

CENSUS OF DRAINAGE - NEW MEXICO

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STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes	Drainage taxes collected in 1939
	<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Acres</i>	<i>Dollars</i>
All enterprises.....	305,885	5,722,121	3,900,967	.....	357,324	4,279	191,390
Enterprises in debt.....	298,247	5,622,121	3,900,967	.....	357,324	4,279	191,264
In arrears.....	.....	.....	.....	.....	.....	.....	.....
Not in arrears.....	175,259	3,476,786	1,891,967	.....	357,324	4,279	99,764
Collecting drainage taxes in 1939.....	160,789	3,203,573	1,777,967	.....	219,324	367	99,764
No collections reported.....	14,470	273,213	114,000	.....	138,000	3,912	.....
Not reporting as to arrears.....	122,988	2,145,335	2,009,000	.....	.....	.....	91,500
Collecting drainage taxes in 1939.....	122,988	2,145,335	2,009,000	.....	.....	.....	91,500
Enterprises not in debt.....	7,638	100,000	.....	.....	.....	.....	126
Collecting drainage taxes in 1939.....	7,638	100,000	.....	.....	.....	.....	126

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	<i>Acres</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>
All enterprises.....	305,885	100.0	5,722,121	100.0
Removal of alkali or seepage from irrigation.....	305,885	100.0	5,722,121	100.0

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land in enterprises		Capital invested	
	<i>Acres</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>
All enterprises.....	305,885	100.0	5,722,121	100.0
1905-1909.....	25,055	8.2	129,706	2.3
1910-1914.....	27,056	8.8	738,097	12.9
1915-1919.....	123,586	40.4	2,696,483	47.1
1925-1929.....	122,988	40.2	2,145,335	37.5
1930-1934.....	7,200	2.4	12,500	0.2

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement	
		<i>Acres</i>	<i>Per-cent</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Per-cent</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Per-cent</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
All enterprises..	305,885	284,474	93.0	9,601	11,810	240,810	78.7	2,874	62,201	286,890	93.8	187,727	79,093	26,242
1905-1909.....	25,055	22,055	88.0	2,800	200	25,055	100.0	.....	.....	25,055	100.0	19,531	5,524	.....
1910-1914.....	27,056	27,056	100.0	.....	.....	26,558	98.2	.....	498	26,558	98.2	24,200	2,856	.....
1915-1919.....	123,586	105,175	85.1	6,801	11,610	104,536	84.6	2,874	19,050	112,489	91.0	88,016	26,560	8,442
1925-1929.....	122,988	122,988	100.0	.....	.....	79,761	64.8	2,874	40,353	117,888	95.9	51,080	41,853	15,500
1930-1934.....	7,200	7,200	100.0	.....	.....	4,900	68.1	.....	2,300	4,900	68.1	4,900	2,300	2,300

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	
All enterprises.....	305,885	305,885	291,415	14,470	71,675	0.23	0.25
Gravity drainage only.....	305,885	305,885	291,415	14,470	71,675	0.23	0.25
Open ditches only.....	100,834	100,834	100,834	.....	21,337	0.21	0.21
Open ditches and levees.....	92,250	92,250	92,250	.....	27,490	0.30	0.30
Tile drains only.....	4,443	4,443	4,443	.....	1,257	0.28	0.28
Open ditches and tile drains.....	77,620	77,620	63,150	14,470	9,051	0.12	0.14
Open ditches, tile drains, and levees.....	30,738	30,738	30,738	12,570	0.41	0.41

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STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	305,885	100.0	5,722,121	100.0
Method, by district forces.....	305,885	100.0	5,722,121	100.0
Whether systematic, reporting "yes".....	305,885	100.0	5,722,121	100.0

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING ¹ POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	305,885	256,077	83.7
Capital invested.....dollars..	5,722,121	4,493,049	78.5
Drainage works:			
Open ditches.....miles....	625.2	609.6	97.5
Tile drains.....miles....	308.9	6.9	2.2
Levees.....miles....	181.3	181.3	100.0

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	122,988	2,145,335	341.4	2.5	181.3
Work Projects Administration.....	122,988	2,145,335	341.4	2.5	181.3

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprise.....acres....	305,885	¹ 104,210	34.1
Capital invested.....dollars..	5,722,121	2,204,199	38.5
Drainage works:			
Open ditches.....miles....	625.2	252.3	40.4
Tile drains.....miles....	308.9	1.0	0.3
Levees.....miles....	181.3	.....	.....

¹Of this area, 51,000 acres or 48.9 percent is dependent for protection upon levees of outside agencies.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Berna- lillo ¹	Chaves	Dona Ana ¹	Sandoval ¹	Sierra ¹	Socorro ¹	Valencia ¹	Other counties ²	
LAND AREA										
1	Approximate land area.....acres.....1940..	77,767,040	744,320	3,900,160	2,434,560	2,439,040	1,941,760	4,974,080	3,607,680	4,173,440
2	Drainage enterprises.....number.....1940..	314	1	5	1	1	1	1	1	3
3	Land in enterprises.....acres.....1940..	305,885	30,738	42,573	97,010	20,910	3,824	27,060	44,280	39,490
4	.....1930..	176,292	3,400	51,297	84,000	.....	4,000	.....	.....	33,595
5	.....1920..	140,219	.....	53,983	74,000	.....	.....	.....	.....	12,236
6	Area of all enterprises, overlapping included.....acres.....1940..	305,885	30,738	42,573	97,010	20,910	3,824	27,060	44,280	39,490
7	Amount of overlapping.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	284,474	30,738	35,913	87,585	20,910	3,005	27,060	44,280	34,983
9	.....1930..	144,750	3,400	42,355	68,000	.....	2,700	.....	.....	28,295
10	Increase or decrease (-), 1930-1940.....acres.....	139,724	27,338	-6,442	19,585	20,910	305	27,060	44,280	6,688
11	.....percent.....	96.5	804.0	-15.2	28.8	.....	11.3	.....	.....	23.6
12	Land undrained, unfit for any crop.....acres.....1940..	11,810	.....	3,155	7,251	.....	702	.....	.....	702
13	.....1930..	15,220	.....	4,020	9,800	.....	300	.....	.....	1,100
14	Increase or decrease (-), 1930-1940.....acres.....	-3,410	.....	-865	-2,549	.....	402	.....	.....	-398
15	.....percent.....	-22.4	.....	-21.5	-26.0	.....	134.0	.....	.....	-36.2
16	Land partly drained, for partial crop.....acres.....1940..	9,601	.....	3,505	2,174	.....	117	.....	.....	3,805
17	.....1930..	16,322	.....	4,922	6,200	.....	1,000	.....	.....	4,200
18	Increase or decrease (-), 1930-1940.....acres.....	-6,721	.....	-1,417	-4,026	.....	-883	.....	.....	-395
19	.....percent.....	-41.2	.....	-28.8	-64.9	.....	-88.3	.....	.....	-9.4
20	Improved land.....acres.....1940..	240,810	27,864	35,199	89,759	11,934	3,122	13,493	26,470	32,969
21	.....1930..	146,557	3,100	31,562	81,000	.....	2,000	.....	.....	28,895
22	.....1920..	92,477	.....	46,843	37,000	.....	.....	.....	.....	8,634
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	2,874	2,874	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres.....1940..	62,201	.....	7,374	7,251	8,976	702	13,567	17,810	6,521
27	.....1930..	29,735	300	19,735	3,000	.....	2,000	.....	.....	4,700
28	.....1920..	47,742	.....	7,140	37,000	.....	.....	.....	.....	3,602
29	Land in occupied farms.....acres.....1940..	286,890	28,933	35,199	97,010	20,239	3,824	25,658	43,058	32,969
30	.....1930..	151,516	3,400	36,221	81,000	.....	2,000	.....	.....	28,895
31	Increase or decrease (-), 1930-1940.....acres.....	135,374	25,533	-1,022	16,010	20,239	1,824	25,658	43,058	4,074
32	.....percent.....	89.3	751.0	-2.8	19.8	.....	91.2	.....	.....	14.1
33	Land in planted crops.....acres.....1940..	187,727	2,478	31,725	75,223	11,263	2,254	12,091	25,248	27,445
34	.....1930..	137,570	1,880	28,915	77,200	.....	1,800	.....	.....	27,775
35	Increase or decrease (-), 1930-1940.....acres.....	50,157	598	2,810	-1,977	11,263	454	12,091	25,248	-330
36	.....percent.....	36.4	31.8	9.7	-2.6	.....	25.2	.....	.....	-1.2
37	Land idle.....acres.....1940..	79,093	1,500	10,848	13,520	8,976	827	13,567	17,810	12,045
38	.....1930..	30,896	1,520	19,556	4,000	.....	1,000	.....	.....	4,920
39	Increase or decrease (-), 1930-1940.....acres.....	48,097	-20	-8,708	9,520	8,976	-173	13,567	17,810	7,125
40	.....percent.....	155.2	-1.3	-44.5	238.0	.....	-17.3	.....	.....	144.8
41	Land available for settlement.....acres.....1940..	26,242	.....	4,221	.....	500	.....	5,000	10,000	6,521
42	.....1930..	13,400	.....	4,200	4,000	.....	1,000	.....	.....	4,200
43	Increase or decrease (-), 1930-1940.....acres.....	12,842	.....	21	-4,000	500	-1,000	5,000	10,000	2,321
44	.....percent.....	95.8	.....	0.5	-100.0	.....	-100.0	.....	.....	55.3
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	100,834	.....	.....	97,010	.....	3,824	.....	.....	.....
46	Length of these ditches.....miles.....	245.9	.....	.....	244.3	.....	1.6	.....	.....	.....
47	Part protected by levees of an outside agency.....acres.....	50,000	.....	.....	50,000	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	92,250	.....	.....	.....	20,910	.....	27,060	44,280	.....
49	Length of these ditches.....miles.....	244.3	.....	.....	.....	47.2	.....	87.0	110.1	.....
50	Length of these levees.....miles.....	135.4	.....	.....	.....	37.3	.....	48.6	49.5	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	4,443	.....	4,443	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	50.0	.....	50.0	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	77,620	.....	38,130	.....	.....	.....	.....	.....	39,490
60	Length of these open ditches.....miles.....	37.9	.....	9.8	.....	.....	.....	.....	.....	28.1
61	Length of these tile.....miles.....	256.4	.....	228.5	.....	.....	.....	.....	.....	27.9
62	Part protected by levees of an outside agency.....acres.....	1,000	.....	.....	.....	.....	.....	.....	.....	1,000
63	Land drained by open ditches, tile, and levees.....acres.....	30,738	30,738	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	97.1	97.1	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	2.5	2.5	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	45.9	45.9	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ Where there are less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² Includes De Baca and Eddy Counties in 1940 and San Juan County in 1930.
³ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 7.

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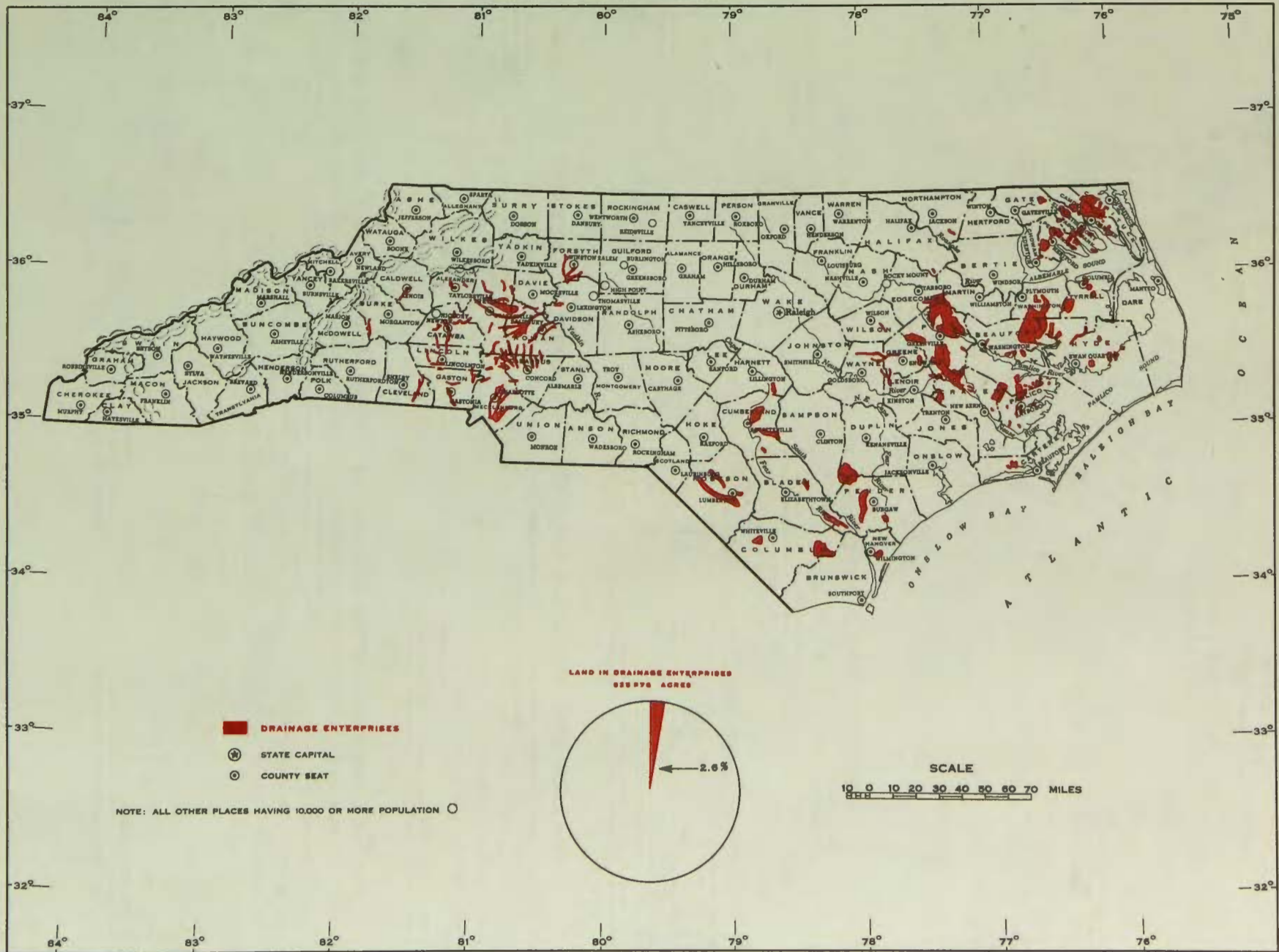
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Berna- lillo ¹	Chaves	Dona Ana ¹	Sandoval ¹	Sierra ¹	Socorro ¹	Valencia ¹	Other counties ²
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	3 14	1	5	1	1	1	1	1	3
2 Open ditches:									
3 Completed.....miles.....1940..	625.2	97.1	9.8	244.3	47.2	1.6	87.0	110.1	28.1
4 1930..	282.9	7.0	6.8	243.0	.....	2.0	.....	.....	24.1
5 1920..	124.0	.....	7.4	100.0	.....	.....	.....	.....	16.6
6 Additional length authorized.....miles.....1940..	5.0	.....	.....	5.0	.....	.....	.....	.....	.....
7 Tile drains:									
8 Completed.....miles.....1940..	308.9	2.5	278.5	.....	.....	.....	.....	.....	27.0
9 1930..	305.4	.....	278.5	.....	.....	.....	.....	.....	26.9
10 1920..	282.2	.....	263.8	.....	.....	.....	.....	.....	18.4
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:									
13 Completed.....miles.....1940..	181.3	45.9	.....	.....	37.3	.....	48.6	49.5	.....
14 1930..	12.0	2.0	.....	10.0	.....	.....	.....	.....	.....
15 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21 Pump capacity.....gal. per min..1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
25 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
30 Capital invested to January 1.....dollars.....1940..	5,722,121	598,450	1,092,467	2,191,699	322,970	13,809	550,070	673,845	278,811
31 1930..	3,279,371	43,980	1,116,555	1,812,596	.....	15,000	.....	.....	291,240
32 1920..	1,710,796	.....	924,442	575,000	.....	.....	.....	.....	211,354
33 Estimated cost when completed.....dollars.....1940..	5,772,121	598,450	1,092,467	2,241,699	322,970	13,809	550,070	673,845	278,811
34 1930..	3,474,631	43,980	1,116,555	1,993,856	.....	20,000	.....	.....	300,240
35 1920..	2,906,296	.....	1,093,692	1,575,000	.....	.....	.....	.....	237,604
36 Average cost per acre when completed.....dollars.....1940..	18.87	19.47	25.66	23.11	15.44	3.61	20.33	15.22	7.06
37 1930..	19.71	12.94	21.77	23.74	.....	5.00	.....	.....	8.94
38 1920..	20.73	.....	20.26	21.28	.....	.....	.....	.....	19.42
39 Invested in and required for completion, 1940:									
40 Enterprises having open ditches only.....dollars..	2,255,508	.....	.....	2,241,699	.....	13,809	.....	.....	.....
41 Average amount per acre.....dollars..	22.37	.....	.....	23.11	.....	3.61	.....	.....	.....
42 Enterprises having open ditches and levees.....dollars..	1,546,885	.....	.....	.....	322,970	.....	550,070	673,845	.....
43 Average amount per acre.....dollars..	16.77	.....	.....	.....	15.44	.....	20.33	15.22	.....
44 Enterprises having tile only.....dollars..	158,477	.....	158,477	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars..	35.67	.....	35.67	.....	.....	.....	.....	.....	.....
46 Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
47 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Enterprises having open ditches and tile.....dollars..	1,212,801	.....	933,990	.....	.....	.....	.....	.....	278,811
49 Average amount per acre.....dollars..	15.62	.....	24.49	.....	.....	.....	.....	.....	7.06
50 Enterprises having ditches, tile, and levees.....dollars..	598,450	598,450	.....	.....	.....	.....	.....	.....	.....
51 Average amount per acre.....dollars..	19.47	19.47	.....	.....	.....	.....	.....	.....	.....
52 Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
53 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
54 Cost of maintenance and operation in 1939:									
55 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
56 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58 Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
59 By enterprises not operating pumping plants.....dollars..	71,675	12,570	⁴ 10,308	21,279	6,200	58	9,050	12,210	(⁴)
60 Enterprises reporting.....number.....	12	1	4	1	1	1	1	1	2
61 Land in these enterprises.....acres.....	291,415	30,738	⁴ 67,593	97,010	20,910	3,824	27,060	44,280	(⁴)
62 Average cost per acre.....dollars..	0.24	0.41	⁴ 0.15	0.22	0.30	0.02	0.33	0.28	(⁴)
63 Federal aid in maintenance:									
64 Enterprises reporting.....number.....	4	1	.....	.....	1	.....	1	1	.....
65 Land in these enterprises.....acres.....	122,988	30,738	.....	.....	20,910	.....	27,060	44,280	.....
FINANCIAL CONDITION									
66 Drainage taxes collected in 1939.....dollars..	191,390	47,600	⁴ 25,387	74,390	7,800	113	9,600	26,500	(⁴)
67 Enterprises reporting.....number.....	12	1	4	1	1	1	1	1	2
68 Land in these enterprises.....acres.....	291,415	30,738	⁴ 67,593	97,010	20,910	3,824	27,060	44,280	(⁴)
69 Average amount collected per acre.....dollars..	0.66	1.55	⁴ 0.38	0.77	0.37	0.03	0.35	0.60	(⁴)
70 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	4,279	.....	⁴ 4,279	.....	.....	.....	.....	.....	(⁴)
71 Enterprises reporting.....number.....	4	.....	3	.....	.....	.....	.....	.....	1
72 Land in these enterprises.....acres.....	37,727	.....	⁴ 37,727	.....	.....	.....	.....	.....	(⁴)
73 Portion delinquent in these enterprises.....percent.....	11.3	.....	⁴ 11.3	.....	.....	.....	.....	.....	(⁴)
74 Total indebtedness, Dec. 31, 1939.....dollars..	3,900,967	561,000	291,000	1,432,450	302,000	8,950	515,000	631,000	159,567
75 Enterprises reporting.....number.....	13	1	4	1	1	1	1	1	3
76 Land in these enterprises.....acres.....	298,247	30,738	34,935	97,010	20,910	3,824	27,060	44,280	39,490
77 Average indebtedness per acre.....dollars..	13.08	18.25	8.33	14.77	14.44	2.34	19.03	14.25	4.04
78 Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
79 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
80 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
81 Average arrearage per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
82 Reduction of debt by refinancing, prior to 1940.....dollars..	357,324	.....	⁴ 357,324	.....	.....	.....	.....	.....	(⁴)
83 Enterprises reporting.....number.....	5	.....	4	.....	.....	.....	.....	.....	1
84 Land in these enterprises.....acres.....	42,170	.....	⁴ 42,170	.....	.....	.....	.....	.....	(⁴)
85 Average reduction per acre.....dollars..	8.47	.....	⁴ 8.47	.....	.....	.....	.....	.....	(⁴)

¹ Where there are less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² Includes De Baca and Eddy Counties in 1940 and San Juan County in 1930.
³ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 7.
⁴ Data for De Baca and Eddy Counties included in those for Chaves County.

NORTH CAROLINA

Location of Land in Drainage Enterprises.



CENSUS OF DRAINAGE—NORTH CAROLINA

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	31,450,880	31,193,600	31,193,600	.....	.....	.....	.....
Land in drainage enterprises.....acres.....	825,576	679,236	542,828	146,340	21.5	136,408	25.1
Improved.....acres.....	534,717	305,597	204,928	229,120	75.0	100,669	49.1
Unimproved:							
Timber and cut-over.....acres.....	236,506	209,961	244,576	26,545	12.6	-34,615	-14.2
Other.....acres.....	54,353	163,678	93,324	-109,325	-66.8	70,354	75.4
Drainage sufficient for normal crop.....acres.....	717,099	438,992	(1)	278,107	63.4	.....	.....
Partly drained, for partial crop.....acres.....	50,535	160,977	(1)	-110,442	-68.6	.....	.....
Unfit to raise any crop for lack of drainage.....acres.....	57,942	79,267	(1)	27,494	-26.9	1,773	2.3
In occupied farms.....acres.....	673,034	331,121	(1)	341,913	103.2	.....	.....
In planted crops.....acres.....	425,589	267,525	(1)	158,064	59.1	.....	.....
Idle.....acres.....	378,478	363,415	(1)	15,063	4.1	.....	.....
Available for settlement.....acres.....	113,994	248,147	(1)	-134,153	-54.1	.....	.....
Open ditches, completed.....miles.....	1,846.6	1,483.5	1,171.3	363.1	24.5	312.2	26.7
Drainage pumping plants, capacity.....horsepower.....	3,000	3,000	1,000	-3,000	-100.0	2,000	200.0
.....gal. per min.....	.....	1,000,000	1,000,000	-1,000,000	-100.0	.....	.....
Capital invested in enterprises.....dollars.....	5,467,906	4,719,079	3,623,518	748,827	15.9	1,095,561	30.2
Average per acre.....dollars.....	6.62	6.95	6.68	-0.33	-4.7	0.27	4.0

¹ Not available.

² Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1930	1920	
All enterprises.....	Acres 899,948	Acres 688,436	Acres 552,428	Acres 825,576	5,000 to 9,999 acres.....	Acres 132,000	Acres 81,272	Acres 71,717	Acres 117,083
Less than 100 acres.....	302	98	120	302	10,000 to 19,999 acres.....	165,585	365,742	265,640	165,585
100 to 199 acres.....	2,533	418	1,526	1,526	20,000 to 49,999 acres.....	222,140				218,990
200 to 499 acres.....	23,805	5,075	2,997	17,471	50,000 to 99,999 acres.....	56,500	56,500	56,500	
500 to 999 acres.....	72,318	17,924	15,928	50,421	100,000 acres and over.....	.....	100,000	100,000	
1,000 to 1,999 acres.....	109,235	117,907	96,026	91,945	.....	.....	.....	.....
2,000 to 4,999 acres.....	115,430				105,753	.....	.....	.....	.....

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	825,576	100.0	5,467,906	100.0
Drainage districts.....	728,296	88.2	4,994,302	91.3
County drains.....	38,580	4.7	166,279	3.1
Individually owned projects.....	58,700	7.1	307,325	5.6

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	825,576	100.0	679,236	100.0	542,828	100.0	5,467,906	100.0	4,719,079	100.0	3,623,518	100.0
Gravity drainage only by—												
Open ditches.....	825,576	100.0	577,796	85.1	442,828	81.6	5,467,906	100.0	3,961,079	83.9	2,888,144	79.7
Tile drains.....	.....	.....	.....	.....				
Open ditches and tile drains..	.....	.....	1,440	0.2	.....	.....	.....	.....	8,000	0.2	.....	.....
All drained by pumping by—												
Open ditches.....	.....	.....	100,000	14.7	100,000	18.4	.....	.....	750,000	15.9	735,374	20.3
Tile drains.....	.....	.....								
Open ditches and tile drains..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total area served by pumps.....	.....	.....	100,000	14.7	100,000	18.4	.....	.....	.....	.....	.....	.....

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	825,576	100.0	679,236	100.0	5,467,906	100.0	4,719,079	100.0	122,674	95,266
Enterprises in arrears.....	170,244	20.6	122,131	18.0	1,370,639	25.1	1,049,039	22.2	111,264	93,146
With some delinquent land.....	159,569	19.2	102,745	15.1	1,220,200	22.3	888,339	18.8	111,264	93,146
With no delinquent land.....	11,675	1.4	.....	.....	150,439	2.8	.....	.....	.....	.....
With no report on delinquency.....	.....	.....	19,386	2.9	.....	.....	160,700	3.4	.....	.....
Enterprises not in arrears.....	654,552	79.3	557,105	82.0	4,083,267	74.7	3,670,040	77.8	11,410	2,120
With some delinquent land.....	23,992	2.9	9,116	1.3	259,785	4.8	75,000	1.6	11,410	2,120
With no delinquent land.....	625,860	75.8	542,819	79.9	3,811,546	69.7	3,545,040	75.1	.....	.....
With no report on delinquency.....	4,700	0.6	5,170	0.8	11,936	0.2	50,000	1.1	.....	.....
Enterprises not reporting on arrearage.....	780	0.1	.....	.....	14,000	0.2	.....	.....	.....	.....
With no report on delinquency.....	780	0.1	.....	.....	14,000	0.2	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	825,576	5,467,906	686,601	518,388	72,788	122,674	41,125
Enterprises in debt.....	² 289,712	1,775,699	686,601	518,388	59,036	118,164	11,954
In arrears, amount of arrearage stated.....	167,987	1,346,039	520,388	518,388	35,038	111,264	2,980
Collecting drainage taxes in 1939.....	16,000	27,500	1,100	1,100	.....	400	2,980
No collections reported.....	151,987	1,318,539	519,288	517,288	35,038	110,864	.....
In arrears, amount not stated.....	² 2,257	24,600	.....	.....	4,000	.....	.....
No collections reported.....	² 2,257	24,600	.....	.....	4,000	.....	.....
Not in arrears.....	119,468	405,060	166,213	.....	20,000	6,900	8,974
Collecting drainage taxes in 1939.....	73,494	281,200	91,713	.....	20,000	6,900	8,974
No collections reported.....	45,974	123,860	74,500	.....	.....	.....	.....
Enterprises not in debt.....	515,904	3,640,707	.....	.....	13,750	4,510	29,171
Collecting drainage taxes in 1939.....	54,833	407,935	.....	.....	13,750	4,457	29,171
No collections reported.....	461,071	3,232,772	.....	.....	.....	53	.....
Enterprises not reporting as to debt.....	19,960	51,500	.....	.....	.....	.....	.....
No collections reported.....	19,960	51,500	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

² Includes 2,257 acres for which amount of indebtedness was not reported.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	825,576	100.0	5,467,906	100.0	Reclamation of swamp land not previously in farms.....	146,090	17.7	1,057,796	19.3
Improvement of land already in farms....	603,898	73.1	3,688,847	67.5	Protection against overflow.....	75,588	9.2	721,263	13.2

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises (acres)		Capital invested	
	Acres	Percent	Total ²	Overlapped	Dollars	Percent
	825,576	100.0	899,848	74,272	5,467,906	100.0
All enterprises.....	825,576	100.0	899,848	74,272	5,467,906	100.0
Before 1870.....	29,225	3.5	42,305	13,080	228,500	4.2
1870-1879.....	7,650	0.9	11,000	3,350	37,210	0.7
1880-1889.....	8,226	1.0	15,021	6,795	50,300	0.9
1890-1899.....	7,479	0.9	10,729	3,250	34,692	0.6
1900-1904.....	18,785	2.3	24,835	6,050	65,550	1.2
1905-1909.....	38,108	4.6	47,484	9,376	264,159	4.8
1910-1914.....	250,625	30.4	271,381	20,756	1,794,569	32.8
1915-1919.....	60,066	7.3	64,567	4,481	723,775	13.2
1920-1924.....	230,528	27.9	236,169	5,641	1,598,761	29.2
1925-1929.....	53,499	6.5	54,439	940	478,294	8.8
1930-1934.....	30,142	3.7	30,342	200	74,865	1.4
1935-1939.....	91,223	11.0	91,576	353	117,231	2.2

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

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STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	825,576	717,099	86.9	50,535	57,942	534,717	64.8	236,506	54,353	673,034	81.5	425,589	378,478	113,994
Before 1870.....	29,225	23,125	79.1	3,200	2,900	20,275	69.4	5,450	3,500	21,425	73.3	15,825	11,900	4,600
1870-1879.....	7,650	6,600	86.3	150	900	5,850	76.5	1,800	.....	6,850	89.5	5,300	2,150	600
1880-1889.....	8,226	7,426	90.3	200	600	5,701	69.3	2,325	200	8,226	100.0	4,650	3,576	.....
1890-1899.....	7,479	7,227	96.6	152	100	6,352	84.9	1,127	.....	7,479	100.0	5,750	1,729	.....
1900-1904.....	18,785	14,985	79.8	1,350	2,450	13,705	73.0	4,430	650	16,635	88.6	12,040	4,445	1,600
1905-1909.....	38,108	35,108	92.1	3,000	.....	26,755	70.2	11,353	.....	34,990	91.8	20,248	13,858	3,118
1910-1914.....	250,625	194,500	77.6	20,176	35,949	144,044	57.5	91,801	14,780	181,988	72.6	121,401	128,264	42,375
1915-1919.....	60,086	51,532	85.8	6,029	2,525	34,616	57.6	16,945	8,525	48,892	81.4	27,295	31,276	7,500
1920-1924.....	230,528	210,655	91.4	15,525	4,348	155,328	67.4	58,900	16,300	181,574	78.8	112,875	117,288	45,744
1925-1929.....	53,499	52,541	98.2	23	935	42,214	78.9	9,512	1,773	50,942	95.0	34,290	17,609	1,257
1930-1934.....	30,142	30,142	100.0	.....	.....	26,634	88.4	2,408	1,100	30,142	100.0	23,105	7,037	.....
1935-1939.....	91,223	83,258	91.3	730	7,235	53,243	58.4	30,455	7,525	83,991	92.1	42,810	39,246	7,000

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	825,576	823,131	55,743	767,388	15,413	0.02	0.28
Gravity drainage only.....	825,576	823,131	55,743	767,388	15,413	0.02	0.28
Open ditches only.....	820,424	817,979	55,743	762,236	15,413	0.02	0.28
Open ditches and levees.....	5,152	5,152	.....	5,152	.....	.....	.....

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	825,576	100.0	5,467,906	100.0
Method:				
By district forces.....	119,072	14.4	424,278	7.8
By contract.....	361,896	43.8	3,085,278	56.4
Work apportioned to landowners.....	72,595	8.8	223,909	4.1
"None," or not reporting.....	272,013	32.9	1,734,441	31.7
Whether systematic:				
Reporting "yes".....	186,412	22.6	748,582	13.7
Reporting "no".....	639,164	77.4	4,719,324	86.3

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT		ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent			Amount	Percent
Land in enterprises.....acres....	825,576	50,919	6.2	Drainage works:			
Capital invested.....dollars..	5,467,906	280,799	5.3	Open ditches.....miles..	1,846.6	223.3	12.1
				Levees.....miles..	4.0	.....	.....

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS			AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Title	Levees				Ditches	Title	Levees
	Acres	Dollars	Miles	Miles	Miles		Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	314,561	1,403,779	597.3	.....	.....	Civilian Conservation Corps.....	2,861	68,781	24.8	.....	.....
Work Projects Administration.....	278,200	1,217,748	496.9	W.P.A. and C.C.C.....	20,000	30,750	43.0
						Other kind or combination.....	13,500	86,500	32.6

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Alexander	Beaufort	Bladen	Cabarrus	Camden	Carteret	Catawba	
LAND AREA									
1	Approximate land area.....acres....1940..	31,450,880	163,200	531,840	562,560	230,400	152,960	340,480	259,840
2	Drainage enterprises.....number....1940..	1 268	3	33	4	7	10	3	5
3	Land in enterprises.....acres....1940..	825,576	773	95,323	11,103	4,931	40,381	3,400	3,961
4	.....1930..	679,236	(²)	87,196	6,740	3,319	19,229	(²)	6,145
5	.....1920..	542,826	(²)	59,629	7,533	(²)	11,914	33,000	(²)
6	Area of all enterprises, overlapping included.....acres....1940..	899,848	773	112,243	11,103	4,931	48,179	3,400	3,961
7	Amount of overlapping.....acres....1940..	74,272	.....	16,920	.....	.....	7,798	.....	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	717,099	773	77,806	10,103	4,931	15,200	3,400	3,961
9	.....1930..	436,992	(²)	76,831	5,240	2,600	3,200	(²)	4,530
10	Increase or decrease (-), 1930-1940.....acres.....	278,107	.....	975	4,863	2,331	12,000	.....	-369
11	.....percent.....	63.4	.....	1.3	82.8	89.6	375.0	.....	-12.6
12	Land undrained, unfit for any crop.....acres....1940..	57,942	.....	5,753	1,000	.....	25,029	.....	.....
13	.....1930..	79,267	(²)	2,400	1,350	165	12,818	(²)	1,095
14	Increase or decrease (-), 1930-1940.....acres.....	-21,325	.....	3,353	-350	-165	12,211	.....	-1,095
15	.....percent.....	-26.9	.....	139.7	-25.9	-100.0	95.3	.....	-100.0
16	Land partly drained, for partial crop.....acres....1940..	50,535	.....	11,764	.....	.....	152	.....	.....
17	.....1930..	160,977	(²)	7,965	150	554	3,211	(²)	520
18	Increase or decrease (-), 1930-1940.....acres.....	-110,442	.....	3,799	-150	-554	3,059	.....	-520
19	.....percent.....	-68.6	.....	47.7	-100.0	-100.0	-95.3	.....	-100.0
20	Improved land.....acres....1940..	534,717	773	51,291	7,323	4,280	10,552	3,250	3,381
21	.....1930..	305,597	(²)	42,384	3,500	2,150	6,411	(²)	5,105
22	.....1920..	204,928	(²)	24,803	6,731	(²)	2,979	150	(²)
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	236,506	.....	38,032	3,780	651	12,755	150	580
24	.....1930..	209,961	(²)	34,856	1,300	700	2,000	(²)	70
25	.....1920..	244,576	(²)	34,826	802	(²)	8,935	4,950	(²)
26	Other unimproved land.....acres....1940..	54,353	.....	6,000	.....	.....	17,074	.....	.....
27	.....1930..	163,678	(²)	9,956	1,940	469	10,818	(²)	970
28	.....1920..	93,324	(²)	.....	.....	(²)	.....	27,900	(²)
29	Land in occupied farms.....acres....1940..	673,094	773	64,604	10,153	4,831	15,552	3,400	3,961
30	.....1930..	331,121	(²)	39,274	3,240	3,319	8,411	(²)	5,775
31	Increase or decrease (-), 1930-1940.....acres.....	341,913	.....	25,330	6,913	1,512	7,141	.....	-1,814
32	.....percent.....	103.2	.....	64.5	213.4	45.6	84.9	.....	-31.4
33	Land in planted crops.....acres....1940..	425,589	625	39,694	4,600	3,025	9,500	3,175	2,780
34	.....1930..	267,525	(²)	35,670	2,500	2,050	6,411	(²)	5,050
35	Increase or decrease (-), 1930-1940.....acres.....	158,064	.....	4,024	2,100	975	3,089	.....	-2,270
36	.....percent.....	59.1	.....	11.3	84.0	47.6	48.2	.....	-45.0
37	Land idle.....acres....1940..	378,478	148	54,069	6,503	1,906	25,014	225	1,161
38	.....1930..	363,415	(²)	50,821	4,040	625	12,818	(²)	555
39	Increase or decrease (-), 1930-1940.....acres.....	15,063	.....	3,248	2,463	1,281	12,196	.....	606
40	.....percent.....	4.1	.....	6.4	61.0	205.0	95.1	.....	109.2
41	Land available for settlement.....acres....1940..	113,994	.....	25,809	.....	.....	7,000	.....	.....
42	.....1930..	248,147	(²)	45,622	2,150	.....	.....	(²)	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-134,153	.....	-19,813	-2,150	.....	.....	.....	.....
44	.....percent.....	-54.1	.....	-43.4	-100.0	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	820,424	773	95,323	11,103	4,931	40,381	3,400	3,961
46	Length of these ditches.....miles.....	1,834.6	11.2	198.0	22.0	44.3	38.6	6.0	41.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	5,152	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	12.0	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	4.0	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 246.
²Included in "Other counties."

CENSUS OF DRAINAGE—NORTH CAROLINA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Craven	Cumber- land	Currituck	Duplin ¹	Edgecombe	Gaston	Gates ¹	Greene	Hyde
LAND AREA										
1	Approximate land area.....acres....1940..	464,000	423,040	174,720	526,080	327,040	229,120	219,520	172,160	405,760
2	Drainage enterprises.....number....1940..	11	4	6	1	4	5	1	4	16
3	Land in enterprises.....acres....1940..	30,089	30,925	14,918	11,942	36,000	2,850	3,148	5,564	31,657
4	.....1930..	4,000	30,711	18,600	.....	(²)	3,615	.....	5,289	127,713
5	.....1920..	7,800	23,000	25,915	.....	4,857	(²)	.....	(²)	128,529
6	Area of all enterprises, overlapping included.....acres....1940..	34,539	30,925	14,918	11,942	36,200	2,850	3,148	5,564	41,554
7	Amount of overlapping.....acres....1940..	4,450	.....	.....	.....	200	.....	.....	.....	9,897
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	29,289	28,925	11,668	11,942	36,000	2,850	3,148	5,564	23,150
9	.....1930..	3,000	15,711	8,800	.....	(²)	2,751	.....	5,289	61,597
10	Increase or decrease (-), 1930-1940.....acres.....	26,289	13,214	2,868	.....	.....	99	.....	275	-38,447
11	.....percent.....	876.3	84.1	32.6	.....	.....	3.6	.....	5.2	-62.4
12	Land undrained, unfit for any crop.....acres....1940..	600	.....	.....	.....	.....	.....	.....	.....	4,240
13	.....1930..	500	.....	6,000	.....	(²)	430	.....	.....	15,116
14	Increase or decrease (-), 1930-1940.....acres.....	100	.....	-6,000	.....	.....	-430	.....	.....	-10,876
15	.....percent.....	20.0	.....	-100.0	.....	.....	-100.0	.....	.....	-72.0
16	Land partly drained, for partial crop.....acres....1940..	200	2,000	3,250	.....	.....	.....	.....	.....	4,267
17	.....1930..	500	15,000	3,800	.....	(²)	434	.....	.....	51,000
18	Increase or decrease (-), 1930-1940.....acres.....	-300	-13,000	-550	.....	.....	-434	.....	.....	-46,733
19	.....percent.....	-60.0	-86.7	-14.5	.....	.....	-100.0	.....	.....	-91.6
20	Improved land.....acres....1940..	9,775	24,280	10,000	9,942	21,200	2,340	2,980	5,075	15,540
21	.....1930..	3,000	13,211	10,100	.....	(²)	2,410	.....	2,789	28,919
22	.....1920..	2,190	13,800	8,579	.....	4,857	(²)	.....	(²)	33,728
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	20,114	6,645	4,918	2,000	14,800	510	168	489	11,817
24	.....1930..	500	12,500	2,000	.....	(²)	1,020	.....	2,500	10,298
25	.....1920..	5,610	9,200	17,336	.....	.....	(²)	.....	(²)	42,671
26	Other unimproved land.....acres....1940..	200	.....	.....	.....	.....	.....	.....	.....	4,300
27	.....1930..	500	5,000	6,500	.....	(²)	185	.....	(²)	88,496
28	.....1920..	.....	.....	.....	.....	.....	(²)	.....	(²)	52,130
29	Land in occupied farms.....acres....1940..	16,089	30,925	11,700	11,942	36,000	2,850	3,148	5,564	16,867
30	.....1930..	3,000	22,711	10,100	.....	(²)	3,193	.....	.....	28,919
31	Increase or decrease (-), 1930-1940.....acres.....	13,089	8,214	1,600	.....	.....	-343	.....	3,275	-12,052
32	.....percent.....	436.3	36.2	15.8	.....	.....	-10.7	.....	143.1	-41.7
33	Land in planted crops.....acres....1940..	9,150	22,900	5,693	8,000	20,400	1,840	2,980	4,390	10,677
34	.....1930..	3,000	13,200	7,100	.....	(²)	2,310	.....	2,289	28,919
35	Increase or decrease (-), 1930-1940.....acres.....	6,150	9,700	-1,407	.....	.....	-470	.....	2,101	-18,242
36	.....percent.....	205.0	73.5	-19.8	.....	.....	-20.3	.....	91.8	-63.1
37	Land idle.....acres....1940..	21,439	8,025	5,243	3,942	15,600	1,010	168	1,174	18,780
38	.....1930..	500	17,000	8,000	.....	(²)	1,132	.....	3,000	93,234
39	Increase or decrease (-), 1930-1940.....acres.....	20,939	-8,975	-2,757	.....	.....	-122	.....	-1,826	-74,454
40	.....percent.....	(²)	-52.8	-34.5	.....	.....	-10.8	.....	-60.9	-79.8
41	Land available for settlement.....acres....1940..	14,000	.....	3,118	.....	.....	.....	.....	.....	10,307
42	.....1930..	500	8,000	2,000	.....	(²)	.....	.....	3,000	77,238
43	Increase or decrease (-), 1930-1940.....acres.....	13,500	-8,000	1,118	.....	.....	.....	.....	-3,000	-66,931
44	.....percent.....	(²)	-100.0	65.9	.....	.....	.....	.....	-100.0	-86.6
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	30,089	30,925	14,918	11,942	36,000	2,850	3,148	5,564	31,657
46	Length of these ditches.....miles.....	59.6	51.5	42.1	13.0	25.6	29.0	4.1	13.7	63.1
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Percent not shown when more than 1,000.

CENSUS OF DRAINAGE—NORTH CAROLINA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Iredell	Lenoir	Lincoln	Mecklenburg	Pamlico	Pasquotank	Pender	Perquimans	
LAND AREA									
1	Approximate land area.....acres....1940..	378,240	250,240	197,120	346,880	218,240	146,560	548,480	167,040
2	Drainage enterprises.....number....1940..	16	3	5	22	11	13	5	10
3	Land in enterprises.....acres....1940..	27,958	4,451	2,782	38,988	6,605	15,869	25,248	21,750
4	.....1930..	32,135	4,861	7,076	20,119	11,500	(¹)	37,700	(¹)
5	.....1920..	8,679	4,833	(¹)	17,224	19,875	(¹)	8,300	(¹)
6	Area of all enterprises, overlapping included.....acres....1940..	30,158	4,451	2,782	38,988	6,605	16,269	25,248	24,750
7	Amount of overlapping.....acres....1940..	2,200				400			3,000
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	27,958	4,451	2,782	38,718	6,005	11,769	20,377	14,450
9	.....1930..	25,500	3,861	6,909	18,476	1,000	(¹)	10,400	(¹)
10	Increase or decrease (-), 1930-1940.....acres.....	2,458	590	-4,127	20,242	5,005		9,977	
11	.....percent.....	8.6	15.3	-59.7	109.6	500.5		95.9	
12	Land undrained, unfit for any crop.....acres....1940..				220	600	3,500	200	6,550
13	.....1930..	860	500	6	434	(¹)	(¹)	18,600	(¹)
14	Increase or decrease (-), 1930-1940.....acres.....	-860	-500	-6	-214			-18,400	
15	.....percent.....	-100.0	-100.0	-100.0	-49.3			-98.9	
16	Land partly drained, for partial crop.....acres....1940..				50		600	4,671	750
17	.....1930..	5,775	500	161	1,208	10,500	(¹)	8,700	(¹)
18	Increase or decrease (-), 1930-1940.....acres.....	-5,775	-500	-161	-1,158	-10,500		-4,029	
19	.....percent.....	-100.0	-100.0	-100.0	-95.9	-100.0		-46.3	
20	Improved land.....acres....1940..	23,806	3,575	2,485	25,930	5,595	8,643	17,600	13,600
21	.....1930..	22,869	3,861	4,000	11,220	1,000	(¹)	9,980	(¹)
22	.....1920..	7,509	2,376	(¹)	14,358	867		(¹)	8,300
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	2,032	876	297	9,108	1,010	7,126	7,648	7,500
24	.....1930..	6,392	500	3,011	8,567	10,500	(¹)	22,420	(¹)
25	.....1920..	591	2,457	(¹)	484	19,008		(¹)	
26	Other unimproved land.....acres....1940..	2,120			3,950		100		650
27	.....1930..	2,874	500	65	332		(¹)	5,300	(¹)
28	.....1920..	579		(¹)	2,382			(¹)	
29	Land in occupied farms.....acres....1940..	27,958	4,451	2,782	38,988	6,605	10,093	25,248	15,750
30	.....1930..	30,010	3,861	6,850	19,417	1,000	(¹)	10,100	(¹)
31	Increase or decrease (-), 1930-1940.....acres.....	-2,052	590	-4,068	19,571	5,605		15,148	
32	.....percent.....	-6.8	15.3	-59.4	100.8	560.5		150.0	
33	Land in planted crops.....acres....1940..	20,515	3,450	1,950	23,295	5,070	8,343	13,830	11,550
34	.....1930..	22,849	3,661	3,700	10,946	1,000	(¹)	7,980	(¹)
35	Increase or decrease (-), 1930-1940.....acres.....	-2,334	-211	-1,750	12,349	4,070		5,850	
36	.....percent.....	-10.2	-5.8	-47.3	112.8	407.0		73.3	
37	Land idle.....acres....1940..	7,443	1,001	832	12,293	1,535	6,226	11,418	9,200
38	.....1930..	6,609	1,000	3,376	9,173	10,500	(¹)	22,700	(¹)
39	Increase or decrease (-), 1930-1940.....acres.....	834	1	-2,544	3,120	-8,965		-11,282	
40	.....percent.....	12.6	0.1	-75.4	34.0	-85.4		-49.7	
41	Land available for settlement.....acres....1940..					5,776			5,500
42	.....1930..	1,800	1,000		200	10,500	(¹)	9,000	(¹)
43	Increase or decrease (-), 1930-1940.....acres.....	-1,800	-1,000		-200	-10,500		-9,000	
44	.....percent.....	-100.0	-100.0		-100.0	-100.0		-100.0	
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	27,958	4,451	2,782	38,988	6,605	15,869	20,096	21,750
46	Length of these ditches.....miles.....	133.8	7.1	34.0	132.0	24.3	35.1	59.0	67.5
47	Part protected by levees of an outside agency.....acres.....								
48	Land drained by open ditches and own levees.....acres.....							5,152	
49	Length of these ditches.....miles.....							12.0	
50	Length of these levees.....miles.....							4.0	
51	Part protected by levees of an outside agency.....acres.....								
52	Land drained by tile only.....acres.....								
53	Length of these tile.....miles.....								
54	Part protected by levees of an outside agency.....acres.....								
55	Land drained by tile and own levees.....acres.....								
56	Length of these tile.....miles.....								
57	Length of these levees.....miles.....								
58	Part protected by levees of an outside agency.....acres.....								
59	Land drained by open ditches and tile.....acres.....								
60	Length of these open ditches.....miles.....								
61	Length of these tile.....miles.....								
62	Part protected by levees of an outside agency.....acres.....								
63	Land drained by open ditches, tile, and levees.....acres.....								
64	Length of these open ditches.....miles.....								
65	Length of these tile.....miles.....								
66	Length of these levees.....miles.....								
67	Part protected by levees of an outside agency.....acres.....								
68	Land in enterprises operating pumping plants.....acres.....								
69	Length of open ditches owned by these enterprises.....miles.....								
70	Length of tile owned by these enterprises.....miles.....								
71	Length of levees owned by these enterprises.....miles.....								
72	Part protected by levees of an outside agency.....acres.....								

¹Included in "Other counties."

CENSUS OF DRAINAGE—NORTH CAROLINA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Pitt	Robeson	Rowan	Sampson ¹	Tyrrell	Washington	Other counties ²
LAND AREA								
1	Approximate land area.....acres....1940..	419,840	604,160	330,880	616,320	255,360	215,040	4,769,280
2	Drainage enterprises.....number...1940..	27	3	17	1	6	10	22
3	Land in enterprises.....acres....1940..	148,246	41,796	17,425	14,436	7,815	51,754	73,488
4	.....1930..	48,088	41,700	9,698	.....	3,961	40,544	109,297
5	.....1920..	6,200	32,600	7,027	.....	(³)	38,444	97,469
6	Area of all enterprises, overlapping included.....acres....1940..	169,320	41,796	17,998	14,436	7,815	58,814	74,188
7	Amount of overlapping.....acres....1940..	21,074	.....	573	.....	.....	7,060	700
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	147,746	37,796	15,948	14,436	7,815	34,850	63,288
9	.....1930..	42,338	28,000	6,600	.....	3,150	28,500	74,709
10	Increase or decrease (-), 1930-1940.....acres.....	105,408	9,796	9,348	.....	4,665	6,350	-11,421
11	.....percent.....	249.0	35.0	141.6	.....	148.1	22.3	-15.3
12	Land undrained, unfit for any crop.....acres....1940..	200	.....	350	.....	.....	3,700	6,000
13	.....1930..	1,000	200	343	.....	611	1,544	15,295
14	Increase or decrease (-), 1930-1940.....acres.....	-800	-200	7	.....	-611	2,156	-9,295
15	.....percent.....	-80.0	-100.0	2.0	.....	-100.0	139.6	-60.8
16	Land partly drained, for partial crop.....acres....1940..	300	4,000	1,127	.....	.....	13,204	4,200
17	.....1930..	4,750	13,500	2,755	.....	200	10,500	19,293
18	Increase or decrease (-), 1930-1940.....acres.....	-4,450	-9,500	-1,628	.....	-200	2,704	-15,093
19	.....percent.....	-93.7	-70.4	-59.1	.....	-100.0	25.8	-78.2
20	Improved land.....acres....1940..	126,653	32,632	11,360	12,436	6,625	19,000	42,795
21	.....1930..	43,088	16,100	6,200	.....	3,661	16,950	46,689
22	.....1920..	1,760	9,780	5,151	.....	(³)	5,617	51,393
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	21,593	9,164	3,306	2,000	1,190	15,554	30,693
24	.....1930..	1,000	19,100	2,824	.....	.....	21,550	46,353
25	.....1920..	4,440	22,820	960	.....	(³)	32,827	36,659
26	Other unimproved land.....acres....1940..	.....	.....	2,759	.....	.....	17,200	.....
27	.....1930..	4,000	6,500	674	.....	300	2,044	16,255
28	.....1920..	.....	.....	916	.....	(³)	.....	9,417
29	Land in occupied farms.....acres....1940..	148,246	41,796	16,864	14,436	7,815	24,894	48,749
30	.....1930..	42,875	16,100	9,698	.....	2,650	14,950	43,379
31	Increase or decrease (-), 1930-1940.....acres.....	105,371	25,696	7,166	.....	5,165	9,944	5,370
32	.....percent.....	245.8	159.6	73.9	.....	194.9	66.5	12.4
33	Land in planted crops.....acres....1940..	86,810	29,432	9,225	10,000	6,020	14,670	32,000
34	.....1930..	37,875	16,100	6,000	.....	2,200	12,930	33,785
35	Increase or decrease (-), 1930-1940.....acres.....	48,935	13,332	3,225	.....	3,820	1,740	-1,785
36	.....percent.....	129.2	82.8	53.8	.....	173.6	13.4	-5.3
37	Land idle.....acres....1940..	61,421	11,364	7,950	4,436	1,795	37,084	40,073
38	.....1930..	5,213	21,000	2,576	.....	1,761	25,594	62,188
39	Increase or decrease (-), 1930-1940.....acres.....	56,208	-9,636	5,374	.....	34	11,490	-22,115
40	.....percent.....	(⁴)	-45.9	208.6	.....	1.9	44.9	-35.6
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	25,560	16,924
42	.....1930..	4,213	23,200	.....	.....	700	23,050	35,974
43	Increase or decrease (-), 1930-1940.....acres.....	-4,213	-23,200	.....	.....	-700	2,510	19,050
44	.....percent.....	-100.0	-100.0	.....	.....	-100.0	10.9	53.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	148,246	41,796	17,425	14,436	7,815	51,754	73,488
46	Length of these ditches.....miles.....	138.1	58.2	131.5	16.0	22.6	105.3	206.8
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Includes Burke, Caldwell, Chowan, Cleveland, Columbus, Davidson, Forsyth, Halifax, Harnett, McDowell, Martin, New Hanover, Northampton, Wayne, and Wilson Counties in 1940; Alexander, Burke, Caldwell, Carteret, Chowan, Cleveland, Columbus, Davidson, Edgecombe, Forsyth, Harnett, McDowell, New Hanover, Pasquotank, Perquimans, Wayne, and Wilson Counties in 1930; and Alexander, Burke, Cabarrus, Caldwell, Catawba, Chowan, Cleveland, Columbus, Davidson, Forsyth, Gaston, Greene, Harnett, Jones, Lincoln, McDowell, New Hanover, Pender, Tyrrell, Wayne, and Wilson Counties for 1920.

³Included in "Other counties."

⁴Percent not shown when more than 1,000.

CENSUS OF DRAINAGE—NORTH CAROLINA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

	ITEM (See definitions in Introduction)	THE STATE	Alexander	Beaufort	Bladen	Cabarrus	Camden	Carteret	Catawba
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	1,288	3	33	4	7	10	3	5
2	Open ditches:								
3	Completed.....miles.....1940..	1,846.6	11.2	198.0	22.0	44.3	38.6	6.0	41.5
4	.....1930..	1,483.5	(²)	157.0	20.0	21.5	11.9	(²)	60.0
5	.....1920..	1,171.3	(²)	107.6	24.5	(²)	8.0	41.2	(²)
6	Additional length authorized.....miles.....1940..	48.0							
7	Tile drains:								
8	Completed.....miles.....1940..								
9	.....1930..								
10	.....1920..								
11	Additional length authorized.....miles.....1940..								
12	Levees and dikes:								
13	Completed.....miles.....1940..	4.0			8.0				
14	.....1930..	22.0							
15	.....1920..	33.5			3.5				
16	Additional length authorized.....miles.....1940..								
17	Pumping plants:								
18	Engine capacity.....horsepower.....1940..								
19	.....1930..	3,000							
20	.....1920..	1,000							
21	Pump capacity.....gal. per min.....1940..								
22	.....1930..	1,000,000							
23	.....1920..	1,000,000							
24	Land served by pumps.....acres.....1940..								
25	.....1930..	100,000							
26	.....1920..	100,000							
27	Wells pumped for drainage.....number.....1940..								
28	.....1930..								
CAPITAL INVESTED									
29	Capital invested to January 1.....dollars.....1940..	5,467,906	39,314	539,362	93,511	116,230	124,500	8,000	69,341
30	.....1930..	4,719,079	(²)	575,947	64,000	54,177	35,918	(²)	138,935
31	.....1920..	3,623,518	(²)	304,250	61,000	(²)	30,000	65,000	(²)
32	Estimated cost when completed.....dollars.....1940..	5,858,445	39,314	539,362	93,511	116,230	124,500	8,000	69,341
33	.....1930..	4,848,738	(²)	575,947	69,000	54,177	35,918	(²)	138,935
34	.....1920..	4,526,018	(²)	333,250	61,000	(²)	30,000	395,000	(²)
35	Average cost per acre when completed.....dollars.....1940..	7.10	50.86	5.66	8.42	23.57	3.08	2.35	17.50
36	.....1930..	7.14	(²)	6.61	10.24	16.32	1.87	(²)	22.61
37	.....1920..	8.34	(²)	5.59	8.10	(²)	2.52	11.97	(²)
38	Invested in and required for completion, 1940:								
39	Enterprises having open ditches only.....dollars..	5,820,345	39,314	539,362	93,511	116,230	124,500	8,000	69,341
40	Average amount per acre.....dollars..	7.09	50.86	5.66	8.42	23.57	3.08	2.35	17.50
41	Enterprises having open ditches and levees.....dollars..	38,100							
42	Average amount per acre.....dollars..	7.40							
43	Enterprises having tile only.....dollars..								
44	Average amount per acre.....dollars..								
45	Enterprises having tile and levees.....dollars..								
46	Average amount per acre.....dollars..								
47	Enterprises having open ditches and tile.....dollars..								
48	Average amount per acre.....dollars..								
49	Enterprises having ditches, tile, and levees.....dollars..								
50	Average amount per acre.....dollars..								
51	Enterprises operating pumping plants.....dollars..								
52	Average amount per acre.....dollars..								
MAINTENANCE AND OPERATION									
53	Cost of maintenance and operation in 1939:								
54	By enterprises operating pumping plants.....dollars..								
55	Enterprises reporting.....number.....								
56	Land in these enterprises.....acres.....								
57	Average cost per acre.....dollars.....								
58	By enterprises not operating pumping plants.....dollars..	15,413		3,440					
59	Enterprises reporting.....number.....	57		28					
60	Land in these enterprises.....acres.....	55,743		11,800					
61	Average cost per acre.....dollars.....	0.28		0.29					
62	Federal aid in maintenance:								
63	Enterprises reporting.....number.....	76					2		
64	Land in these enterprises.....acres.....	314,561					(³)		
FINANCIAL CONDITION									
65	Drainage taxes collected in 1939.....dollars..	41,125		4,115			(³)		
66	Enterprises reporting.....number.....	64		28			2		
67	Land in these enterprises.....acres.....	144,327		11,800			(³)		
68	Average amount collected per acre.....dollars..	0.28		0.35			(³)		
69	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	122,674		24,168	(³)		(³)		
70	Enterprises reporting.....number.....	28		4		1		2	
71	Land in these enterprises.....acres.....	182,561		24,168	(³)		(³)		
72	Portion delinquent in these enterprises.....percent..	67.2		100.0	(³)		(³)		
73	Total indebtedness, Dec. 31, 1939.....dollars..	686,601	(³)	100,400	(³)	(³)	(³)		
74	Enterprises reporting.....number.....	34	1	4		1	1		
75	Land in these enterprises.....acres.....	287,455	(³)	24,168	(³)	(³)	(³)		
76	Average indebtedness per acre.....dollars..	2.39	(³)	4.15	(³)	(³)	(³)		
77	Indebtedness in arrears, Dec. 31, 1939.....dollars..	518,388	(³)	100,400	(³)	(³)	(³)		
78	Enterprises reporting.....number.....	25	1	4		1	1		
79	Land in these enterprises.....acres.....	170,244	(³)	26,425	(³)	(³)	(³)		
80	Average arrearage per acre.....dollars..	3.04	(³)	3.80	(³)	(³)	(³)		
81	Reduction of debt by refinancing, prior to 1940.....dollars..	72,788							
82	Enterprises reporting.....number.....	5		1					
83	Land in these enterprises.....acres.....	31,785		(³)					
84	Average reduction per acre.....dollars..	2.29		(³)					

¹ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 246.

² Included in "Other counties."

³ Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE—NORTH CAROLINA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Craven	Cumber- land	Currituck	Duplin ¹	Edgecombe	Gaston	Gates ¹	Greene	Hyde
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	11	4	6	1	4	5	1	4	16
2 Open ditches:									
3 Completed.....miles.....1940..	59.6	51.5	42.1	13.0	25.6	29.0	4.1	13.7	63.1
4 1930..	6.0	44.3	25.5		(²)	32.7		26.0	97.9
5 1920..	18.5	37.0	30.0		14.0	(²)		(²)	125.6
6 Additional length authorized.....miles.....1940..	0.1				20.1				
7 Tile drains:									
8 Completed.....miles.....1940..									
9 1930..									
10 1920..									
11 Additional length authorized.....miles.....1940..									
12 Levees and dikes:									
13 Completed.....miles.....1940..									
14 1930..									13.0
15 1920..									30.0
16 Additional length authorized.....miles.....1940..									
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..									
19 1930..									3,000
20 1920..									1,000
21 Pump capacity.....gal. per min. 1940..									
22 1930..									1,000,000
23 1920..									1,000,000
24 Land served by pumps.....acres.....1940..									
25 1930..									100,000
26 1920..									100,000
27 Wells pumped for drainage.....number.....1940..									
28 1930..									
CAPITAL INVESTED									
25 Capital invested to January 1.....dollars.....1940..	203,117	145,500	86,446	59,710	47,500	46,965	7,695	38,712	221,467
26 1930..	24,000	134,000	54,342		(²)	62,294		64,500	796,878
27 1920..	89,000	76,500	73,000		30,000	(²)		(²)	800,272
28 Estimated cost when completed.....dollars.....1940..	210,617	145,500	86,446	59,710	198,000	46,965	7,695	38,712	221,467
29 1930..	24,000	134,000	54,342		(²)	62,294		64,500	796,878
30 1920..	89,000	76,500	73,000		30,000	(²)		(²)	1,215,272
31 Average cost per acre when completed.....dollars.....1940..	7.00	4.70	5.79	5.00	5.50	16.48	2.44	6.96	7.00
32 1930..	6.00	4.36	2.92		(²)	17.23		12.20	6.24
33 1920..	11.41	3.33	2.82		6.18	(²)		(²)	9.46
34 Invested in and required for completion, 1940:									
35 Enterprises having open ditches only.....dollars.....	210,617	145,500	86,446	59,710	198,000	46,965	7,695	38,712	221,467
36 Average amount per acre.....dollars.....	7.00	4.70	5.79	5.00	5.50	16.48	2.44	6.96	7.00
37 Enterprises having open ditches and levees.....dollars.....									
38 Average amount per acre.....dollars.....									
39 Enterprises having tile only.....dollars.....									
40 Average amount per acre.....dollars.....									
41 Enterprises having tile and levees.....dollars.....									
42 Average amount per acre.....dollars.....									
43 Enterprises having open ditches and tile.....dollars.....									
44 Average amount per acre.....dollars.....									
45 Enterprises having ditches, tile, and levees.....dollars.....									
46 Average amount per acre.....dollars.....									
47 Enterprises operating pumping plants.....dollars.....									
48 Average amount per acre.....dollars.....									
MAINTENANCE AND OPERATION									
49 Cost of maintenance and operation in 1939:									
50 By enterprises operating pumping plants.....dollars.....									
51 Enterprises reporting.....number.....									
52 Land in these enterprises.....acres.....									
53 Average cost per acre.....dollars.....									
54 By enterprises not operating pumping plants.....dollars.....	985								1,340
55 Enterprises reporting.....number.....	9								5
56 Land in these enterprises.....acres.....	3,727								4,700
57 Average cost per acre.....dollars.....	0.26								0.28
58 Federal aid in maintenance:									
59 Enterprises reporting.....number.....	2		1		4				
60 Land in these enterprises.....acres.....	(³)		(³)		36,000				
FINANCIAL CONDITION									
61 Drainage taxes collected in 1939.....dollars.....	1,210	(³)						(³)	340
62 Enterprises reporting.....number.....	10		1						4
63 Land in these enterprises.....acres.....	7,489	(³)						(³)	1,200
64 Average amount collected per acre.....dollars.....	0.16	(³)						(³)	0.28
65 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	(³)							(³)	
66 Enterprises reporting.....number.....	1	(³)	2					(³)	1
67 Land in these enterprises.....acres.....	(³)	(³)						(³)	
68 Portion delinquent in these enterprises.....percent.....	(³)	(³)						(³)	
69 Total indebtedness, Dec. 31, 1939.....dollars.....	118,000	(³)			(³)		2,500	(³)	
70 Enterprises reporting.....number.....	3		2			1			1
71 Land in these enterprises.....acres.....	24,262	(³)			(³)		3,148	(³)	
72 Average indebtedness per acre.....dollars.....	4.86	(³)			(³)		0.79	(³)	
73 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	(³)	(³)						(³)	
74 Enterprises reporting.....number.....	2		1					(³)	1
75 Land in these enterprises.....acres.....	(³)	(³)						(³)	
76 Average arrearage per acre.....dollars.....	(³)	(³)						(³)	
77 Reduction of debt by refinancing, prior to 1940.....dollars.....		(³)							
78 Enterprises reporting.....number.....			1						
79 Land in these enterprises.....acres.....		(³)							
80 Average reduction per acre.....dollars.....		(³)							

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Where there are less than 3 enterprises reporting, data are included only in State totals, except as noted in footnote 1.

CENSUS OF DRAINAGE—NORTH CAROLINA

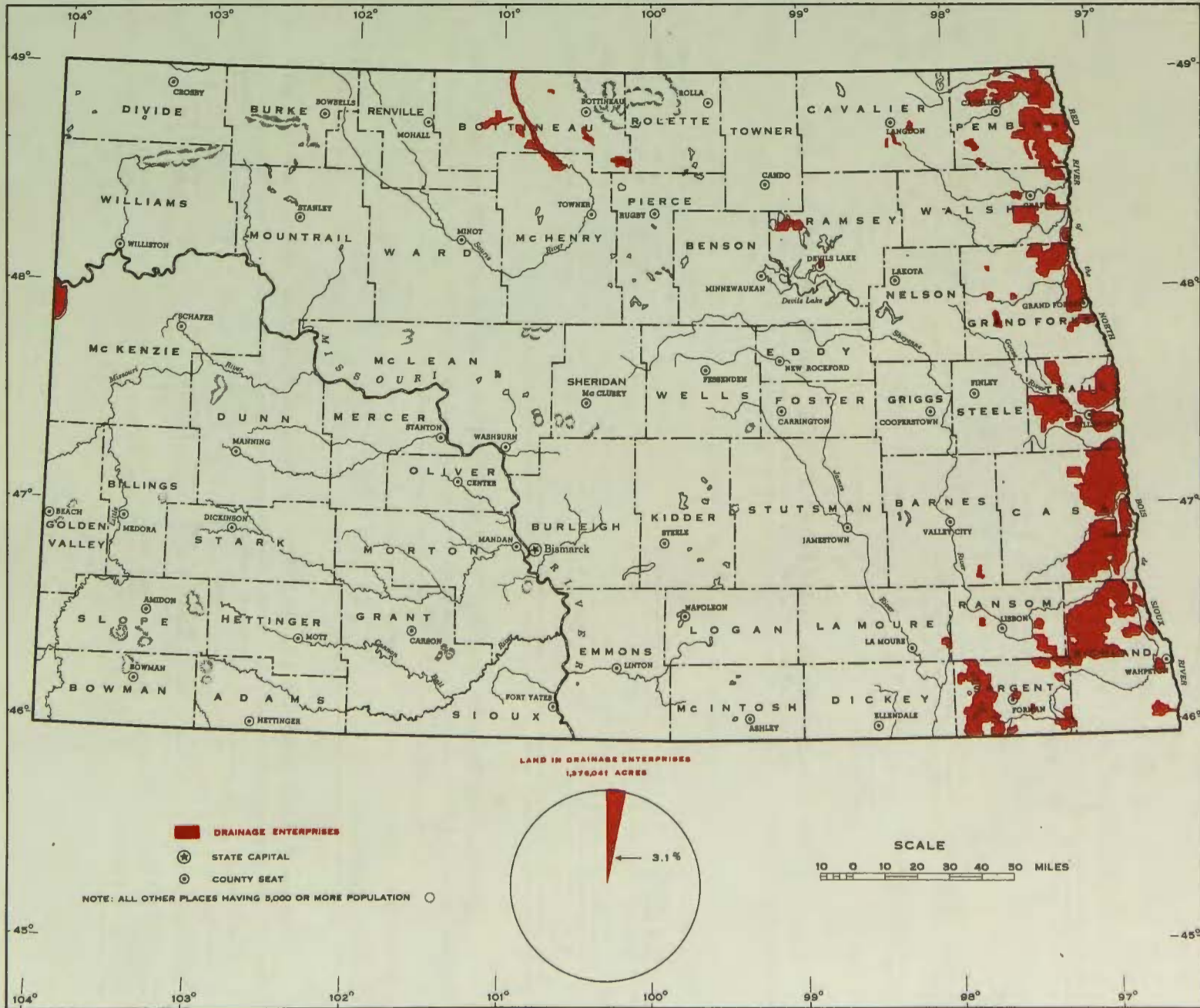
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Pitt	Robeson	Rowan	Sampson ¹	Tyrrell	Washington	Other counties ²
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	27	3	17	1	6	10	22
Open ditches:								
2	Completed.....miles.....1940..	138.1	58.2	131.5	16.0	22.6	105.3	206.8
3	.....1930..	35.8	78.0	59.5	.....	9.1	57.7	513.6
4	.....1920..	20.0	55.0	63.0	.....	(³)	88.6	347.6
5	Additional length authorized.....miles.....1940..	23.0	.....	4.6	.....	.....	.....	0.1
Tile drains:								
6	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
7	.....1930..	.....	.....	.....	.....	.....	.....	.....
8	.....1920..	.....	.....	.....	.....	.....	.....	.....
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:								
10	Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
11	.....1930..	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	.....	.....	.....	.....	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Pumping plants:								
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min. 1940..	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	626,050	285,000	212,994	72,290	66,064	532,650	779,746
26	.....1930..	213,100	244,000	218,961	.....	30,325	448,322	956,480
27	.....1920..	77,600	165,000	129,026	.....	(³)	334,352	915,567
28	Estimated cost when completed.....dollars.....1940..	855,550	285,000	214,253	72,290	66,064	532,650	781,146
29	.....1930..	215,600	250,000	218,961	.....	30,325	448,322	960,480
30	.....1920..	77,600	165,000	129,026	.....	(³)	440,352	924,567
31	Average cost per acre when completed.....dollars.....1940..	5.77	6.82	12.30	5.01	8.45	10.29	10.63
32	.....1930..	4.48	6.00	22.58	.....	7.66	11.06	8.79
33	.....1920..	12.52	5.06	18.36	.....	(³)	11.45	9.48
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	855,550	285,000	214,253	72,290	66,064	532,650	781,146
35	Average amount per acre.....dollars..	5.77	6.82	12.30	5.01	8.45	10.29	10.63
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....
39	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	.....
43	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	.....	.....	(⁴)	.....	.....	.....	.....
53	Enterprises reporting.....number..	.....	.....	1	.....	.....	.....	.....
54	Land in these enterprises.....acres..	.....	.....	(⁴)	.....	.....	.....	.....
55	Average cost per acre.....dollars..	.....	.....	(⁴)	.....	.....	.....	.....
Federal aid in maintenance:								
56	Enterprises reporting.....number..	3	1	13	.....	5	5	6
57	Land in these enterprises.....acres..	76,480	(⁴)	16,299	.....	6,353	9,600	38,524
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	(⁴)	(⁴)	5,386	.....	.....	.....	(⁴)
59	Enterprises reporting.....number..	2	2	5	.....	.....	.....	1
60	Land in these enterprises.....acres..	(⁴)	(⁴)	5,680	.....	.....	.....	(⁴)
61	Average amount collected per acre.....dollars..	(⁴)	(⁴)	0.95	.....	.....	.....	(⁴)
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	.....	(⁴)	3,378	.....	.....	(⁴)	.....
63	Enterprises reporting.....number..	.....	2	9	.....	.....	2	.....
64	Land in these enterprises.....acres..	.....	(⁴)	7,646	.....	.....	(⁴)	.....
65	Portion delinquent in these enterprises.....percent..	.....	(⁴)	44.2	.....	.....	(⁴)	.....
66	Total indebtedness, Dec. 31, 1939.....dollars..	(⁴)	(⁴)	(⁴)	.....	(⁴)	(⁴)	(⁴)
67	Enterprises reporting.....number..	2	1	2	.....	1	2	2
68	Land in these enterprises.....acres..	(⁴)	(⁴)	(⁴)	.....	(⁴)	(⁴)	(⁴)
69	Average indebtedness per acre.....dollars..	(⁴)	(⁴)	(⁴)	.....	(⁴)	(⁴)	(⁴)
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	(⁴)	.....	(⁴)	(⁴)	(⁴)
71	Enterprises reporting.....number..	.....	.....	2	.....	1	2	1
72	Land in these enterprises.....acres..	.....	.....	(⁴)	.....	(⁴)	(⁴)	(⁴)
73	Average arrearage per acre.....dollars..	.....	.....	(⁴)	.....	(⁴)	(⁴)	(⁴)
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	(⁴)	(⁴)	.....	.....	.....	.....
75	Enterprises reporting.....number..	.....	1	1	.....	.....	.....	.....
76	Land in these enterprises.....acres..	.....	(⁴)	(⁴)	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	(⁴)	(⁴)	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²Includes Burke, Caldwell, Chowan, Cleveland, Columbus, Davidson, Forsyth, Halifax, Harnett, McDowell, Martin, New Hanover, Northampton, Wayne, and Wilson Counties in 1940; Alexander, Burke, Caldwell, Carteret, Chowan, Cleveland, Columbus, Davidson, Edgecombe, Forsyth, Harnett, McDowell, New Hanover, Pasquotank, Perquimans, Wayne, and Wilson Counties in 1930; and Alexander, Burke, Cabarrus, Caldwell, Catawba, Chowan, Cleveland, Columbus, Davidson, Forsyth, Gaston, Greene, Harnett, Jones, Lincoln, McDowell, New Hanover, Pender, Tyrrell, Wayne, and Wilson Counties for 1920. ³Included in "Other counties." ⁴Where there are less than 3 enterprises reporting, data are included only in the State totals, except as noted in footnote 1.

NORTH DAKOTA

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE—NORTH DAKOTA

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	44,834,560	44,917,120	44,917,120	.....	.....	.....	.....
Land in drainage enterprises.....acres.....	1,376,041	1,094,142	1,240,328	261,899	25.8	-146,186	-11.8
Improved.....acres.....	1,371,741	1,075,259	1,026,574	296,482	27.6	48,685	4.7
Unimproved:							
Timber and cut-over.....acres.....	.....	9,478	.....	-9,478	-100.0	.....	.....
Other.....acres.....	4,300	9,405	213,754	-5,105	-54.3	-204,349	-95.6
Drainage sufficient for normal crop.....acres.....	1,360,259	1,055,429	(¹)	304,830	28.9	.....	.....
Partly drained, for partial crop.....acres.....	11,482	25,273	(¹)	-13,791	-54.6	.....	.....
Unfit to raise any crop for lack of drainage.....acres.....	4,300	13,440	² 12,332	-9,140	-68.0	1,108	9.0
In occupied farms.....acres.....	1,322,573	1,094,114	(¹)	228,459	20.9	.....	.....
In planted crops.....acres.....	1,116,385	908,979	(¹)	207,406	22.8	.....	.....
Idle.....acres.....	242,493	103,641	(¹)	138,852	134.0	.....	.....
Available for settlement.....acres.....	.....	.....	(¹)	.....	.....	.....	.....
Open ditches, completed.....miles.....	940.4	617.6	708.3	122.8	15.0	109.3	15.4
Tile drains, completed.....miles.....	10.4	9.6	9.3	0.8	8.3	0.3	3.2
Drainage pumping plants, capacity.....horsepower.....	.....	.....	.....	.....	.....	.....	.....
gal. per min.....	.....	.....	.....	.....	.....	.....	.....
Capital invested in enterprises.....dollars.....	3,673,336	3,148,919	2,208,049	524,417	16.7	940,870	42.6
Average per acre.....dollars.....	2.67	2.88	1.78	-0.21	-7.3	1.10	61.8

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	
All enterprises.....	Acres 1,840,781	Acres 1,183,382	Acres 1,240,328	Acres 1,376,041
500 to 999 acres.....	720	2,120	640	720
1,000 to 1,999 acres.....	18,080	184,520	148,680	15,800
2,000 to 4,999 acres.....	163,640			
5,000 to 9,999 acres.....	302,855	394,682	358,390	252,975
10,000 to 19,999 acres.....	592,086	479,500	501,377	489,786
20,000 to 49,999 acres.....	613,720			
50,000 to 99,999 acres.....	149,680			

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	1,376,041	100.0	3,673,336	100.0
County drains.....	1,356,113	98.6	3,496,905	95.2
Irrigation enterprises—Federal.....	19,928	1.4	176,431	4.8

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES									
	1940		1930		1920		1940		1930		1920					
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent				
All enterprises.....	1,376,041	100.0	1,094,142	100.0	1,240,328	100.0	3,673,336	100.0	3,148,919	100.0	2,208,049	100.0				
Gravity drainage only by—																
Open ditches.....	1,365,721	99.3	1,077,163	98.4	1,240,328	100.0	3,623,013	98.6	3,070,735	97.5	2,208,049	100.0				
Tile drains.....	9,040	0.6	2,000	0.2									48,250	1.3	39,000	1.2
Open ditches and tile drains..	1,280	0.1	14,979	1.4									2,073	0.1	39,184	1.3

CENSUS OF DRAINAGE — NORTH DAKOTA

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	1,376,041	100.0	1,094,142	100.0	3,673,336	100.0	3,148,919	100.0	2,086	2,270
Enterprises in arrears.....	6,320	0.5	9,412	0.9	15,000	0.4	11,680	0.4	2,086	1,520
With some delinquent land.....	6,320	0.5	2,980	0.3	15,000	0.4	7,500	0.3	2,086	1,320
With no delinquent land.....			6,432	0.6			4,180	0.1		
Enterprises not in arrears.....	1,369,721	99.5	1,084,730	99.1	3,658,336	99.6	3,137,239	99.6		750
With some delinquent land.....			6,089	0.5			151,553	4.8		750
With no delinquent land.....	1,369,721	99.5	1,078,641	98.6	3,658,336	99.6	2,985,686	94.8		

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	1,376,041	3,673,336	184,096	5,765	.....	2,086	179
Enterprises in debt.....	31,048	201,413	184,096	5,765	.....	2,086	179
In arrears, amount of arrearage stated.....	6,320	15,000	6,265	5,765	.....	2,086	179
Collecting drainage taxes in 1939.....	2,960	7,500	4,765	4,765	.....	1,686	179
No collections reported.....	3,360	7,500	1,500	1,000	.....	400	.....
Not in arrears.....	24,728	186,413	177,831	.....	.....	.....	.....
No collections reported.....	24,728	186,413	177,831	.....	.....	.....	.....
Enterprises not in debt.....	1,344,993	3,471,923	.....	.....	.....	.....	.....
No collections reported.....	1,344,993	3,471,923	.....	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	1,376,041	100.0	3,673,336	100.0
Improvement of land already in farms.....	1,036,298	75.3	1,842,666	50.2
Protection against overflow.....	319,815	23.2	1,654,239	45.0
Removal of alkali or seepage from irrigation.....	19,928	1.5	176,431	4.8

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	1,376,041	100.0	1,840,781	464,740	3,673,336	100.0
1890-1899.....	72,020	5.2	138,840	66,820	250,317	6.8
1900-1904.....	147,238	10.7	240,798	93,560	224,808	6.1
1905-1909.....	464,240	33.8	676,200	211,960	1,115,427	30.4
1910-1914.....	140,800	10.2	150,000	9,200	183,122	5.0
1915-1919.....	303,295	22.0	374,975	71,680	1,161,529	31.6
1920-1924.....	168,960	12.3	180,480	11,520	481,140	13.1
1925-1929.....	79,488	5.8	79,488	.....	256,993	7.0

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

CENSUS OF DRAINAGE — NORTH DAKOTA

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other un-improved land	In occupied farms		In planted crops	Idle	Land available for settlement
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	1,376,041	1,360,259	98.8	11,482	4,300	1,371,741	99.7	.....	4,300	1,322,573	96.1	1,116,385	242,493	.....
1890-1899.....	72,020	72,020	100.0	.....	.....	72,020	100.0	.....	.....	70,043	97.3	57,831	14,009	.....
1900-1904.....	147,238	147,238	100.0	.....	.....	147,238	100.0	.....	.....	147,078	99.9	124,842	22,236	.....
1905-1909.....	464,240	464,240	100.0	.....	.....	464,240	100.0	.....	.....	449,720	96.9	382,350	70,530	.....
1910-1914.....	140,800	140,800	100.0	.....	.....	140,800	100.0	.....	.....	135,320	96.1	114,487	26,313	.....
1915-1919.....	303,295	293,313	96.7	9,982	.....	303,295	100.0	.....	.....	285,904	94.3	239,191	61,641	.....
1920-1924.....	168,960	168,960	100.0	.....	.....	168,960	100.0	.....	.....	159,320	94.3	133,016	32,944	.....
1925-1929.....	79,488	73,688	92.7	1,500	4,300	75,188	94.6	.....	4,300	75,188	94.6	64,668	14,820	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	1,376,041	1,376,041	58,648	1,317,393	4,420	(¹)	0.08
Gravity drainage only.....	1,376,041	1,376,041	58,648	1,317,393	4,420	(¹)	0.08
Open ditches only.....	1,365,721	1,365,721	58,648	1,307,073	4,420	(¹)	0.08
Title drains only.....	9,040	9,040	.....	9,040	.....	.....	.....
Open ditches and tile drains.....	1,280	1,280	.....	1,280	.....	.....	.....

¹Less than 1/2 cent per acre.

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	1,376,041	100.0	3,673,336	100.0
Method:				
By district forces.....	1,131,823	82.2	2,972,617	80.9
"None," or not reporting.....	244,218	17.8	700,719	19.1
Whether systematic:				
Reporting "yes".....	1,132,663	82.3	2,948,148	80.2
Reporting "no".....	243,378	17.7	725,188	19.8

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres.....	1,376,041	19,928	1.4
Capital invested.....dollars..	3,673,336	176,431	4.8
Drainage works:			
Open ditches.....miles.....	940.4	35.0	3.7
Title drains.....miles.....	10.4

CENSUS OF DRAINAGE — NORTH DAKOTA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Bottineau	Cass	Cavalier	Grand Forks	McKenzie ¹	Pembina	
LAND AREA								
1	Approximate land area.....acres....1940..	44,834,500	1,087,360	1,113,360	968,320	920,320	1,798,400	719,300
2	Drainage enterprises.....number...1940..	² 145	7	27	3	12	1	30
3	Land in enterprises.....acres....1940..	1,376,041	53,080	315,975	5,400	109,480	19,928	197,540
4	.....1930..	1,094,142	30,928	268,340	5,920	59,240	6,089	223,860
5	.....1920..	1,240,328	49,795	201,580	12,700	47,000	.....	280,800
6	Area of all enterprises, overlapping included.....acres....1940..	1,840,781	53,120	611,615	5,400	156,160	19,928	233,160
7	Amount of overlapping.....acres....1940..	464,740	40	285,640	.....	46,680	.....	35,620
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	1,360,259	53,080	315,975	5,400	109,480	14,128	197,540
9	.....1930..	1,055,429	30,928	267,340	5,040	54,555	4,089	200,832
10	Increase or decrease (-), 1930-1940.....acres.....	304,830	22,152	48,635	360	54,925	10,039	-3,292
11	.....percent.....	28.9	71.6	18.2	7.1	100.7	245.5	-1.6
12	Land undrained, unfit for any crop.....acres....1940..	4,300	.....	.....	.....	.....	4,300	.....
13	.....1930..	13,400	.....	1,000	.....	.....	1,300	9,060
14	Increase or decrease (-), 1930-1940.....acres.....	-9,140	.....	-1,000	.....	.....	3,000	-9,060
15	.....percent.....	-68.0	.....	-100.0	.....	.....	230.6	-100.0
16	Land partly drained, for partial crop.....acres....1940..	11,482	.....	.....	.....	.....	1,500	.....
17	.....1930..	25,273	.....	.....	880	4,685	700	13,968
18	Increase or decrease (-), 1930-1940.....acres.....	-13,791	.....	.....	-880	-4,685	800	-13,968
19	.....percent.....	-54.6	.....	.....	-100.0	-100.0	114.3	-100.0
20	Improved land.....acres....1940..	1,371,741	53,080	315,975	5,400	109,480	15,628	197,540
21	.....1930..	1,075,259	30,920	268,340	5,920	54,555	6,089	212,840
22	.....1920..	1,026,574	32,000	155,135	4,019	40,586	.....	256,778
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	9,478	8	.....	.....	.....	.....	9,280
25	.....1920..	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres....1940..	4,300	.....	.....	.....	.....	4,300	.....
27	.....1930..	9,405	.....	.....	.....	4,685	.....	1,740
28	.....1920..	213,754	17,795	46,445	8,681	6,414	.....	24,022
29	Land in occupied farms.....acres....1940..	1,322,573	41,800	284,163	5,400	109,480	15,628	197,540
30	.....1930..	1,094,114	30,920	269,340	5,920	59,240	6,089	223,840
31	Increase or decrease (-), 1930-1940.....acres.....	228,459	10,880	15,823	-520	50,240	9,539	-26,300
32	.....percent.....	20.9	35.2	5.9	-8.8	84.8	156.6	-11.7
33	Land in planted crops.....acres....1940..	1,116,385	32,600	232,223	4,400	94,134	14,128	167,563
34	.....1930..	908,979	21,261	243,660	5,740	54,555	4,789	114,892
35	Increase or decrease (-), 1930-1940.....acres.....	207,406	11,339	-11,437	-1,340	39,579	9,339	52,671
36	.....percent.....	22.8	53.3	-4.7	-23.3	72.5	195.0	45.8
37	Land idle.....acres....1940..	242,493	9,200	79,737	1,000	15,346	5,800	29,977
38	.....1930..	1,094,641	9,659	18,780	.....	4,685	.....	52,967
39	Increase or decrease (-), 1930-1940.....acres.....	136,852	-459	60,957	1,000	10,661	5,800	-22,990
40	.....percent.....	134.0	-4.8	324.6	.....	227.6	.....	-43.4
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	1,365,721	53,080	315,975	5,400	109,480	19,928	197,540
46	Length of these ditches.....miles.....	940.0	60.6	228.7	13.7	72.6	35.0	154.6
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	9,040	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	10.2	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,260	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	0.4	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	0.2	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 141.

CENSUS OF DRAINAGE - NORTH DAKOTA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Ramsey ¹	Ransom	Richland	Sargent	Trall	Walsh	Other counties ²
LAND AREA								
1	Approximate land area.....acres....1940..	776,960	552,320	928,000	547,200	551,040	823,680	2,888,320
2	Drainage enterprises.....number...1940..	2	3	18	11	21	7	3
3	Land in enterprises.....acres....1940..	11,918	23,960	235,200	148,320	182,640	55,040	17,560
4	.....1930..	14,468	34,000	140,590	119,120	131,110	54,198	6,279
5	.....1920..	12,715	23,640	204,063	205,655	145,460	53,620	3,300
6	Area of all enterprises, overlapping included.....acres....1940..	11,918	23,960	257,320	148,640	246,160	55,840	17,560
7	Amount of overlapping.....acres....1940..	.....	.....	22,120	320	63,520	800	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	11,918	23,960	235,200	138,338	182,640	55,040	17,560
9	.....1930..	14,468	31,920	140,590	114,980	131,110	54,198	5,379
10	Increase or decrease (-), 1930-1940.....acres.....	-2,550	-7,960	94,610	23,358	51,530	842	12,181
11	.....percent.....	-17.6	-24.9	67.3	20.3	39.3	1.5	226.4
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
13	.....1930..	.....	80	.....	2,000	.....	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-80	.....	-2,000	.....	.....	.....
15	.....percent.....	.....	-100.0	.....	-100.0	.....	.....	.....
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	.....	9,982	.....	.....	.....
17	.....1930..	.....	2,000	.....	2,140	.....	.....	900
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-2,000	.....	7,842	.....	.....	-900
19	.....percent.....	.....	-100.0	.....	366.4	.....	.....	-100.0
20	Improved land.....acres....1940..	11,918	23,960	235,200	148,320	182,640	55,040	17,560
21	.....1930..	14,468	33,920	140,590	117,120	131,110	54,008	5,379
22	.....1920..	11,443	14,120	171,911	162,151	128,527	49,264	2,640
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	190	.....
25	.....1920..	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
27	.....1930..	.....	80	.....	2,000	.....	.....	900
28	.....1920..	1,272	9,520	32,152	43,504	18,933	4,356	660
29	Land in occupied farms.....acres....1940..	11,738	23,960	235,200	142,584	182,640	55,040	17,400
30	.....1930..	14,468	34,000	140,590	119,120	131,110	54,198	6,279
31	Increase or decrease (-), 1930-1940.....acres.....	-2,730	-10,040	94,610	23,464	51,530	842	11,121
32	.....percent.....	-18.9	-29.5	67.3	19.7	39.3	1.5	177.1
33	Land in planted crops.....acres....1940..	9,538	18,920	209,030	116,797	160,208	46,724	10,120
34	.....1930..	13,456	30,620	133,604	108,620	122,120	51,680	3,982
35	Increase or decrease (-), 1930-1940.....acres.....	-3,918	-11,700	75,426	8,177	38,088	-4,956	6,138
36	.....percent.....	-29.1	-38.2	56.4	7.5	31.2	-9.6	154.1
37	Land idle.....acres....1940..	2,200	5,040	26,170	29,995	22,432	8,316	7,280
38	.....1930..	.....	72	.....	3,900	6,500	.....	298
39	Increase or decrease (-), 1930-1940.....acres.....	2,200	4,968	19,390	26,095	15,932	8,316	6,982
40	.....percent.....	.....	(³)	286.0	669.1	245.1	.....	(³)
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	10,638	21,240	235,200	145,680	182,640	55,040	13,880
46	Length of these ditches.....miles.....	5.8	18.1	114.0	84.4	110.2	25.8	16.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	2,720	.....	2,640	.....	.....	3,680
53	Length of these tile.....miles.....	.....	1.2	.....	4.0	.....	.....	5.0
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,280	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	0.4	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	0.2	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²Includes Barnes, La Moure, and McHenry Counties in 1940; Barnes and La Moure Counties in 1930; and La Moure County in 1920.
³Percent not shown when more than 1,000.

CENSUS OF DRAINAGE — NORTH DAKOTA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Bottineau	Cass	Cavalier	Grand Forks	McKenzie ¹	Pembina
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	2 145	7	27	3	12	1	30
2 Open ditches:							
3 Completed.....miles.....1940..	940.4	60.6	228.7	13.7	72.6	35.0	154.6
4	1930..	817.6	28.6	204.5	15.5	29.8	157.1
5	1920..	708.3	44.0	177.3	12.0	25.8	145.8
6 Additional length authorized.....miles.....1940..							
7 Tile drains:							
8 Completed.....miles.....1940..	10.4						
9	1930..	9.6					0.1
10	1920..	9.3					
11 Additional length authorized.....miles.....1940..							
12 Levees and dikes:							
13 Completed.....miles.....1940..							
14	1930..						
15	1920..	2.1					2.1
16 Additional length authorized.....miles.....1940..							
17 Pumping plants:							
18 Engine capacity.....horsepower.....1940..							
19	1930..						
20	1920..						
21 Pump capacity.....gal. per min.....1940..							
22	1930..						
23	1920..						
24 Land served by pumps.....acres.....1940..							
25	1930..						
26 Wells pumped for drainage.....number.....1940..							
27	1930..						
CAPITAL INVESTED							
28 Capital invested to January 1.....dollars.....1940..	3,673,336	199,661	1,626,333	19,200	157,047	176,431	318,158
29	1930..	3,148,919	38,999	1,574,766	19,900	62,230	239,003
30	1920..	2,208,049	171,096	806,690	15,785	49,894	297,282
31 Estimated cost when completed.....dollars.....1940..	3,673,336	199,661	1,626,333	19,200	157,047	176,431	318,158
32	1930..	3,148,919	38,999	1,574,766	19,900	62,230	239,003
33	1920..	2,261,449	171,096	837,690	15,785	49,894	297,282
34 Average cost per acre when completed.....dollars.....1940..	2.67	3.76	5.15	3.56	1.43	8.85	1.61
35	1930..	2.88	1.26	5.87	3.36	1.05	1.07
36	1920..	1.82	3.44	4.16	1.24	1.06	1.06
37 Invested in and required for completion, 1940:							
38 Enterprises having open ditches only.....dollars..	3,623,013	199,661	1,626,333	19,200	157,047	176,431	318,158
39 Average amount per acre.....dollars.....	2.65	3.76	5.15	3.56	1.43	8.85	1.61
40 Enterprises having open ditches and levees.....dollars..							
41 Average amount per acre.....dollars.....							
42 Enterprises having tile only.....dollars.....	48,250						
43 Average amount per acre.....dollars.....	5.34						
44 Enterprises having tile and levees.....dollars.....							
45 Average amount per acre.....dollars.....							
46 Enterprises having open ditches and tile.....dollars..	2,073						
47 Average amount per acre.....dollars.....	1.62						
48 Enterprises having ditches, tile, and levees.....dollars..							
49 Average amount per acre.....dollars.....							
50 Enterprises operating pumping plants.....dollars.....							
51 Average amount per acre.....dollars.....							
MAINTENANCE AND OPERATION							
52 Cost of maintenance and operation in 1939:							
53 By enterprises operating pumping plants.....dollars..							
54 Enterprises reporting.....number.....							
55 Land in these enterprises.....acres.....							
56 Average cost per acre.....dollars.....							
57 By enterprises not operating pumping plants.....dollars..	4,420				(5)	3,701	(5)
58 Enterprises reporting.....number.....	7				1	1	1
59 Land in these enterprises.....acres.....	68,648				(5)	19,928	(5)
60 Average cost per acre.....dollars.....	0.08				(5)	0.18	(5)
61 Federal aid in maintenance:							
62 Enterprises reporting.....number.....							
63 Land in these enterprises.....acres.....							
FINANCIAL CONDITION							
64 Drainage taxes collected in 1939.....dollars.....	4 179						
65 Enterprises reporting.....number.....	1						
66 Land in these enterprises.....acres.....	4 2,960						
67 Average amount collected per acre.....dollars.....	4 0.06						
68 Area delinquent in drainage taxes, Dec. 31, 1939.....acres...	4 2,086						
69 Enterprises reporting.....number.....	2						
70 Land in these enterprises.....acres.....	4 6,320						
71 Portion delinquent in these enterprises.....percent.....	4 33.0						
72 Total indebtedness, Dec. 31, 1939.....dollars.....	184,096				(5)	176,431	
73 Enterprises reporting.....number.....	5				2	1	
74 Land in these enterprises.....acres.....	31,048				(5)	19,928	
75 Average indebtedness per acre.....dollars.....	5.93				(5)	8.85	
76 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	4 5,765						
77 Enterprises reporting.....number.....	2						
78 Land in these enterprises.....acres.....	4 6,320						
79 Average arrearage per acre.....dollars.....	4 0.91						
80 Reduction of debt by refinancing, prior to 1940.....dollars..							
81 Enterprises reporting.....number.....							
82 Land in these enterprises.....acres.....							
83 Average reduction per acre.....dollars.....							

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 141.
³ Where there are less than 3 enterprises reporting, data are included only in State totals.
⁴ Not distributed by counties.

CENSUS OF DRAINAGE — NORTH DAKOTA

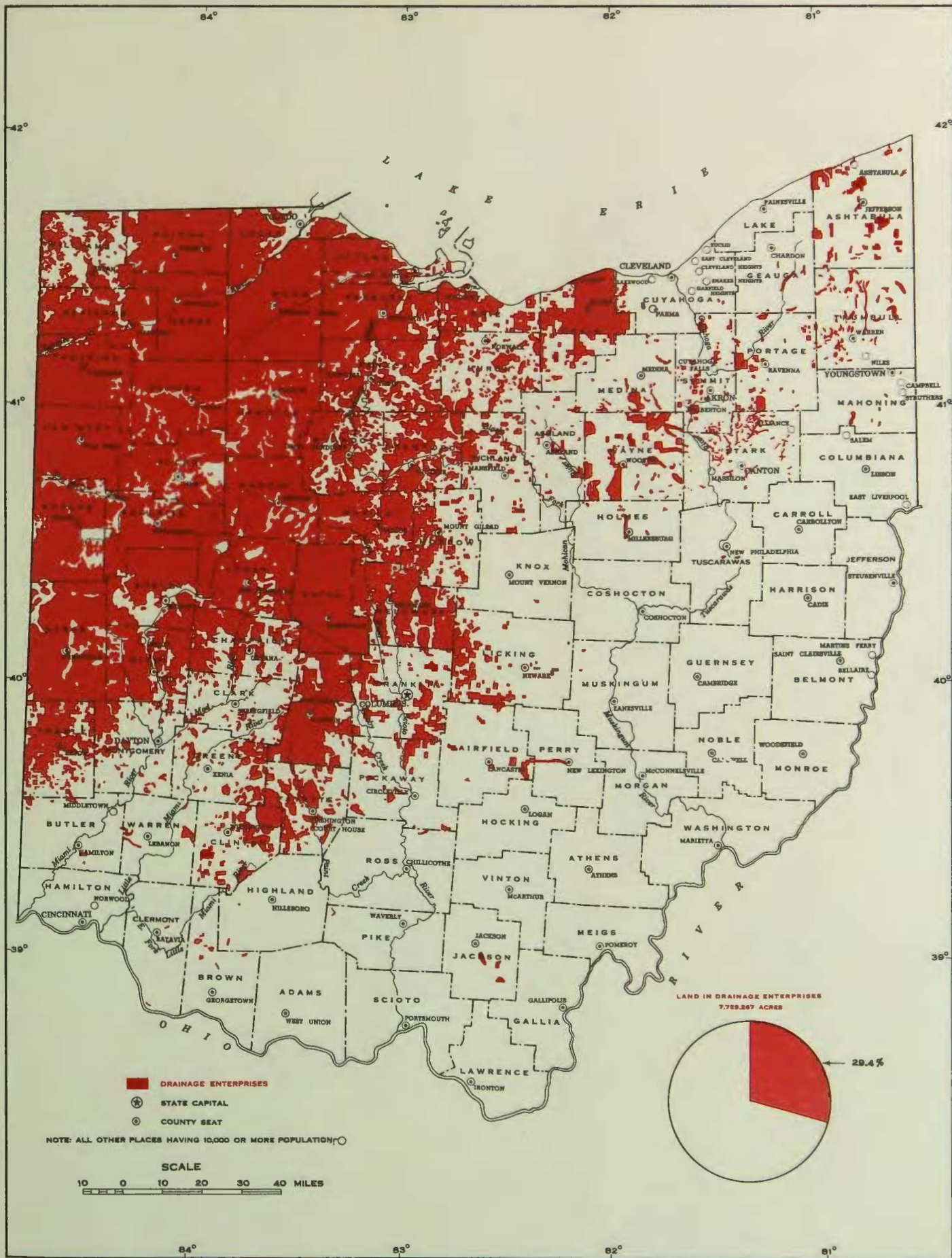
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Ramsey ¹	Ransom	Richland	Sargent	Traill	Walsh	Other counties ²
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	2	3	18	11	21	7	3
2 Open ditches:							
3 Completed.....miles.....1940..	6.2	18.1	114.0	84.4	110.2	25.8	16.5
4 1930..	18.3	20.0	111.5	60.0	110.0	23.6	5.5
5 1920..	4.0	14.5	102.2	76.6	87.1	19.0	
6 Additional length authorized.....miles.....1940..							
7 Tile drains:							
8 Completed.....miles.....1940..	0.2	1.2		4.0			5.0
9 1930..	0.2	2.0		2.8			4.5
10 1920..				4.8			4.5
11 Additional length authorized.....miles.....1940..							
12 Levees and dikes:							
13 Completed.....miles.....1940..							
14 1930..							
15 1920..							
16 Additional length authorized.....miles.....1940..							
17 Pumping plants:							
18 Engine capacity.....horsepower.....1940..							
19 1930..							
20 1920..							
21 Pump capacity.....gal. per min., 1940..							
22 1930..							
23 1920..							
24 Land served by pumps.....acres.....1940..							
25 1930..							
26 1920..							
27 Wells pumped for drainage.....number.....1940..							
28 1930..							
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	6,326	43,389	324,209	393,273	298,248	53,311	57,750
26 1930..	6,653	45,000	243,457	392,713	286,158	53,378	34,809
27 1920..	6,553	45,930	265,608	263,439	224,671	38,601	22,500
28 Estimated cost when completed.....dollars.....1940..	6,326	43,389	324,209	393,273	298,248	53,311	57,750
29 1930..	6,653	45,000	243,457	392,713	286,158	53,678	34,809
30 1920..	6,553	45,930	265,608	285,839	224,671	38,601	22,500
31 Average cost per acre when completed.....dollars.....1940..	0.53	1.81	1.38	2.65	1.63	0.97	3.29
32 1930..	0.46	1.32	1.73	3.30	2.18	0.99	5.54
33 1920..	0.52	1.94	1.30	1.39	1.54	0.72	6.82
34 Invested in and required for completion, 1940:							
35 Enterprises having open ditches only.....dollars..	4,253	39,389	324,209	360,273	298,248	53,311	46,500
36 Average amount per acre.....dollars..	0.40	1.85	1.38	2.47	1.63	0.97	3.35
37 Enterprises having open ditches and levees.....dollars..							
38 Average amount per acre.....dollars..		4,000		33,000			11,250
39 Enterprises having tile only.....dollars..		1.47		12.50			3.06
40 Average amount per acre.....dollars..							
41 Enterprises having tile and levees.....dollars..							
42 Average amount per acre.....dollars..							
43 Enterprises having open ditches and tile.....dollars..	2,073						
44 Average amount per acre.....dollars..	1.62						
45 Enterprises having ditches, tile, and levees.....dollars..							
46 Average amount per acre.....dollars..							
47 Enterprises operating pumping plants.....dollars..							
Average amount per acre.....dollars..							
MAINTENANCE AND OPERATION							
48 Cost of maintenance and operation in 1939:							
49 By enterprises operating pumping plants.....dollars..							
50 Enterprises reporting.....number.....							
51 Land in these enterprises.....acres.....							
52 Average cost per acre.....dollars..				532			
53 By enterprises not operating pumping plants.....dollars..				4			
54 Enterprises reporting.....number.....				30,360			
55 Land in these enterprises.....acres.....				0.02			
56 Average cost per acre.....dollars..							
57 Federal aid in maintenance:							
Enterprises reporting.....number.....							
Land in these enterprises.....acres.....							
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..							
59 Enterprises reporting.....number.....							
60 Land in these enterprises.....acres.....							
61 Average amount collected per acre.....dollars..							
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....							
63 Enterprises reporting.....number.....							
64 Land in these enterprises.....acres.....							
65 Portion delinquent in these enterprises.....percent..							
66 Total indebtedness, Dec. 31, 1939.....dollars..						(3)	(3)
67 Enterprises reporting.....number.....						1	1
68 Land in these enterprises.....acres.....						(3)	(3)
69 Average indebtedness per acre.....dollars..						(3)	(3)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..							
71 Enterprises reporting.....number.....							
72 Land in these enterprises.....acres.....							
73 Average arrearage per acre.....dollars..							
74 Reduction of debt by refinancing, prior to 1940.....dollars..							
75 Enterprises reporting.....number.....							
76 Land in these enterprises.....acres.....							
77 Average reduction per acre.....dollars..							

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²Includes Barnes, La Moure, and McHenry Counties in 1940; Barnes and La Moure Counties in 1930; and La Moure County in 1920.
³Where there are less than 3 enterprises reporting, data are included only in State totals.

OHIO

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE—OHIO

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	26,318,080	26,073,600	26,073,600				
Land in drainage enterprises.....acres.....	7,729,267	8,165,494	8,107,204	-436,227	-5.3	58,290	0.7
Improved.....acres.....	7,300,737	7,604,274	6,707,328	-303,537	-4.0	896,946	13.4
Unimproved:							
Timber and cut-over.....acres.....	371,999	487,981	956,894	-115,982	-23.8	-468,913	-49.0
Other.....acres.....	56,531	73,239	442,982	-16,708	-22.8	-369,743	-83.5
Drainage sufficient for normal crop.....acres.....	7,690,503	7,495,881	(1)	194,662	2.6		
Partly drained, for partial crop.....acres.....	26,282	567,323	(1)	-541,041	-85.4		
Unfit to raise any crop for lack of drainage.....acres.....	12,482	102,290	247,273	-89,808	-87.8	-144,983	-58.6
In occupied farms.....acres.....	7,173,937	8,132,973	(1)	-959,036	-11.8		
In planted crops.....acres.....	4,682,046	6,800,406	(1)	-2,118,360	-31.2		
Idle.....acres.....	422,255	359,758	(1)	62,497	17.4		
Available for settlement.....acres.....	1,778	7,313	(1)	-5,535	-75.7		
Open ditches, completed.....miles.....	18,732.2	25,048.2	24,984.0	-6,316.0	-25.2	64.2	0.3
Tile drains, completed.....miles.....	10,163.9	9,371.6	9,025.3	792.3	8.4	166.3	1.8
Drainage pumping plants, capacity.....horsepower.....	25	125	125	-25	-100.0	-100	-80.0
.....gal. per min.....	5,000	5,000	3,600	-5,000	-100.0	1,400	38.9
Capital invested in enterprises.....dollars.....	35,215,586	36,836,449	30,680,145	-1,620,863	-4.4	6,156,304	20.1
Average per acre.....dollars.....	4.56	4.51	3.78	0.05	1.1	0.73	19.3

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	
	Acres	Acres	Acres	Acres
All enterprises.....	25,212,061	24,010,629	23,464,812	7,729,267
Less than 100 acres.....	226,739	149,697	658,953	125,758
100 to 199 acres.....	709,036	508,937	324,037	324,037
200 to 499 acres.....	3,049,851	2,619,498	2,495,996	1,160,759
500 to 999 acres.....	4,200,927	4,364,144	3,928,812	1,452,112
1,000 to 1,999 acres.....	4,776,053	10,532,356	9,615,229	1,532,078
2,000 to 4,999 acres.....	5,369,941	2,850,517	1,465,568	784,263
5,000 to 9,999 acres.....	3,076,820	2,549,773	2,850,517	784,263
10,000 to 19,999 acres.....	2,058,764	2,973,427	3,152,280	477,886
20,000 to 49,999 acres.....	1,426,257	312,797	763,025	374,755
50,000 to 99,999 acres.....	317,673	312,797	763,025	32,051

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	7,729,267	100.0	35,215,586	100.0
County drains.....	7,676,284	99.3	35,044,531	99.5
Township drains.....	52,983	0.7	171,055	0.5

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	7,729,267	100.0	8,165,494	100.0	8,107,204	100.0	35,215,586	100.0	36,836,449	100.0	30,680,145	100.0
Gravity drainage only by—												
Open ditches.....	4,775,969	61.8	5,017,201	61.4	4,745,192	58.5	17,854,490	50.7	21,818,769	59.2	15,382,101	50.2
Tile drains.....	1,337,364	17.3	1,694,156	20.8	1,139,856	14.1	10,762,233	30.6	7,621,493	20.7	5,993,113	19.5
Open ditches and tile drains..	1,615,934	20.9	1,453,789	17.8	2,222,156	27.4	6,598,863	18.7	7,392,687	20.1	9,304,931	30.3
All drained by pumping by—												
Open ditches.....			348	(3)	(2)	(2)			3,500	(3)	(2)	(2)
Tile drains.....												
Open ditches and tile drains..												
Part only by pumping by—												
Open ditches.....					(2)	(2)					(2)	(2)
Tile drains.....												
Open ditches and tile drains..												
Total area served by pumps.....			348	(3)	1,755	(3)			3,500	(3)	(2)	(2)

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

²Segregation of data for pumping enterprises is not obtainable.

³Less than one-tenth of 1 percent.

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	7,729,267	100.0	8,165,494	100.0	35,215,586	100.0	36,836,449	100.0	19,683	2,979
Enterprises in arrears.....	13,065	0.2	11,068	0.1	72,368	0.2	69,781	0.2	3,253	1,195
With some delinquent land.....	11,469	0.2	11,068	0.1	70,903	0.2	69,781	0.2	3,253	1,195
With no delinquent land.....	1,596	(²)			1,465	(²)				
With no report on delinquency.....										
Enterprises not in arrears.....	7,687,145	99.4	8,154,426	99.9	35,083,324	99.6	36,766,668	99.8	16,208	1,784
With some delinquent land.....	142,955	1.8	6,654	0.1	522,251	1.5	8,404	(²)	16,208	1,784
With no delinquent land.....	7,534,970	97.5	8,147,772	99.8	34,505,438	98.0	36,758,264	99.8		
With no report on delinquency.....	9,220	0.1			55,635	0.1				
Enterprises not reporting on arrearage.....	29,057	0.4			59,894	0.2			222	
With some delinquent land.....	4,575	(²)			1,806	(²)			222	
With no delinquent land.....	11,958	0.2			3,755	(²)				
With no report on delinquency.....	12,524	0.2			54,333	0.2				

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.
² Less than one-tenth of 1 percent.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	7,729,267	35,215,586	303,447	26,491	767	19,683	149,837
Enterprises in debt.....	486,719	663,306	303,447	26,491	290	14,483	107,569
In arrears, amount of arrearage stated.....	13,065	72,368	28,177	26,491		3,253	6,272
Collecting drainage taxes in 1939.....	13,065	72,368	28,177	26,491		3,253	6,272
Not in arrears.....	462,027	589,792	274,935		290	11,230	100,486
Collecting drainage taxes in 1939.....	258,955	351,825	124,268		290	4,575	100,486
No collections reported.....	203,072	237,967	150,667			6,655	
Not reporting as to arrears.....	11,627	1,146	335				811
Collecting drainage taxes in 1939.....	11,627	1,146	335				811
Enterprises not in debt.....	7,191,101	34,392,770			477	4,978	42,240
Collecting drainage taxes in 1939.....	77,420	395,306				3,581	42,240
No collections reported.....	7,113,681	33,997,464			477	1,397	
Enterprises not reporting as to debt.....	51,447	159,510				222	28
Collecting drainage taxes in 1939.....	4,575	1,806				222	28
No collections reported.....	46,872	157,704					

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	7,729,267	100.0	35,215,586	100.0
Improvement of land already in farms.....	7,716,263	99.8	35,131,467	99.8
Reclamation of swamp land not previously in farms.....	10,913	0.2	67,143	0.2
Protection against overflow.....	2,091	(¹)	16,976	(¹)

¹ Less than one-tenth of 1 percent.

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	7,729,267	100.0	25,212,061	17,482,794	35,215,586	100.0
Before 1870.....	43,946	0.6	897,180	853,234	407,552	1.1
1870-1879.....	154,702	2.0	2,476,970	2,322,268	1,996,307	5.7
1880-1889.....	453,893	5.9	4,399,472	3,945,579	5,037,347	14.5
1890-1899.....	726,816	9.4	4,669,947	3,943,131	4,900,714	13.9
1900-1904.....	624,190	8.1	2,629,294	2,005,104	3,410,989	9.7
1905-1909.....	950,062	12.3	2,530,439	1,580,377	4,568,432	13.0
1910-1914.....	838,945	10.8	1,899,561	1,060,616	3,821,657	10.8
1915-1919.....	712,703	9.2	1,318,054	605,351	3,603,946	10.2
1920-1924.....	743,624	9.6	1,257,972	514,348	2,922,629	8.3
1925-1929.....	1,156,023	15.0	1,687,071	531,048	2,920,279	8.3
1930-1934.....	379,991	4.9	433,082	53,081	549,324	1.6
1935-1939.....	944,372	12.2	1,013,019	68,647	1,016,410	2.9

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

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STATE TABLE 9 — DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other un-improved land	In occupied farms		In planted crops	Idle	Land available for settlement
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	7,729,267	7,690,503	99.5	26,282	12,482	7,300,737	94.4	371,999	56,531	7,173,937	92.8	4,682,046	422,255	1,778
Before 1870.....	43,946	43,399	98.8	350	197	40,764	92.8	2,869	313	40,841	92.9	25,095	4,406	.....
1870-1879.....	154,702	154,332	99.8	185	185	140,155	90.6	8,704	5,843	143,764	92.9	86,660	15,873	.....
1880-1889.....	453,693	448,478	98.8	3,167	2,248	424,723	93.6	21,439	7,731	420,667	92.7	266,109	28,942	940
1890-1899.....	726,516	719,375	99.0	5,141	1,700	684,863	94.2	31,686	10,267	674,031	92.7	436,460	39,380	608
1900-1904.....	624,190	621,438	99.6	1,901	851	583,845	93.5	35,414	4,931	578,821	92.7	376,956	40,212	.....
1905-1909.....	950,062	945,322	99.6	3,641	599	896,435	94.4	45,473	8,154	881,712	92.8	571,020	42,227	10
1910-1914.....	838,945	836,824	99.7	1,947	174	801,663	95.6	34,057	3,225	778,840	92.8	518,645	36,220	50
1915-1919.....	712,703	707,131	99.2	2,915	2,657	675,745	94.8	32,473	4,485	661,126	92.8	427,645	39,875	.....
1920-1924.....	743,624	739,468	99.4	2,903	1,253	703,936	94.7	36,242	3,446	690,269	92.8	452,023	41,510	100
1925-1929.....	1,156,023	1,153,562	99.8	2,279	82	1,092,046	94.5	58,208	5,769	1,073,385	92.8	706,540	61,378	40
1930-1934.....	379,991	378,366	99.6	946	679	360,534	94.9	17,956	1,501	352,960	92.9	235,128	19,509	30
1935-1939.....	944,372	941,608	99.7	907	1,857	896,028	94.9	47,478	866	877,521	92.9	579,565	52,723	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars ⁽¹⁾	Dollars
All enterprises.....	7,729,267	7,660,740	55,233	7,605,507	26,274	(¹)	0.48
Gravity drainage only.....	7,729,267	7,660,740	55,233	7,605,507	26,274	(¹)	0.48
Open ditches only.....	4,772,956	4,727,715	28,841	4,698,874	25,389	(¹)	0.88
Open ditches and levees.....	3,013	3,013	.....	3,013	.....	.....	.....
Tile drains only.....	1,337,312	1,327,424	22,206	1,305,218	260	(¹)	0.01
Tile drains and levees.....	52	52	.....	52	.....	.....	.....
Open ditches and tile drains.....	1,613,658	1,600,785	4,186	1,596,599	625	(¹)	0.15
Open ditches, tile drains, and levees.....	2,276	1,751	.....	1,751	.....	.....	.....

¹Less than one-half of 1 cent per acre.

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	7,729,267	100.0	35,215,586	100.0
Method:				
By district forces.....	526,492	6.8	2,221,613	6.3
By contract.....	6,075,826	78.6	28,320,380	80.4
Work apportioned to landowners.....	620,443	8.0	2,565,020	7.3
"None," or not reporting.....	506,506	6.6	2,108,573	6.0
Whether systematic:				
Reporting "yes".....	67,039	0.9	772,478	2.2
Reporting "no".....	7,615,225	98.5	34,199,944	97.1
Not reporting.....	47,003	0.6	243,164	0.7

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	7,729,267	93,729	1.2
Capital invested.....dollars..	35,215,586	268,283	0.8
Drainage works:			
Open ditches.....miles....	18,732.2	257.1	1.4
Tile drains.....miles....	10,163.9	12.2	0.1
Levees.....miles....	5.2	.....	.....

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	378,201	969,795	717.9	95.5	0.5
Work Projects Administration.....	148,883	748,402	400.0	65.3	0.5
Civilian Conservation Corps.....	208,877	179,412	287.8	22.2
Other kind or combination.....	20,441	61,981	30.1	8.0

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COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		THE STATE	Allen	Ashland	Ashtabula	Auglaize	Brown	Butler
LAND AREA								
1	Approximate land area.....acres....1940..	26,318,080	262,400	272,640	451,840	256,000	314,240	301,440
2	Drainage enterprises.....number....1940..	¹ 12,222	228	49	79	236	7	16
3	Land in enterprises.....acres....1940..	7,729,257	188,930	11,821	46,039	222,172	3,621	3,968
4	.....1930..	8,165,494	217,695	15,607	29,064	245,075	(²)	15,326
5	.....1920..	8,107,204	225,015	9,189	18,962	240,934	(²)	(²)
6	Area of all enterprises, overlapping included.....acres....1940..	25,212,061	511,318	11,821	51,015	714,361	3,621	3,968
7	Amount of overlapping.....acres....1940..	17,482,794	322,328	.....	4,916	492,179	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	7,690,503	188,990	11,821	46,039	222,157	3,621	3,918
9	.....1930..	7,495,861	217,615	12,790	28,464	239,155	(²)	14,976
10	Increase or decrease (-), 1930-1940.....acres.....	194,622	-28,625	-969	17,635	-16,998	.....	-11,058
11	.....percent.....	2.6	-13.2	-7.6	62.0	-7.1	.....	-73.8
12	Land undrained, unfit for any crop.....acres....1940..	12,482	.....	.....	.....	.....	.....	.....
13	.....1930..	102,290	30	760	600	5,487	(²)	350
14	Increase or decrease (-), 1930-1940.....acres.....	-89,808	-30	-760	-600	-5,487	.....	-350
15	.....percent.....	-87.8	-100.0	-100.0	-100.0	-100.0	.....	-100.0
16	Land partly drained, for partial crop.....acres....1940..	26,282	.....	.....	.....	15	.....	50
17	.....1930..	567,323	50	2,057	.....	433	(²)	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-541,041	-50	-2,057	.....	-418	.....	50
19	.....percent.....	-95.4	-100.0	-100.0	.....	-96.5	.....	100.0
20	Improved land.....acres....1940..	7,300,737	178,794	11,821	39,676	215,302	3,401	3,968
21	.....1930..	7,604,274	197,064	12,656	26,104	218,215	(²)	14,056
22	.....1920..	6,707,328	175,350	7,867	9,081	201,399	(²)	(²)
Unimproved land:								
23	Woodland and out-over land.....acres....1940..	371,999	10,196	.....	6,423	6,870	220	.....
24	.....1930..	487,981	20,549	1,145	.....	25,696	(²)	1,050
25	.....1920..	956,894	35,633	264	3,269	32,595	(²)	(²)
26	Other unimproved land.....acres....1940..	56,531	.....	.....	.....	.....	.....	.....
27	.....1930..	73,239	82	1,606	960	1,164	(²)	220
28	.....1920..	442,982	13,832	1,058	6,612	6,940	(²)	(²)
29	Land in occupied farms.....acres....1940..	7,173,937	165,200	11,821	45,150	206,200	3,602	3,968
30	.....1930..	8,132,973	217,561	15,527	29,064	243,505	(²)	14,516
31	Increase or decrease (-), 1930-1940.....acres.....	-859,036	-52,361	-3,706	16,086	-37,305	.....	-10,548
32	.....percent.....	-11.8	-24.1	-23.9	55.3	-15.3	.....	-72.7
33	Land in planted crops.....acres....1940..	4,682,046	102,400	11,821	28,440	126,400	3,401	3,918
34	.....1930..	6,800,406	192,460	9,437	26,093	210,983	(²)	13,998
35	Increase or decrease (-), 1930-1940.....acres.....	-2,118,360	-90,060	2,384	2,347	-84,583	.....	-10,080
36	.....percent.....	-31.2	-46.8	25.3	9.0	-40.1	.....	-72.0
37	Land idle.....acres....1940..	422,255	10,196	.....	.....	8,115	220	50
38	.....1930..	359,758	846	4,093	1,080	1,491	(²)	888
39	Increase or decrease (-), 1930-1940.....acres.....	62,497	9,350	-4,093	-1,080	6,624	.....	-838
40	.....percent.....	17.4	(⁴)	-100.0	-100.0	444.3	.....	-94.4
41	Land available for settlement.....acres....1940..	1,778	.....	.....	.....	.....	.....	.....
42	.....1930..	7,313	.....	.....	.....	780	(²)	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-5,535	.....	.....	.....	-780	.....	.....
44	.....percent.....	-75.7	.....	.....	.....	-100.0	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	4,772,956	110,602	11,715	44,188	103,810	3,621	1,121
46	Length of these ditches.....miles.....	15,428.9	459.5	40.2	86.4	318.1	15.2	1.7
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	3,013	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	11.7	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	2.3	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	1,337,312	24,490	106	863	26,589	.....	1,554
53	Length of these tile.....miles.....	7,231.6	159.9	0.9	3.6	283.9	.....	5.7
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	52	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	1.5	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	0.3	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	1,613,658	53,898	.....	1,048	91,773	.....	1,293
60	Length of these open ditches.....miles.....	3,275.7	135.1	.....	1.2	231.1	.....	2.0
61	Length of these tile.....miles.....	2,923.3	68.1	.....	0.5	169.5	.....	2.0
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	2,276	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	15.8	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	6.8	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	2.6	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 11,530.
² Included in "Other counties."

CENSUS OF DRAINAGE — OHIO

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

Champaign	Clark	Clermont	Clinton	Crawford	Cuyahoga	Darke	Defiance	Delaware	Erie	Fairfield	Fayette	Franklin	Fulton	
277,120	257,280	293,120	263,680	258,560	291,840	387,200	262,400	293,760	168,960	323,200	259,840	344,320	260,480	1
157	97	5	75	241	19	223	185	456	159	12	106	204	270	2
132,037	24,821	1,758	78,295	151,244	11,778	321,691	225,185	226,607	88,522	13,138	95,125	87,823	239,006	3
130,622	45,200	(2)	57,227	174,415	29,609	345,514	226,481	215,865	94,073	8,832	89,650	35,735	257,574	4
156,191	19,505	(2)	20,040	145,097	8,519	346,125	250,267	272,530	102,251	5,655	96,478	33,045	257,047	5
184,565	29,103	1,758	82,754	474,752	11,778	1,650,485	818,985	692,522	96,705	13,138	112,352	89,243	1,646,510	6
52,528	4,282	.....	4,459	323,508	.....	1,328,794	583,790	465,715	8,183	.....	17,227	1,420	1,407,504	7
132,037	24,821	1,758	78,295	151,244	11,778	321,691	225,095	226,468	88,522	12,938	95,125	87,737	239,006	8
130,205	44,468	(2)	57,227	164,183	26,898	345,380	150,566	197,500	89,246	8,421	85,534	33,782	248,159	9
1,832	-19,647	.....	21,068	-12,939	-14,820	-23,889	74,429	28,968	-824	4,517	9,591	53,955	-9,153	10
1.4	-44.2	.....	36.8	-7.9	-55.8	-6.8	49.4	14.7	-0.9	53.6	11.2	159.7	-3.7	11
.....	301	(2)	.....	150	20	89	3,190	3,295	1,593	.....	.....	327	.....	12
.....	-301	.....	.....	-150	-20	-89	-3,190	-3,133	-1,593	200	.....	-327	.....	13
.....	-100.0	.....	.....	-100.0	-100.0	-100.0	-100.0	-95.1	-100.0	.....	.....	-100.0	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	100	177	.....	.....	86	.....	15
417	431	(2)	10,082	2,891	45	72,525	15,070	3,134	411	4,116	1,626	9,416	17	
-417	-431	.....	-10,082	-2,891	-45	-72,525	-14,893	-3,134	-411	-4,116	-1,540	-9,416	18	
-100.0	-100.0	.....	-100.0	-100.0	-100.0	-100.0	-99.9	-98.8	-100.0	-100.0	-100.0	-94.7	-100.0	19
130,815	24,821	1,758	77,990	144,035	11,509	314,813	208,411	226,467	87,174	12,477	95,125	87,808	214,276	20
130,158	44,837	(2)	57,227	154,039	27,159	343,460	201,132	192,603	86,920	8,021	88,683	35,453	242,659	21
145,464	13,949	(2)	20,040	123,753	6,284	314,643	194,430	227,865	99,804	5,405	89,195	25,121	208,640	22
1,222	.....	.....	305	7,111	269	6,878	16,784	102	1,348	661	.....	15	24,730	23
464	82	(2)	.....	18,524	1,230	2,054	25,021	22,969	3,016	575	700	33	13,480	24
8,113	297	(2)	.....	10,543	496	31,482	47,301	40,597	644	250	7,283	1,329	47,594	25
.....	.....	.....	.....	97	.....	.....	.....	238	.....	.....	.....	.....	.....	26
.....	281	(2)	.....	1,852	1,220	.....	.....	293	4,137	236	267	249	1,436	27
2,614	5,259	(2)	.....	10,801	1,739	.....	.....	8,536	4,068	1,803	.....	6,585	813	28
120,500	24,819	1,758	72,700	143,300	11,778	307,800	209,000	208,500	76,100	13,025	93,600	80,200	226,000	29
130,622	45,000	(2)	57,227	174,272	27,337	345,106	226,481	215,665	93,818	8,832	89,650	33,728	257,462	30
-10,122	-20,181	.....	15,473	-30,972	-15,559	-37,306	-18,481	-7,185	-17,718	4,193	3,950	46,472	-31,462	31
-7.7	-44.8	.....	27.0	-17.8	-56.9	-10.8	-8.2	-3.3	-18.9	47.5	4.4	137.8	-12.2	32
67,100	24,693	1,758	56,900	90,400	8,313	195,200	124,000	103,800	47,300	12,477	72,400	48,300	152,700	33
116,994	34,662	(2)	28,843	102,743	21,243	280,627	184,897	187,196	81,241	5,473	79,715	16,794	223,655	34
-49,894	-9,969	.....	28,057	-12,343	-12,930	-85,427	-60,897	-83,396	-33,941	7,004	-7,315	31,546	-70,955	35
-42.6	-26.8	.....	97.3	-12.0	-60.9	-30.4	-32.9	-44.6	-41.8	128.0	-9.2	188.3	-31.7	36
558	.....	.....	.....	7,229	3,465	8,402	16,809	8,635	1,345	425	10	86	24,660	37
.....	.....	(2)	370	29,435	8,122	21,691	17,870	173	8,754	3,187	700	3,697	15,264	38
558	.....	.....	-370	-22,206	-4,657	-13,289	-561	8,462	-7,409	-2,762	-690	-3,611	9,396	39
.....	.....	.....	-100.0	-75.4	-57.3	-61.3	-3.2	(4)	-84.6	-86.7	-98.6	-97.7	61.6	40
.....	.....	(2)	.....	10	.....	.....	.....	.....	50	.....	.....	1,438	.....	41
.....	.....	.....	.....	-10	.....	.....	.....	.....	-50	.....	.....	-1,438	.....	42
.....	.....	.....	.....	-100.0	.....	.....	.....	.....	-100.0	.....	.....	-100.0	.....	43
53,928	11,113	1,613	37,022	50,101	11,778	244,043	186,336	52,317	60,992	11,827	44,715	50,222	142,500	45
118.0	94.8	5.3	60.7	98.5	42.3	400.3	470.7	423.5	118.7	23.9	95.2	147.2	377.7	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	411	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	.....	.....	.....	0.6	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	0.1	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
23,257	3,589	145	27,888	52,742	.....	41,723	2,169	64,367	3,384	1,311	42,125	24,155	10,512	52
72.6	20.9	0.4	46.6	352.8	.....	248.6	12.0	305.0	8.2	1.6	147.8	71.9	312.2	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	52	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	1.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	0.3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
54,852	10,067	.....	13,385	48,401	.....	35,925	36,690	109,187	24,146	.....	8,285	13,446	85,994	59
65.1	36.4	.....	6.1	65.2	.....	95.6	100.5	150.8	28.6	.....	12.3	23.2	195.2	60
109.2	34.9	.....	9.2	62.7	.....	57.3	32.7	304.4	21.5	.....	13.6	21.0	57.5	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	525	.....	.....	.....	.....	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	0.1	.....	.....	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	0.7	.....	.....	.....	.....	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	0.5	.....	.....	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	68
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72

³ Office estimate; reported figures exceed acreage in all farms as determined by the Census of Agriculture.
⁴ Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - OHIO

COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Geauga	Greene	Hancock	Hardin	Henry	Holmes	Huron
LAND AREA								
1	Approximate land area.....acres.....1940..	260,480	266,240	340,480	298,880	266,240	271,360	318,080
2	Drainage enterprises.....number.....1940..	6	75	482	397	391	10	263
3	Land in enterprises.....acres.....1940..	3,119	51,518	291,519	265,025	261,328	2,029	94,635
4	.....1930..	(¹)	57,406	321,182	282,645	260,489	11,854	125,685
5	.....1920..	(¹)	46,685	341,627	299,610	262,707	(¹)	92,411
6	Area of all enterprises, overlapping included.....acres.....1940..	3,119	85,653	1,489,783	754,355	1,580,869	2,029	103,826
7	Amount of overlapping.....acres.....1940..	.....	34,135	1,198,264	469,330	1,319,541	.....	19,191
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	2,769	51,518	291,519	265,025	260,207	2,029	84,590
9	.....1930..	(¹)	56,796	199,388	282,645	242,956	10,444	124,410
10	Increase or decrease (-), 1930-1940.....acres.....	.....	-5,278	92,131	-17,620	17,211	-8,415	-39,820
11	.....percent.....	.....	-9.3	46.2	-6.2	7.1	-80.6	-32.0
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	.....	5	.....	.....
13	.....1930..	(¹)	50	23,006	.....	20	600	365
14	Increase or decrease (-), 1930-1940.....acres.....	.....	-50	-23,006	.....	-15	-600	-365
15	.....percent.....	.....	-100.0	-100.0	.....	-75.0	-100.0	-100.0
16	Land partly-drained, for partial crop.....acres.....1940..	350	.....	.....	.....	1,116	.....	45
17	.....1930..	(¹)	560	98,788	.....	17,473	810	910
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-60	-98,788	.....	-16,357	-810	-865
19	.....percent.....	.....	-100.0	-100.0	.....	-93.6	-100.0	-95.0
20	Improved land.....acres.....1940..	3,119	49,546	279,106	254,040	243,320	2,029	81,722
21	.....1930..	(¹)	57,406	288,465	282,080	236,598	10,754	117,148
22	.....1920..	(¹)	43,660	270,205	245,442	220,591	(¹)	90,575
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	.....	1,972	12,413	10,985	17,988	.....	2,868
24	.....1930..	(¹)	.....	24,039	565	22,992	735	6,267
25	.....1920..	(¹)	2,232	35,919	36,639	42,116	(¹)	839
26	Other unimproved land.....acres.....1940..	.....	.....	.....	.....	20	.....	45
27	.....1930..	(¹)	.....	8,678	.....	899	365	2,270
28	.....1920..	(¹)	793	35,503	17,529	.....	(¹)	997
29	Land in occupied farms.....acres.....1940..	3,119	49,541	276,500	244,500	248,200	2,029	75,500
30	.....1930..	(¹)	57,406	320,994	282,645	259,167	11,834	124,380
31	Increase or decrease (-), 1930-1940.....acres.....	.....	-7,865	-44,494	-38,145	-10,967	-9,805	-48,880
32	.....percent.....	.....	-13.7	-13.9	-13.5	-4.2	-82.8	-39.3
33	Land in planted crops.....acres.....1940..	2,769	36,100	175,300	147,800	182,000	2,029	47,200
34	.....1930..	(¹)	46,371	265,531	259,846	235,328	9,775	107,325
35	Increase or decrease (-), 1930-1940.....acres.....	.....	-10,271	-110,231	-112,046	-53,328	-7,746	-60,125
36	.....percent.....	.....	-22.1	-38.6	-43.1	-22.7	-79.2	-56.0
37	Land idle.....acres.....1940..	350	1,967	12,413	12,245	18,028	.....	2,999
38	.....1930..	(¹)	270	9,451	25	13,961	480	3,510
39	Increase or decrease (-), 1930-1940.....acres.....	.....	1,697	2,962	12,220	4,077	-480	-511
40	.....percent.....	.....	628.5	31.3	(³)	29.2	-100.0	-14.6
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	(¹)	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	3,119	25,002	176,256	159,974	251,372	1,993	32,993
46	Length of these ditches.....miles.....	18.6	109.2	395.2	391.4	1,034.8	14.8	149.1
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	12,214	57,890	65,978	4,015	.....	11,552
53	Length of these tile.....miles.....	.....	25.3	478.0	503.7	11.5	.....	55.1
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	14,302	57,373	39,073	5,941	36	40,090
60	Length of these open ditches.....miles.....	.....	29.7	166.9	85.6	13.7	0.4	83.3
61	Length of these tile.....miles.....	.....	28.1	144.6	75.6	7.5	0.5	64.3
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹Included in "Other counties."

²Office estimate; reported figures exceed acreage in all farms as determined by the Census of Agriculture.

CENSUS OF DRAINAGE — OHIO

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

Jackson	Knox	Licking	Logan	Lorain	Lucas	Madison	Mahoning	Marion	Medina	Mercer	Miami	Montgomery	Morrow	
268,800	340,480	439,040	295,040	316,800	219,520	296,960	268,160	259,200	271,360	290,560	260,480	297,600	258,560	1
3	4	98	782	434	150	285	8	384	40	183	440	124	172	2
4,600	1,974	73,596	248,578	173,586	141,912	244,258	2,638	226,474	15,269	243,387	180,297	48,920	73,329	3
(1)	(1)	35,134	242,625	97,928	167,168	288,740	(1)	235,471	22,116	261,521	159,195	38,169	126,674	4
(1)	(1)	19,305	175,061	113,761	205,244	236,431	(1)	237,580	17,859	250,853	225,720	10,482	111,111	5
4,600	1,974	73,596	280,154	249,274	407,988	352,795	2,638	442,310	18,941	1,039,975	326,628	50,070	145,067	6
.....	.....	.....	31,576	75,688	266,076	108,537	.....	215,836	3,672	796,588	146,331	1,150	71,738	7
4,600	1,974	73,596	248,578	173,586	141,912	242,765	2,638	226,074	14,611	243,199	180,297	48,920	73,329	8
(1)	(1)	34,058	242,394	74,761	155,908	288,740	(1)	152,806	21,316	238,750	159,195	38,149	119,482	9
.....	.....	39,538	6,184	98,825	-13,996	-45,975	.....	73,268	-6,705	4,449	21,102	10,771	-46,153	10
.....	.....	116.1	2.6	132.2	-9.0	-15.9	.....	47.9	-31.4	1.9	13.2	28.2	-38.6	11
(1)	(1)	.....	.....	.....	.....	1,493	(1)	162	.....	.....	.....	.....	.....	12
.....	.....	.....	.....	3,655	5,955	.....	.....	6,183	.....	5,287	.....	20	.....	13
.....	.....	.....	.....	-3,655	-5,955	1,493	.....	-6,183	.....	-5,287	.....	-20	.....	14
.....	.....	.....	.....	-100.0	-100.0	.....	.....	-100.0	.....	-100.0	.....	-100.0	.....	15
(1)	(1)	.....	.....	.....	.....	.....	.....	400	.....	188	.....	.....	.....	16
(1)	(1)	1,076	231	19,512	5,305	.....	(1)	76,482	.....	800	.....	.....	7,192	17
.....	.....	-1,076	-261	-19,512	-5,305	.....	.....	-76,082	.....	-304	.....	.....	-7,192	18
.....	.....	-100.0	-100.0	-100.0	-100.0	.....	.....	-99.5	.....	-38.0	.....	.....	-100.0	19
4,380	1,948	73,235	189,192	154,406	130,163	244,051	2,513	219,470	13,956	224,129	173,594	48,834	70,935	20
(1)	(1)	35,134	241,759	93,810	158,526	288,740	(1)	217,489	21,962	219,606	140,186	38,021	121,924	21
(1)	(1)	16,987	172,258	64,001	124,644	214,306	(1)	174,142	10,753	222,988	202,613	9,308	97,763	22
.....	.....	.....	28,076	6,252	11,749	207	.....	7,004	.....	939	.....	6,703	86	23
(1)	(1)	.....	773	4,098	4,900	.....	(1)	16,263	.....	41,865	.....	18,879	143	24
.....	.....	.....	1,050	2,539	14,443	61,776	.....	14,528	.....	1,729	.....	668	776	25
.....	.....	.....	361	31,310	12,928	.....	.....	24,142	.....	1,729	.....	668	776	26
(1)	(1)	.....	93	20	3,842	.....	(1)	1,719	.....	374	.....	.....	.....	27
(1)	(1)	.....	1,268	264	18,824	7,597	(1)	39,296	.....	154	.....	50	130	28
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22,439	398	29
4,600	1,974	73,596	198,600	143,700	101,300	239,200	2,638	210,200	15,269	229,000	167,700	46,600	69,000	30
(1)	(1)	35,134	242,143	97,628	167,168	288,740	(1)	234,921	22,116	261,070	158,138	38,169	126,674	31
.....	.....	38,462	-43,543	46,072	-65,868	-49,540	.....	-24,721	-6,847	-32,070	9,562	8,431	-57,674	32
.....	.....	109.5	-18.0	47.2	-39.4	-17.2	.....	-10.5	-31.0	-12.3	6.0	22.1	-45.5	33
4,380	1,948	64,085	101,900	76,700	71,300	135,800	2,513	128,000	10,171	148,600	104,600	38,100	52,800	34
(1)	(1)	31,729	205,704	79,061	151,228	189,245	(1)	210,450	14,596	202,154	137,386	34,799	113,875	35
.....	.....	32,356	-103,804	3,639	-79,928	-53,445	.....	-82,450	-4,425	-53,554	-32,785	3,301	-61,075	36
.....	.....	102.0	-50.5	5.0	-52.8	-28.2	.....	-39.2	-30.3	-26.5	-26.5	9.5	-53.6	37
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	38
220	26	9,484	2,887	62,023	11,749	451	.....	7,114	5,060	19,206	6,703	1,266	2,394	39
(1)	(1)	.....	240	15,470	3,330	.....	(1)	10,904	160	19,886	13,219	210	4,398	40
.....	.....	9,484	2,647	8,419	252.8	.....	.....	-3,790	4,900	-680	-6,516	1,056	-2,004	41
.....	.....	.....	(5)	300.9	.....	.....	.....	-34.8	(3)	-3.4	-49.3	502.8	-45.6	42
(1)	(1)	.....	.....	.....	.....	.....	(1)	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
4,600	1,774	20,804	95,207	157,511	135,721	35,711	2,638	78,557	13,809	201,940	51,709	28,299	25,842	46
6.2	3.5	28.9	359.7	1,113.5	354.8	89.0	9.6	328.7	42.0	336.1	97.2	64.5	60.6	47
.....	48
.....	1,475	49
.....	7.2	50
.....	2.1	51
.....	52
.....	53
.....	54
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⁸Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - OHIO

COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		Ottawa	Paulding	Pickaway	Portage	Preble	Putnam	Richland
LAND AREA								
1	Approximate land area.....acres....1940..	168,320	266,240	324,480	322,560	273,920	311,040	319,360
2	Drainage enterprises.....number....1940..	123	308	31	41	638	333	109
3	Land in enterprises.....acres....1940..	129,004	247,416	35,331	22,132	139,497	281,362	48,727
4	1930..	112,456	251,557	30,847	8,104	100,951	291,315	77,926
5	1920..	154,402	266,911	24,101	10,274	110,615	308,374	22,763
6	Area of all enterprises, overlapping included.....acres....1940..	254,030	1,268,272	40,278	22,132	141,162	1,584,951	50,288
7	Amount of overlapping.....acres....1940..	125,026	1,020,856	4,947	.....	1,665	1,303,589	1,561
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	129,004	247,416	33,867	22,132	139,324	281,244	48,727
9	1930..	104,419	241,586	27,463	6,141	99,687	263,056	62,924
10	Increase or decrease (-), 1930-1940.....acres.....	24,585	5,830	6,404	15,991	39,637	18,188	-14,197
11	percent.....	23.5	2.4	23.3	260.4	39.8	6.9	-22.6
12	Land undrained, unfit for any crop.....acres....1940..	.....	.....	.....	.....	.....	32	.....
13	1930..	1,187	741	795	.....	269	429	7,933
14	Increase or decrease (-), 1930-1940.....acres.....	-1,187	-741	-795	.....	-269	-397	-7,933
15	percent.....	-100.0	-100.0	-100.0	.....	-100.0	-92.5	-100.0
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	1,464	.....	173	86	.....
17	1930..	6,850	9,230	2,589	1,963	995	27,830	7,069
18	Increase or decrease (-), 1930-1940.....acres.....	-6,850	-9,230	-1,125	-1,963	-822	-27,744	-7,069
19	percent.....	-100.0	-100.0	-43.4	-100.0	-82.6	-99.7	-100.0
20	Improved land.....acres....1940..	126,811	235,267	34,715	21,997	138,719	267,931	47,294
21	1930..	104,178	235,684	30,701	4,840	91,004	272,583	66,230
22	1920..	110,177	219,885	20,680	2,508	106,606	253,803	18,411
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	2,133	12,149	616	135	673	13,431	1,395
24	1930..	8,074	13,455	60	3,244	7,179	18,042	4,353
25	1920..	40,240	41,012	1,534	1,317	4,009	39,510	2,555
26	Other unimproved land.....acres....1940..	60	.....	.....	.....	105	.....	38
27	1930..	204	2,418	86	20	2,768	690	5,343
28	1920..	3,985	2,014	1,887	6,449	.....	15,061	1,797
29	Land in occupied farms.....acres....1940..	109,000	229,200	35,311	22,007	133,300	267,900	45,100
30	1930..	112,433	251,557	30,847	8,104	99,984	286,453	71,772
31	Increase or decrease (-), 1930-1940.....acres.....	-3,433	-22,357	4,464	13,903	33,316	-18,553	-26,672
32	percent.....	-3.0	-8.9	14.5	171.6	33.3	-6.5	-37.2
33	Land in planted crops.....acres....1940..	80,800	158,000	30,400	16,600	78,500	181,100	34,900
34	1930..	99,703	221,781	30,163	4,595	90,250	206,483	62,203
35	Increase or decrease (-), 1930-1940.....acres.....	-18,903	-63,781	237	12,005	-11,750	-25,383	-27,303
36	percent.....	-19.0	-28.8	0.8	261.3	-13.0	-12.3	-43.9
37	Land idle.....acres....1940..	2,193	12,149	660	10	12,350	13,431	1,933
38	1930..	8,129	14,980	71	3,007	4,922	32,668	5,379
39	Increase or decrease (-), 1930-1940.....acres.....	-5,936	-2,831	589	-2,997	7,428	-19,237	-3,446
40	percent.....	-73.0	-18.9	829.6	-99.7	150.9	-58.9	-64.1
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
42	1930..	.....	.....	.....	.....	14	586	219
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	-14	-586	-219
44	percent.....	.....	.....	.....	.....	-100.0	-100.0	-100.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	128,401	226,155	18,734	21,487	22,439	222,121	27,970
46	Length of these ditches.....miles.....	281.0	972.9	48.8	81.9	55.3	723.5	81.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	603	12,413	8,412	.....	69,728	21,615	16,502
53	Length of these tile.....miles.....	1.6	67.4	17.0	.....	381.6	223.5	28.2
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	8,848	8,185	645	47,330	37,626	4,255
60	Length of these open ditches.....miles.....	.....	27.6	9.4	2.6	52.5	83.2	5.9
61	Length of these tile.....miles.....	.....	14.8	11.1	0.7	142.0	61.8	7.1
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹Includes Highland, Lawrence, Muskingum, Perry, Pike, Ross, and Tuscarawas Counties in 1940; Brown, Clermont, Geauga, Highland, Jackson, Knox, Lawrence, Mahoning, Muskingum, Perry, Pike, Ross, and Tuscarawas Counties in 1930; and Brown, Butler, Clermont, Geauga, Hamilton, Highland, Holmes, Jackson, Knox, Lawrence, Mahoning, Muskingum, Perry, Pike, Ross, Scioto, Tuscarawas, and Warren Counties in 1920.

CENSUS OF DRAINAGE - OHIO

AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

Sandusky	Seneca	Shelby	Stark	Summit	Trumbull	Union	Van Wert	Warren	Wayne	Williams	Wood	Wyandot	Other counties ¹	
262,400	352,640	261,760	371,200	264,320	403,200	277,760	261,760	261,120	359,040	269,440	395,520	259,840	2,423,680	1
364	368	280	128	91	77	542	130	4	156	200	409	323	12	2
244,653	192,068	200,550	14,588	25,429	42,964	277,030	253,863	6,799	84,254	128,312	386,841	151,249	5,296	3
242,224	222,353	227,794	34,646	21,015	47,512	264,154	254,870	9,271	162,101	198,931	370,002	233,355	36,543	4
250,307	327,618	247,498	14,639	17,128	15,331	269,139	257,527	(²)	61,661	236,911	389,390	244,500	28,820	5
653,233	340,373	668,046	16,389	25,429	42,964	656,288	1,642,786	6,799	129,552	268,777	2,278,402	500,226	5,296	6
408,580	148,305	467,496	1,801	.....	.....	379,258	1,388,923	.....	45,298	140,465	1,891,561	348,977	.....	7
244,234	192,048	200,635	14,584	22,045	42,964	277,022	253,863	6,399	56,580	128,312	386,801	151,249	5,296	8
240,207	211,494	226,843	34,646	16,262	35,052	253,928	251,698	8,074	112,909	146,649	367,611	220,447	27,988	9
4,027	-19,436	-26,308	-20,062	5,763	7,912	23,094	2,165	-1,675	-56,329	-18,337	19,190	-69,198	-22,692	10
1.7	-9.2	-11.6	-57.9	35.6	22.6	9.1	0.9	-20.7	-49.9	-12.5	5.2	-31.4	-61.2	11
291	.....	.....	4	1,075	.....	.....	.....	200	8,856	.....	.....	.....	.....	12
470	1,067	831	.....	1,453	204	467	2,108	600	15,539	3,461	854	520	2,029	13
-179	-1,067	-831	4	-378	-204	-467	-2,108	-400	-6,681	-3,461	-854	-520	-2,029	14
-38.1	-100.0	-100.0	.....	-26.0	-100.0	-100.0	-100.0	-66.7	-43.0	-100.0	-100.0	-100.0	-100.0	15
128	20	15	.....	2,309	.....	8	.....	200	18,816	.....	40	.....	.....	16
1,547	9,802	120	.....	3,900	12,256	9,759	1,064	597	33,653	48,821	1,537	12,388	6,526	17
-1,419	-9,782	-105	.....	-991	-12,256	-9,751	-1,064	-397	-14,837	-48,821	-1,497	-12,388	-6,526	18
-61.7	-99.8	-87.5	.....	-30.0	-100.0	-99.9	-100.0	-66.5	-44.1	-100.0	-87.4	-100.0	-100.0	19
232,587	183,881	196,494	13,662	20,535	36,810	249,054	239,521	6,509	65,641	120,486	359,364	144,781	4,548	20
222,181	207,651	210,208	32,072	17,726	45,456	256,045	226,621	9,271	122,618	174,674	366,577	221,694	31,966	21
186,005	³ 273,026	³ 207,043	8,621	11,988	6,478	219,286	³ 220,721	(²)	51,064	³ 198,444	³ 314,841	³ 205,752	23,471	22
11,700	8,033	4,041	926	2,732	6,154	27,976	14,342	90	12,531	7,826	25,506	6,463	748	23
12,778	9,988	14,727	2,122	1,586	474	5,921	28,109	.....	34,294	24,155	2,104	11,173	3,396	24
25,976	37,759	28,987	39	1,184	2,352	25,567	36,806	(²)	2,843	31,353	74,391	17,282	1,114	25
366	154	15	.....	2,162	.....	.....	.....	200	6,082	.....	1,971	5	.....	26
7,255	4,684	2,859	452	1,703	1,582	2,188	140	.....	5,199	102	1,321	488	1,181	27
38,326	16,831	11,468	5,979	3,954	6,501	24,286	.....	(²)	7,764	7,114	158	21,466	4,235	28
229,000	183,000	194,800	14,588	22,436	42,881	262,898	246,000	6,799	84,254	124,200	349,700	139,500	5,296	29
210,269	220,679	227,729	34,569	20,613	42,279	264,122	254,570	9,271	160,237	198,844	369,907	233,355	35,223	30
-17,705	-37,679	-32,929	-19,981	1,823	602	-1,224	-8,570	-2,472	-75,983	-74,644	-20,207	-93,855	-29,927	31
-7.2	-17.1	-14.4	-57.8	8.8	1.4	-0.5	-3.4	-26.7	-47.4	-37.5	-5.5	-40.2	-85.0	32
151,200	118,600	122,100	12,898	12,532	27,235	140,323	182,400	6,209	60,185	96,600	267,500	83,600	4,548	33
59,069	200,507	185,886	28,757	13,169	30,510	239,495	225,923	5,300	88,548	154,180	343,782	210,069	23,416	34
-28.1	-81,907	-63,786	-15,859	-637	-3,275	-99,172	-43,523	909	-28,363	-57,580	-76,282	-126,469	-18,868	35
.....	-40.8	-34.3	-55.1	-4.8	-10.7	-41.4	-19.3	17.2	-32.0	-37.3	-22.2	-60.2	-80.6	36
12,404	8,448	5,661	860	6,720	95	378	14,443	590	20,476	7,826	27,344	6,621	748	37
3,549	1,226	3,569	198	3,753	5,751	1,229	17,924	1,029	8,566	21,369	226	5,792	3,768	38
8,855	7,222	2,092	662	2,967	-5,656	-951	-3,481	-439	11,910	-13,563	27,118	829	-3,018	39
249.5	589.1	58.6	334.3	79.0	-98.3	-69.2	-19.4	-42.7	139.0	-63.4	(⁴)	14.3	-80.1	40
.....	.....	.....	.....	1,778	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	629	.....	.....	.....	.....	.....	.....	.....	.....	42
.....	.....	.....	.....	.....	-629	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	1,778	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	-100.0	.....	.....	.....	.....	.....	.....	.....	-100.0	45
221,391	95,043	120,399	11,978	23,707	41,497	92,869	177,211	2,830	82,335	46,630	375,331	70,947	5,066	46
937.7	329.1	439.0	170.2	111.0	146.7	152.3	597.7	7.5	280.2	147.4	1,280.0	163.3	17.1	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	1,127	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	3.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	0.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
15,083	51,118	42,722	494	151	.....	53,778	32,080	.....	1,211	11,820	6,690	43,160	130	52
45.6	117.5	378.7	3.9	0.9	.....	254.0	134.0	.....	2.9	77.7	45.1	279.5	0.7	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
8,179	45,907	37,429	2,094	444	1,467	130,383	44,572	3,969	708	69,862	4,820	37,142	80	59
14.4	100.0	173.0	28.0	6.6	9.4	193.4	81.2	8.7	2.2	151.5	22.4	70.2	0.5	60
10.3	50.9	137.5	11.4	1.9	1.4	197.8	52.2	1.1	1.3	117.6	12.0	60.2	0.3	61
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	62
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	67
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	68
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	69
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	70
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	71
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72

¹Included in "Other counties."
²Office estimate; reported figures exceed acreage in all farms as determined by the Census of Agriculture.
³Percent not shown when more than 1,000.

CENSUS OF DRAINAGE - OHIO

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930,

ITEM (See definitions in Introduction)		THE STATE	Allen	Ashland	Ashtabula	Auglaize	Brown	Butler
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	12,222	228	49	79	236	7	16
Open ditches:								
2	Completed.....miles.....1940..	18,732.2	594.6	40.2	87.6	549.2	15.2	3.7
3	1930..	25,048.2	685.7	73.6	46.2	518.5	(²)	5.0
4	1920..	24,984.0	527.3	49.1	48.4	437.6	(²)	(²)
5	Additional length authorized.....miles.....1940..	9.7						
Tile drains:								
6	Completed.....miles.....1940..	10,163.9	228.0	0.9	4.1	453.4		7.7
7	1930..	9,371.6	224.3	1.7	0.5	335.8	(²)	8.1
8	1920..	9,205.3	161.3	1.4	1.2	346.7	(²)	(²)
9	Additional length authorized.....miles.....1940..	10.5						
Levees and dikes:								
10	Completed.....miles.....1940..	5.2						
11	1930..	0.3					(²)	
12	1920..	9.6					(²)	(²)
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..						(²)	
15	1930..	25					(²)	
16	1920..	125					(²)	(²)
17	Pump capacity.....gal. per min.....1940..						(²)	
18	1930..	5,000					(²)	(²)
19	1920..	3,600					(²)	(²)
20	Land served by pumps.....acres.....1940..						(²)	(²)
21	1930..	348					(²)	(²)
22	1920..	1,755					(²)	(²)
23	Wells pumped for drainage.....number.....1940..						(²)	
24	1930..						(²)	
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	35,215,586	697,067	47,224	123,347	1,117,667	7,996	22,294
26	1930..	36,836,449	935,928	82,194	75,459	1,371,768	(²)	102,787
27	1920..	30,680,145	581,915	58,700	71,989	1,009,034	(²)	(²)
28	Estimated cost when completed.....dollars.....1940..	35,279,998	697,067	47,224	123,347	1,117,667	7,996	22,294
29	1930..	36,836,449	935,928	82,194	75,459	1,371,768	(²)	102,787
30	1920..	30,771,620	600,915	58,700	71,989	1,012,994	(²)	(²)
31	Average cost per acre when completed.....dollars.....1940..	4.56	3.69	3.99	2.68	5.03	2.21	5.62
32	1930..	4.51	4.30	5.27	2.60	5.60	(²)	6.71
33	1920..	3.80	2.67	6.39	3.80	4.20	(²)	(²)
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	17,847,814	235,903	44,078	103,880	297,276	7,996	1,481
35	Average amount per acre.....dollars.....	3.74	2.13	3.76	2.35	2.86	2.21	1.32
36	Enterprises having open ditches and levees.....dollars..	56,189						
37	Average amount per acre.....dollars.....	18.65						
38	Enterprises having tile only.....dollars.....	10,772,897	262,631	3,146	13,122	348,427		10,230
39	Average amount per acre.....dollars.....	8.06	10.72	29.68	15.20	13.10		6.58
40	Enterprises having tile and levees.....dollars.....	1,653						
41	Average amount per acre.....dollars.....	31.79						
42	Enterprises having open ditches and tile.....dollars..	6,576,533	198,533		6,345	471,964		10,683
43	Average amount per acre.....dollars.....	4.08	3.68		6.05	5.14		8.18
44	Enterprises having ditches, tile, and levees.....dollars..	24,912						
45	Average amount per acre.....dollars.....	10.94						
46	Enterprises operating pumping plants.....dollars.....							
47	Average amount per acre.....dollars.....							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..							
49	Enterprises reporting.....number.....							
50	Land in these enterprises.....acres.....							
51	Average cost per acre.....dollars.....							
52	By enterprises not operating pumping plants.....dollars..	26,274						
53	Enterprises reporting.....number.....	59						
54	Land in these enterprises.....acres.....	55,233						
55	Average cost per acre.....dollars.....	0.48						
Federal aid in maintenance:								
56	Enterprises reporting.....number.....	353	15			2		
57	Land in these enterprises.....acres.....	378,201	30,991			(³)		
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars.....	149,837	8,358		1,128	1,354		
59	Enterprises reporting.....number.....	216	7		8	4		
60	Land in these enterprises.....acres.....	365,642	26,110		1,983	3,915		
61	Average amount collected per acre.....dollars.....	0.41	0.32		0.57	0.34		
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	19,683	(³)					
63	Enterprises reporting.....number.....	134	2					
64	Land in these enterprises.....acres.....	158,999	(²)					
65	Portion delinquent in these enterprises.....percent.....	12.4	(²)					
66	Total indebtedness, Dec. 31, 1939.....dollars.....	303,447	8,815		1,827	8,716		
67	Enterprises reporting.....number.....	313	7		7	12		
68	Land in these enterprises.....acres.....	486,719	34,525		2,565	18,047		
69	Average indebtedness per acre.....dollars.....	0.62	0.26		0.71	0.48		
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	26,491						
71	Enterprises reporting.....number.....	4						
72	Land in these enterprises.....acres.....	13,085						
73	Average arrearage per acre.....dollars.....	2.03						
74	Reduction of debt by refinancing, prior to 1940.....dollars..	767						
75	Enterprises reporting.....number.....	7						
76	Land in these enterprises.....acres.....	3,331						
77	Average reduction per acre.....dollars.....	0.23						

¹An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 11,530.

CENSUS OF DRAINAGE - OHIO

AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

Champaign	Clark	Clermont	Clinton	Crawford	Cuyahoga	Darke	Defiance	Delaware	Erie	Fairfield	Fayette	Franklin	Fulton	
187	97	5	75	241	19	223	185	456	159	12	106	204	270	1
184.1	133.2	5.3	66.8	163.7	42.3	495.9	571.2	575.1	147.3	23.9	107.5	170.4	572.9	2
169.8	133.5	(2)	41.8	329.4	55.4	525.5	971.3	503.2	211.3	25.1	54.7	22.1	2,081.2	3
150.8	85.2	(2)	15.4	399.9	54.4	534.0	1,075.2	249.3	274.2	14.7	48.4	67.3	1,616.7	4
.....	2.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
181.8	57.3	0.4	55.8	415.5	.....	305.9	44.7	610.8	29.7	1.6	161.4	92.9	368.7	6
131.0	54.4	(2)	44.9	382.8	.....	420.6	59.6	575.9	26.5	4.6	214.9	68.9	292.2	7
147.4	47.7	(2)	27.5	380.3	.....	559.5	104.5	371.7	36.6	1.4	220.1	39.9	244.6	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
.....	0.3	.....	.....	.....	.....	.....	.....	0.6	.....	.....	.....	.....	.....	10
.....	1.2	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	(2)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
490,091	180,674	4,512	166,612	813,017	35,228	2,332,836	744,965	1,077,288	152,320	62,898	328,729	391,244	1,105,585	25
438,705	182,266	(2)	156,189	710,977	89,025	1,333,441	767,504	849,446	162,293	154,458	273,425	265,839	1,580,401	26
521,301	138,225	(2)	39,251	632,076	53,872	2,000,095	651,468	616,455	250,199	99,364	274,691	120,582	1,012,672	27
490,091	182,674	4,512	166,612	813,017	35,228	2,332,836	744,965	1,077,288	152,320	62,898	328,729	391,244	1,105,585	28
438,705	182,266	(2)	156,189	710,977	89,025	1,333,441	767,504	849,446	162,293	154,458	273,425	265,839	1,580,401	29
533,092	133,225	(2)	39,251	632,076	64,872	2,000,095	651,468	617,665	250,199	99,364	274,691	120,982	1,012,672	30
3.71	7.36	2.57	2.13	5.38	2.99	7.25	3.31	4.75	1.72	4.79	3.46	4.45	4.62	31
3.36	4.03	(2)	2.73	4.08	3.01	3.86	3.39	3.94	1.73	17.49	3.05	7.44	6.14	32
3.41	6.83	(2)	1.96	4.36	7.61	5.78	2.60	2.27	2.45	17.57	2.85	3.66	3.94	33
150,691	81,064	2,680	78,993	71,813	35,228	1,191,003	555,499	252,456	79,006	60,325	128,263	122,497	355,034	34
2.79	7.29	1.66	2.13	1.43	2.99	4.88	2.98	4.82	1.30	5.10	2.87	2.44	2.49	35
.....	.....	.....	.....	.....	.....	.....	.....	193	.....	.....	.....	.....	.....	36
.....	.....	.....	.....	.....	.....	.....	.....	0.47	.....	.....	.....	.....	.....	37
94,686	21,901	1,832	69,785	593,520	.....	879,268	20,078	333,908	8,995	2,573	164,851	216,563	592,426	38
4.07	6.10	12.63	2.50	11.25	.....	21.07	9.26	5.19	2.66	1.96	3.91	8.96	56.36	39
.....	1,653	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	31.79	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
244,714	78,056	.....	17,894	147,684	.....	262,565	169,408	489,237	64,319	.....	35,615	52,184	158,125	42
4.46	7.75	.....	1.33	3.05	.....	7.31	4.62	4.48	2.66	.....	4.30	3.88	1.84	43
.....	.....	.....	.....	.....	.....	.....	.....	1,494	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	2.84	.....	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58
496	.....	.....	.....	7,472	.....	15,644	.....	1,309	1,498	.....	.....	.....	(5)	59
4	.....	.....	.....	8	.....	7	.....	6	5	.....	.....	.....	(5)	60
3,560	.....	.....	.....	12,553	.....	24,281	.....	3,198	2,370	.....	.....	.....	(5)	61
0.14	.....	.....	.....	0.60	.....	0.64	.....	0.41	0.63	.....	.....	.....	(5)	62
.....	.....	.....	.....	.....	.....	.....	.....	(5)	2,785	.....	.....	.....	.....	63
.....	.....	.....	.....	.....	.....	.....	.....	(5)	11	.....	.....	.....	.....	64
.....	.....	.....	.....	.....	.....	.....	.....	(5)	3,965	.....	.....	.....	.....	65
.....	.....	.....	.....	.....	.....	.....	.....	(5)	70.2	.....	.....	.....	.....	66
2,046	(5)	.....	.....	.....	.....	34,021	.....	16,481	6,941	.....	.....	.....	16,151	67
5	(5)	1	.....	.....	.....	18	.....	10	12	.....	.....	.....	11	68
5,045	(5)	.....	.....	.....	.....	37,042	.....	10,949	4,897	.....	.....	.....	13,575	69
0.40	(5)	.....	.....	.....	.....	0.92	.....	1.50	1.42	.....	.....	.....	1.19	70
.....	.....	.....	.....	.....	.....	.....	.....	(5)	.....	.....	.....	.....	.....	71
.....	.....	.....	.....	.....	.....	.....	.....	(5)	.....	.....	.....	.....	.....	72
.....	.....	.....	.....	.....	.....	.....	.....	(5)	.....	.....	.....	.....	.....	73
.....	(5)	.....	.....	.....	.....	.....	.....	(5)	.....	.....	.....	.....	.....	74
.....	(5)	1	.....	.....	.....	.....	.....	(5)	.....	.....	.....	.....	.....	75
.....	(5)	.....	.....	.....	.....	.....	.....	(5)	.....	.....	.....	.....	.....	76
.....	(5)	.....	.....	.....	.....	.....	.....	(5)	.....	.....	.....	.....	.....	77

² Included in "Other counties."

³ Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE—OHIO

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND

ITEM (See definitions in Introduction)		Geauga	Greene	Hancock	Hardin	Henry	Holmes	Huron
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	6	75	482	397	391	10	263
Open ditches:								
2	Completed.....miles.....1940..	18.6	138.9	532.1	477.0	1,048.5	15.2	232.4
3	.....1930..	(¹)	110.0	1,091.9	460.5	1,303.0	34.0	184.3
4	.....1920..	(¹)	76.4	969.1	537.9	2,109.1	(¹)	249.3
5	Additional length authorized.....miles.....1940..							
Tile drains:								
6	Completed.....miles.....1940..		53.4	622.6	579.3	19.0	0.5	119.4
7	.....1930..	(¹)	73.2	651.9	644.4	18.7		93.4
8	.....1920..	(¹)	39.1	627.2	588.1	22.5	(¹)	107.9
9	Additional length authorized.....miles.....1940..							
Levees and dikes:								
10	Completed.....miles.....1940..							
11	.....1930..	(¹)						
12	.....1920..	(¹)					(¹)	
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..							
15	.....1930..	(¹)						
16	.....1920..	(¹)					(¹)	
17	Pump capacity.....gal. per min.....1940..							
18	.....1930..	(¹)						
19	.....1920..	(¹)					(¹)	
20	Land served by pumps.....acres.....1940..							
21	.....1930..	(¹)					(¹)	
22	.....1920..	(¹)					(¹)	
23	Wells pumped for drainage.....number.....1940..							
24	.....1930..	(¹)						
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	23,010	180,032	1,337,737	1,118,890	1,712,478	11,872	317,005
26	.....1930..	(¹)	174,464	1,612,633	1,133,700	1,828,216	84,648	289,997
27	.....1920..	(¹)	114,190	1,527,173	1,128,506	1,799,959	(¹)	335,825
28	Estimated cost when completed.....dollars.....1940..	23,010	180,032	1,337,737	1,118,890	1,712,478	11,872	317,005
29	.....1930..	(¹)	174,464	1,612,633	1,133,700	1,828,216	84,648	289,997
30	.....1920..	(¹)	114,190	1,527,173	1,128,506	1,799,959	(¹)	335,825
31	Average cost per acre when completed.....dollars.....1940..	7.38	3.49	4.59	4.22	6.55	5.85	3.74
32	.....1930..	(¹)	3.04	5.02	4.01	7.02	7.14	2.31
33	.....1920..	(¹)	2.45	4.47	3.77	6.85	(¹)	3.63
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	23,010	80,228	374,043	443,589	1,678,383	10,737	68,038
35	Average amount per acre.....dollars.....	7.38	3.21	2.12	2.77	6.68	5.39	2.06
36	Enterprises having open ditches and levees.....dollars..							
37	Average amount per acre.....dollars.....							
38	Enterprises having tile only.....dollars.....		38,261	681,203	520,661	17,115		69,915
39	Average amount per acre.....dollars.....		3.13	11.77	7.89	4.26		6.05
40	Enterprises having tile and levees.....dollars.....							
41	Average amount per acre.....dollars.....							
42	Enterprises having open ditches and tile.....dollars..		61,543	282,491	154,640	16,980	1,135	179,052
43	Average amount per acre.....dollars.....		4.30	4.92	3.96	2.86	31.53	4.47
44	Enterprises having ditches, tile, and levees.....dollars..							
45	Average amount per acre.....dollars.....							
46	Enterprises operating pumping plants.....dollars.....							
47	Average amount per acre.....dollars.....							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..							
49	Enterprises reporting.....number.....							
50	Land in these enterprises.....acres.....							
51	Average cost per acre.....dollars.....							
52	By enterprises not operating pumping plants.....dollars..					(²)		
53	Enterprises reporting.....number.....						1	
54	Land in these enterprises.....acres.....					(²)		
55	Average cost per acre.....dollars.....					(²)		
Federal aid in maintenance:								
56	Enterprises reporting.....number.....	1						
57	Land in these enterprises.....acres.....	(²)						
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars.....			962	5,736	2,090		
59	Enterprises reporting.....number.....			5	18	7		
60	Land in these enterprises.....acres.....			6,152	20,883	4,317		
61	Average amount collected per acre.....dollars.....			0.16	0.27	0.48		
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..			(²)	2,280	743		
63	Enterprises reporting.....number.....			1	16	8		
64	Land in these enterprises.....acres.....			(²)	12,180	3,514		
65	Portion delinquent in these enterprises.....percent.....			(²)	18.7	21.1		
66	Total indebtedness, Dec. 31, 1939.....dollars.....		(²)	(²)	22,186			
67	Enterprises reporting.....number.....		2	2	32			
68	Land in these enterprises.....acres.....		(²)	(²)	40,991			
69	Average indebtedness per acre.....dollars.....		(²)	(²)	0.54			
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....							
71	Enterprises reporting.....number.....							
72	Land in these enterprises.....acres.....							
73	Average arrearage per acre.....dollars.....							
74	Reduction of debt by refinancing, prior to 1940.....dollars..							
75	Enterprises reporting.....number.....							
76	Land in these enterprises.....acres.....							
77	Average reduction per acre.....dollars.....							

¹Included in "Other counties."

²Where there are less than 3 enterprises reporting, data are included only in State totals.

CENSUS OF DRAINAGE—OHIO

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920.

ITEM (See definitions in Introduction)		Ottawa	Paulding	Pickaway	Portage	Preble	Putnam	Richland
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	123	308	31	41	638	333	109
Open ditches:								
2	Completed.....miles.....1940..	281.0	1,000.5	58.2	84.5	107.8	806.7	86.9
3	.....1930..	382.0	1,256.2	38.9	102.4	95.7	1,331.6	55.5
4	.....1920..	652.8	1,551.8	32.1	84.8	48.4	1,339.9	53.9
5	Additional length authorized.....miles.....1940..							
Tile drains:								
6	Completed.....miles.....1940..	1.6	82.2	28.1	0.7	523.6	285.3	35.3
7	.....1930..	4.2	59.0	36.7	0.6	470.4	317.6	24.5
8	.....1920..	4.0	78.7	37.5	0.2	464.0	229.3	24.5
9	Additional length authorized.....miles.....1940..							
Levees and dikes:								
10	Completed.....miles.....1940..							
11	.....1930..	0.3						
12	.....1920..	0.3						
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..							
15	.....1930..	25						
16	.....1920..	25						
17	Pump capacity.....gal. per min.....1940..							
18	.....1930..	5,000						
19	.....1920..	500						
20	Land served by pumps.....acres.....1940..							
21	.....1930..	348						
22	.....1920..	255						
23	Wells pumped for drainage.....number.....1940..							
24	.....1930..							
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	340,896	1,098,231	82,382	81,801	646,577	1,572,766	347,756
26	.....1930..	312,846	969,309	104,472	116,718	541,385	2,019,122	237,802
27	.....1920..	441,719	1,037,071	69,721	89,474	541,954	1,756,335	117,351
28	Estimated cost when completed.....dollars.....1940..	340,896	1,098,231	82,382	81,801	646,577	1,572,766	347,756
29	.....1930..	312,846	969,309	104,472	116,718	541,385	2,019,122	237,802
30	.....1920..	441,719	1,037,071	69,721	89,474	541,954	1,756,335	127,259
31	Average cost per acre when completed.....dollars.....1940..	2.64	4.44	2.33	3.70	4.64	5.59	7.14
32	.....1930..	2.78	3.85	3.39	14.40	5.36	6.93	3.05
33	.....1920..	2.86	3.94	2.89	6.71	4.90	5.70	5.59
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	335,976	1,006,164	40,804	78,055	48,761	908,283	238,692
35	Average amount per acre.....dollars..	2.62	4.45	2.18	3.63	2.17	4.09	8.53
36	Enterprises having open ditches and levees.....dollars..							
37	Average amount per acre.....dollars..							
38	Enterprises having tile only.....dollars..	4,920	67,484	18,093		404,594	548,888	74,364
39	Average amount per acre.....dollars..	8.16	5.44	2.15		5.80	25.39	4.51
40	Enterprises having tile and levees.....dollars..							
41	Average amount per acre.....dollars..							
42	Enterprises having open ditches and tile.....dollars..		24,583	23,485	3,746	193,222	115,615	34,700
43	Average amount per acre.....dollars..		2.78	2.87	5.81	4.08	3.07	8.16
44	Enterprises having ditches, tile, and levees.....dollars..							
45	Average amount per acre.....dollars..							
46	Enterprises operating pumping plants.....dollars..							
47	Average amount per acre.....dollars..							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..							
49	Enterprises reporting.....number..							
50	Land in these enterprises.....acres..							
51	Average cost per acre.....dollars..							
52	By enterprises not operating pumping plants.....dollars..							
53	Enterprises reporting.....number..							
54	Land in these enterprises.....acres..							
55	Average cost per acre.....dollars..							
56	Federal aid in maintenance:.....number..		5				10	7
57	Land in these enterprises.....acres..		22,456				14,475	4,584
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	(³)	6,331				(⁵)	8,986
59	Enterprises reporting.....number..	1	7				1	7
60	Land in these enterprises.....acres..	(³)	37,306				(⁵)	2,460
61	Average amount collected per acre.....dollars..	(³)	0.17				(⁵)	3.64
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..						2,120	
63	Enterprises reporting.....number..						39	
64	Land in these enterprises.....acres..						49,182	
65	Portion delinquent in these enterprises.....percent..						4.3	
66	Total indebtedness, Dec. 31, 1939.....dollars..	(³)	16,862				2,654	7,456
67	Enterprises reporting.....number..	1	9				39	8
68	Land in these enterprises.....acres..	(³)	38,866				49,182	3,161
69	Average indebtedness per acre.....dollars..	(³)	0.43				0.05	2.36
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..							
71	Enterprises reporting.....number..							
72	Land in these enterprises.....acres..							
73	Average arrearage per acre.....dollars..							
74	Reduction of debt by refinancing, prior to 1940.....dollars..							
75	Enterprises reporting.....number..							
76	Land in these enterprises.....acres..							
77	Average reduction per acre.....dollars..							

¹Includes Highland, Lawrence, Muskingum, Perry, Pike, Ross, and Tuscarawas Counties in 1940; Brown, Clermont, Geauga, Highland, Jackson, Knox, Lawrence, Mahoning, Muskingum, Perry, Pike, Ross, and Tuscarawas Counties in 1930; and Brown, Butler, Clermont, Geauga, Hamilton, Highland, Holmes, Jackson, Knox, Lawrence, Mahoning, Muskingum, Perry, Pike, Ross, Scioto, Tuscarawas, and Warren Counties in 1920.

CENSUS OF DRAINAGE — OHIO

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1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

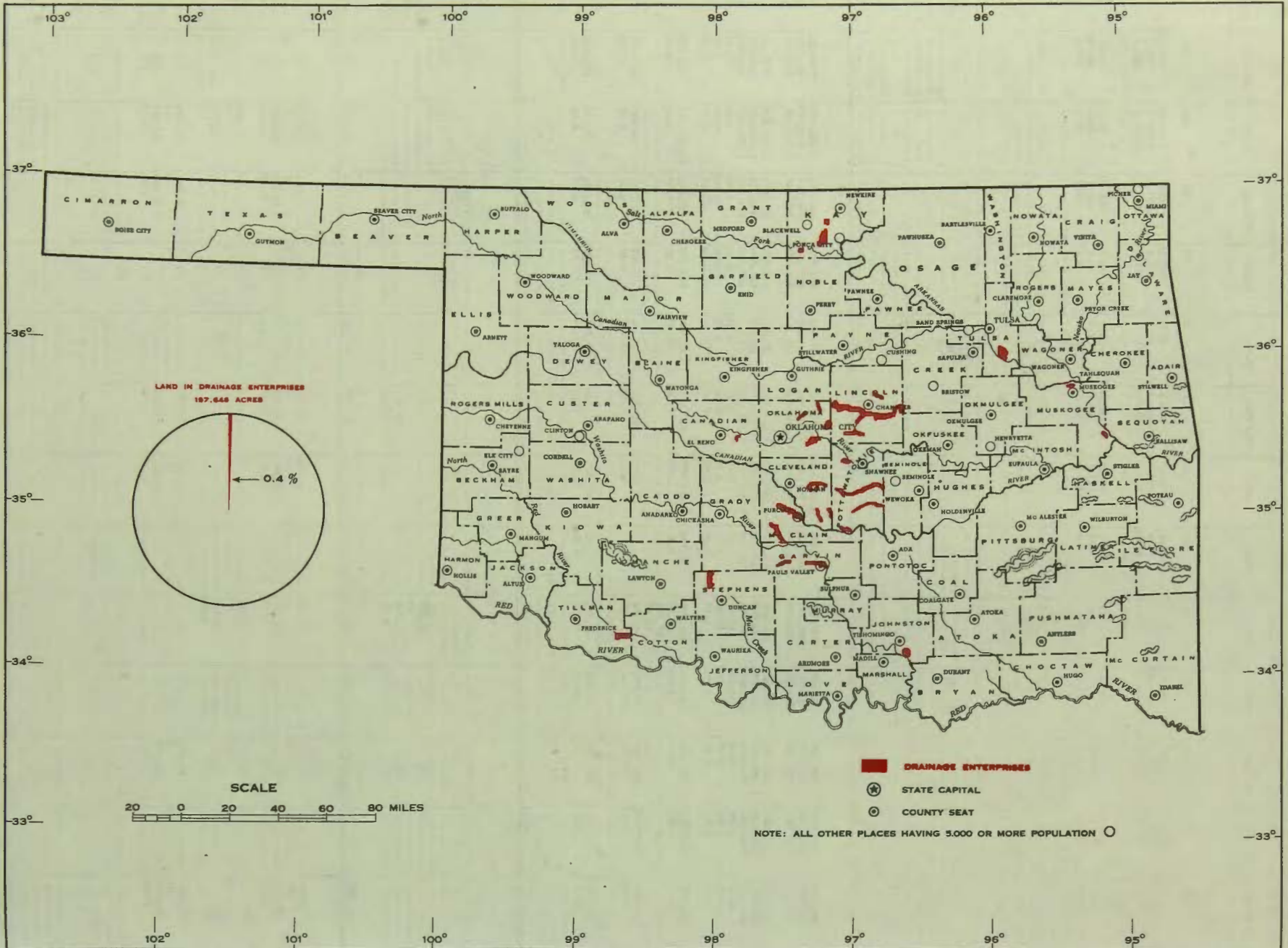
Sandusky	Seneca	Shelby	Stark	Summit	Trumbull	Union	Van Wert	Warren	Wayne	Williams	Wood	Wyandot	Other counties ¹	
364	368	280	128	91	77	542	130	4	156	200	409	323	12	1
952.1	429.1	612.0	198.6	121.5	156.1	345.7	678.9	16.2	282.4	298.9	1,302.4	233.5	17.6	2
1,060.0	479.1	595.1	140.7	122.1	77.4	496.3	1,496.5	15.8	277.5	533.6	2,255.5	549.0	91.5	3
851.2	775.3	357.3	167.9	70.7	86.8	310.1	1,252.0	(²)	275.0	678.5	3,072.5	382.5	107.7	4
1.4							2.8				1.3			5
55.9	168.4	516.2	15.4	2.8	1.4	451.8	186.2	1.1	4.2	195.3	57.1	339.7	1.0	6
63.3	112.6	307.2	8.8	2.9	2.9	581.4	184.2	1.3	5.1	182.1	94.2	223.9	7.2	7
31.8	148.9	312.5	11.3		4.9	587.8	209.7	(²)	6.1	179.1	81.5	254.0	10.3	8
							7.0							9
			0.5	0.1										10
							0.5	(²)						11
														12
														13
														14
								(²)						15
														16
								(²)						17
														18
								(²)						19
														20
								(²)						21
														22
														23
														24
1,006,798	610,843	926,936	175,168	500,677	109,530	1,074,376	1,212,511	17,981	454,694	549,679	2,069,766	774,232	31,240	25
885,490	608,415	1,063,677	156,737	222,165	119,021	784,066	1,631,698	20,000	427,599	556,914	2,540,618	812,205	286,466	26
620,742	704,352	828,282	168,044	99,888	85,196	705,535	1,544,952	(²)	319,263	512,940	1,723,397	559,087	231,243	27
1,008,776	610,843	926,936	175,168	500,677	109,530	1,074,376	1,225,815	17,981	454,694	549,679	2,109,204	774,232	31,240	28
885,490	608,415	1,063,677	156,737	222,165	119,021	784,066	1,631,698	20,000	427,599	556,914	2,540,618	812,205	286,466	29
620,742	704,352	828,282	168,044	99,888	85,196	705,535	1,544,952	(²)	319,263	512,940	1,723,397	556,244	231,243	30
4.12	3.16	4.62	12.01	19.69	2.55	3.88	4.83	2.84	5.40	4.28	5.45	5.12	5.90	31
3.66	2.74	4.67	4.52	10.57	2.51	2.97	6.40	2.16	2.80	6.87	3.48	7.84	3.48	32
2.48	2.15	3.45	11.48	5.83	5.56	2.62	6.00	(²)	5.18	2.17	4.43	2.32	8.02	33
901,262	289,544	253,531	136,439	414,991	99,778	264,277	823,851	12,640	450,835	195,801	2,026,944	191,132	30,290	34
4.07	3.05	2.10	11.39	17.50	2.40	2.84	4.65	4.47	5.48	4.20	5.40	2.69	5.96	35
				47,768										36
				42.38										37
74,784	207,465	392,290	5,561	7,582		372,418	262,249		1,423	110,547	59,546	432,434	450	38
4.96	4.06	9.18	11.49	50.21		6.92	8.17		1.18	9.35	8.90	10.02	3.46	39
														40
32,730	113,834	281,115	33,168	30,336	9,752	437,881	139,715	5,341	2,436	243,331	22,714	150,666	500	41
4.00	2.48	7.51	15.84	68.32	6.65	3.36	3.13	1.34	3.44	3.48	4.71	4.06	6.25	42
														43
														44
														45
														46
														47
														48
														49
														50
		(³)		24,032			1,123							51
				23			5							52
		(³)	1	7,399			39,712							53
		(³)		3.25			0.03							54
														55
4	1		53	52			9			4	5	1		56
13,354	(³)		7,367	17,041			56,524			1,111	53,171	(³)		57
														58
7,987		(³)		1,589		8,529	9,447		(³)	6,766	11,776	(³)		59
21			2	9		18	4			5	15	1		60
26,926		(³)		12,147		14,662	33,608		(³)	5,735	35,807	(³)		61
0.28		(³)		0.13		0.57	0.28		(³)	1.18	0.33	(³)		62
(³)		(³)		1,840					(³)		252			63
(³)	2		2	12						1	7			64
(³)		(³)		13,340					(³)		14,512			65
		(³)		13.8					(³)		1.7			66
15,982			17,611			17,109	10,270		(³)	5,565	11,154	(³)		67
25			8			22	4			2	21	2		68
35,613			10,379			16,661	34,064		(³)	2,120	50,361	(³)		69
0.45			1.70			1.03	0.30		(³)	2.62	0.22	(³)		70
														71
									(³)					72
									(³)					73
														74
														75
														76
														77

¹Included in "Other counties."

²Where there are less than 3 enterprises reporting, data are included only in State totals.

OKLAHOMA

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE - OKLAHOMA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	44,341,120	44,424,960	44,424,960				
Land in drainage enterprises.....acres.....	197,646	170,158	12,150	27,488	16.2	158,008	(1)
Improved.....acres.....	163,787	142,766	8,845	21,021	14.7	133,921	(1)
Unimproved:							
Timber and cut-over.....acres.....	20,215	11,923	3,305	8,292	69.5	8,618	280.8
Other.....acres.....	13,644	15,469		-1,825	-11.8	15,469	
Drainage sufficient for normal crop.....acres.....	181,353	143,221	(2)	38,132	26.6		
Partly drained, for partial crop.....acres.....	8,537	21,203	(2)	-12,636	-59.8		
Unfit to raise any crop for lack of drainage.....acres.....	7,726	5,734	3 2,250	1,992	34.7	3,494	154.8
In occupied farms.....acres.....	182,980	163,936	(2)	19,044	11.6		
In planted crops.....acres.....	86,884	135,956	(2)	-49,072	-36.1		
Idle.....acres.....	19,693	26,092	(2)	-6,399	-24.5		
Available for settlement.....acres.....	4,393	1,063	(2)	3,330	313.3		
Open ditches, completed.....miles.....	334.3	303.0	18.6	31.3	10.3	284.4	(1)
Capital invested in enterprises.....dollars.....	1,971,350	2,283,598	76,415	-312,248	-13.7	2,207,183	(1)
Average per acre.....dollars.....	9.97	13.42	6.29	-3.45	-25.7	7.13	113.4

¹ Percent not shown when more than 1,000.

² Not available.

³ Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

SIZE	LAND IN ENTERPRISES ¹		
	1940	1930	1920
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
All enterprises.....	197,646	2 170,158	12,150
200 to 499 acres.....		670	400
500 to 999 acres.....			750
1,000 to 1,999 acres.....	1,593	2 45,616	5,000
2,000 to 4,999 acres.....	40,788		
5,000 to 9,999 acres.....	70,393	60,381	6,000
10,000 to 19,999 acres.....	49,880	63,491	
20,000 to 49,999 acres.....	34,992		

¹ No overlapping of enterprises indicated in Oklahoma in 1940 or 1920.

² 960 acres overlapping were reported in 1930.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	<i>Acres</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>
All enterprises.....	197,646	100.0	1,971,350	100.0
County drains.....	197,646	100.0	1,971,350	100.0

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	<i>Acres</i>	<i>Percent</i>	<i>Acres</i>	<i>Percent</i>	<i>Acres</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>	<i>Dollars</i>	<i>Percent</i>
All enterprises.....	197,646	100.0	170,158	100.0	12,150	100.0	1,971,350	100.0	2,283,598	100.0	76,415	100.0
Gravity drainage only by open ditches.....	197,646	100.0	170,158	100.0	12,150	100.0	1,971,350	100.0	2,283,598	100.0	76,415	100.0

CENSUS OF DRAINAGE—OKLAHOMA

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	197,646	100.0	170,158	100.0	1,971,350	100.0	2,283,598	100.0	20,645	5,848
Enterprises in arrears.....	55,318	28.0	2,960	4.9	597,051	30.3	66,000	2.9	11,945	2,880
With some delinquent land.....	21,610	10.9	2,960	1.7	299,081	15.2	28,000	1.2	11,945	2,880
With no report on delinquency.....	33,708	17.1	5,310	3.1	298,000	15.1	38,000	1.7		
Enterprises not in arrears.....	140,735	71.2	161,888	95.1	1,344,299	68.2	2,217,598	97.1	8,700	2,968
With some delinquent land.....	24,420	12.4	12,165	7.2	98,652	5.0	184,000	8.0	8,700	2,968
With no delinquent land.....	94,942	48.0	122,627	72.1	980,673	49.7	1,570,890	68.8		
With no report on delinquency.....	21,373	10.8	27,096	15.9	264,974	13.4	462,708	20.3		
Enterprises not reporting on arrearage—with no report on delinquency.....	1,593	0.8			30,000	1.5				

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	197,646	1,971,350	262,199	88,941	(¹)	20,645	8,638
Enterprises in debt.....	² 81,331	725,703	262,199	88,941	(¹)	20,645	8,638
In arrears, amount of arrearage stated.....	31,318	382,051	160,941	88,941	(¹)	11,945	5,446
Collecting drainage taxes in 1939.....	11,190	114,051	24,251	12,251		1,860	5,446
No collections reported.....	20,128	268,000	136,690	76,690	(¹)	10,085	
In arrears, amount not stated.....	² 24,000	215,000	43,000		(¹)		
Collecting drainage taxes in 1939.....					(¹)		
No collections reported.....	² 24,000	215,000	43,000		(¹)		
Not in arrears.....	24,420	98,652	57,358			8,700	3,192
Collecting drainage taxes in 1939.....	17,380	80,652	39,943			6,700	3,192
No collections reported.....	7,040	18,000	17,415			2,000	
Not reporting as to arrears.....	1,593	30,000	900				
Collecting drainage taxes in 1939.....							
No collections reported.....	1,593	30,000	900				
Enterprises not in debt.....	116,315	1,245,647					
Collecting drainage taxes in 1939.....							
No collections reported.....	116,315	1,245,647					

¹ Amounts not stated by 3 enterprises reporting.
² Includes 14,000 acres for which amount of indebtedness was not reported.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	197,646	100.0	1,971,350	100.0
Improvement of land already in farms.....	68,832	34.8	856,251	43.4
Protection against overflow.....	128,814	65.2	1,115,099	56.6

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land in enterprises ¹		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	197,646	100.0	1,971,350	100.0
1905-1909.....	72,872	36.9	947,017	48.0
1910-1914.....	14,483	7.3	112,841	5.7
1915-1919.....	2,590	1.3	8,500	0.4
1920-1924.....	48,781	24.7	477,151	24.2
1925-1929.....	33,600	17.0	251,189	12.7
1930-1934.....	19,720	10.0	168,973	8.6
1935-1939.....	5,600	2.8	5,679	0.4

¹ No overlapping of enterprises indicated in Oklahoma in 1940.

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STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises	DRAINAGE CONDITION				DEVELOPMENT				USE OF LAND				
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	197,646	151,353	91.8	8,567	7,723	163,787	82.9	20,215	13,644	182,980	92.6	86,884	19,693	4,393
1905-1909.....	72,872	68,180	93.6	2,492	2,200	61,316	84.1	8,364	3,192	70,680	97.0	25,516	1,200	.....
1910-1914.....	14,483	13,545	93.5	745	193	12,463	85.0	1,388	632	14,002	96.7	10,550	.....	.....
1915-1919.....	2,500	2,390	92.3	.....	200	2,300	88.8	290	.....	2,300	88.8	1,800	.....	.....
1920-1924.....	48,781	44,398	91.0	2,330	2,053	38,108	78.1	6,453	4,220	43,688	89.6	20,218	7,593	3,393
1925-1929.....	33,600	30,900	92.0	1,000	1,700	29,100	86.6	2,600	1,900	31,600	94.0	17,400	7,200	.....
1930-1934.....	19,720	17,440	88.4	1,500	780	18,000	91.3	520	1,200	16,700	84.7	11,000	1,200	.....
1935-1939.....	5,600	4,500	80.4	500	600	2,500	44.6	600	2,500	4,000	71.4	400	2,500	1,000

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	197,646	100.0	1,971,350	100.0
Method:				
Work apportioned to landowners.....	1,593	0.8	30,000	1.5
"None," or not reporting.....	196,053	99.2	1,941,350	98.5
Whether systematic:				
Reporting "yes".....	.....	.....	.....	.....
Reporting "no".....	196,053	99.2	1,941,350	98.5
Not reporting.....	1,593	0.8	30,000	1.5

STATE TABLE 11.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	197,646	197,646	.....	197,646	.....	.....	.....
Gravity drainage only:							
Open ditches only.....	197,646	197,646	.....	197,646	.....	.....	.....

CENSUS OF DRAINAGE—OKLAHOMA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)		THE STATE	Cleveland	Garvin ¹	Kay	Lincoln	Oklahoma	Pottawatomie	Tulsa ¹	Other counties ²
LAND AREA										
1	Approximate land area.....acres.....1940..	44,341,120	350,080	520,960	604,160	622,720	453,760	511,360	366,080	2,993,280
2	Drainage enterprises.....number.....1940..	529	3	2	3	4	4	4	1	8
3	Land in enterprises.....acres.....1940..	197,646	14,180	10,420	16,680	46,142	18,360	29,171	9,000	53,693
4	.....1930..	170,158	11,910	12,165	11,000	45,232	.....	34,894	8,960	45,997
5	.....1920..	12,150	.....	.....	(⁴)	.....	.....	.....	.....	12,150
6	Area of all enterprises, overlapping included.....acres.....1940..	197,646	14,180	10,420	16,680	46,142	18,360	29,171	9,000	53,693
7	Amount of overlapping.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	181,353	12,600	9,800	15,900	41,600	16,940	29,171	8,000	47,542
9	.....1930..	143,221	9,500	12,165	10,500	45,232	.....	34,894	5,560	25,370
10	Increase or decrease (-), 1930-1940.....acres.....	38,132	3,000	-2,365	5,400	-3,632	16,940	-5,723	2,440	22,172
11	.....percent.....	26.6	31.6	-19.4	51.4	-8.0	.....	-16.4	43.9	87.4
12	Land undrained, unfit for any crop.....acres.....1940..	7,726	600	620	780	1,300	1,020	.....	500	2,906
13	.....1930..	5,734	.....	.....	.....	.....	.....	.....	400	5,334
14	Increase or decrease (-), 1930-1940.....acres.....	1,992	600	620	780	1,300	1,020	.....	100	-2,428
15	.....percent.....	34.7	.....	.....	.....	.....	.....	.....	25.0	-45.5
16	Land partly drained, for partial crop.....acres.....1940..	8,567	1,080	.....	.....	3,242	500	.....	500	3,245
17	.....1930..	21,203	2,410	.....	500	.....	.....	.....	3,000	15,293
18	Increase or decrease (-), 1930-1940.....acres.....	-12,636	-1,330	.....	-500	3,242	500	.....	-2,500	-12,048
19	.....percent.....	-59.6	-55.2	.....	-100.0	.....	.....	.....	-83.3	-78.8
20	Improved land.....acres.....1940..	163,787	10,300	8,000	15,600	37,850	12,500	24,585	8,000	46,952
21	.....1930..	142,766	9,410	12,165	10,650	37,020	.....	27,858	7,000	38,663
22	.....1920..	8,845	.....	.....	(⁴)	.....	.....	.....	.....	8,845
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	20,215	2,800	620	680	6,000	1,820	4,486	200	3,609
24	.....1930..	11,923	.....	.....	350	6,080	.....	3,840	.....	1,653
25	.....1920..	3,305	.....	.....	(⁴)	.....	.....	.....	.....	3,305
26	Other unimproved land.....acres.....1940..	13,644	1,080	1,800	400	2,292	4,040	100	800	3,132
27	.....1930..	15,469	2,500	.....	.....	2,132	.....	3,196	1,960	5,681
28	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	Land in occupied farms.....acres.....1940..	182,980	12,500	9,000	16,000	44,600	14,700	29,171	8,300	48,709
30	.....1930..	163,936	11,500	12,165	11,000	42,240	.....	34,297	8,960	43,774
31	Increase or decrease (-), 1930-1940.....acres.....	19,044	1,000	-3,165	5,000	2,360	14,700	-5,126	-660	4,935
32	.....percent.....	11.6	8.7	-26.0	45.4	5.6	.....	-14.9	-7.4	11.3
33	Land in planted crops.....acres.....1940..	86,884	5,500	4,500	9,000	6,700	3,500	24,585	5,000	28,099
34	.....1930..	135,956	5,610	12,165	10,200	36,820	.....	27,208	7,000	36,953
35	Increase or decrease (-), 1930-1940.....acres.....	-49,072	-110	-7,665	-1,200	-30,120	3,500	-2,623	-2,000	-8,854
36	.....percent.....	-36.1	-2.0	-63.0	-11.8	-81.8	.....	-9.6	-28.6	-24.0
37	Land idle.....acres.....1940..	19,693	400	2,000	1,000	800	6,700	.....	200	8,593
38	.....1930..	26,092	.....	.....	.....	8,412	.....	7,686	1,860	8,134
39	Increase or decrease (-), 1930-1940.....acres.....	-6,399	400	2,000	1,000	-7,612	6,700	-7,686	-1,660	469
40	.....percent.....	-24.5	.....	.....	.....	-90.5	.....	-100.0	-89.2	5.6
41	Land available for settlement.....acres.....1940..	4,393	.....	.....	.....	.....	4,000	.....	.....	393
42	.....1930..	1,063	.....	.....	.....	.....	.....	.....	.....	1,063
43	Increase or decrease (-), 1930-1940.....acres.....	3,330	.....	.....	.....	.....	4,000	.....	.....	-670
44	.....percent.....	313.3	.....	.....	.....	.....	.....	.....	.....	-63.0
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	197,646	14,180	10,420	16,680	46,142	18,360	29,171	9,000	53,693
46	Length of these ditches.....miles.....	334.3	32.0	19.0	28.0	68.8	25.0	56.5	11.0	94.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² Includes Canadian, Johnston, McClain, Muskogee, Stephens, and Tillman Counties in 1940; Alfalfa, Canadian, Johnston, McClain, Muskogee, Stephens, and Tillman Counties in 1930; and Canadian, Johnston, Kay, and Muskogee Counties in 1920.
³ No intercounty enterprises reported.
⁴ Included in "Other counties."

CENSUS OF DRAINAGE — OKLAHOMA

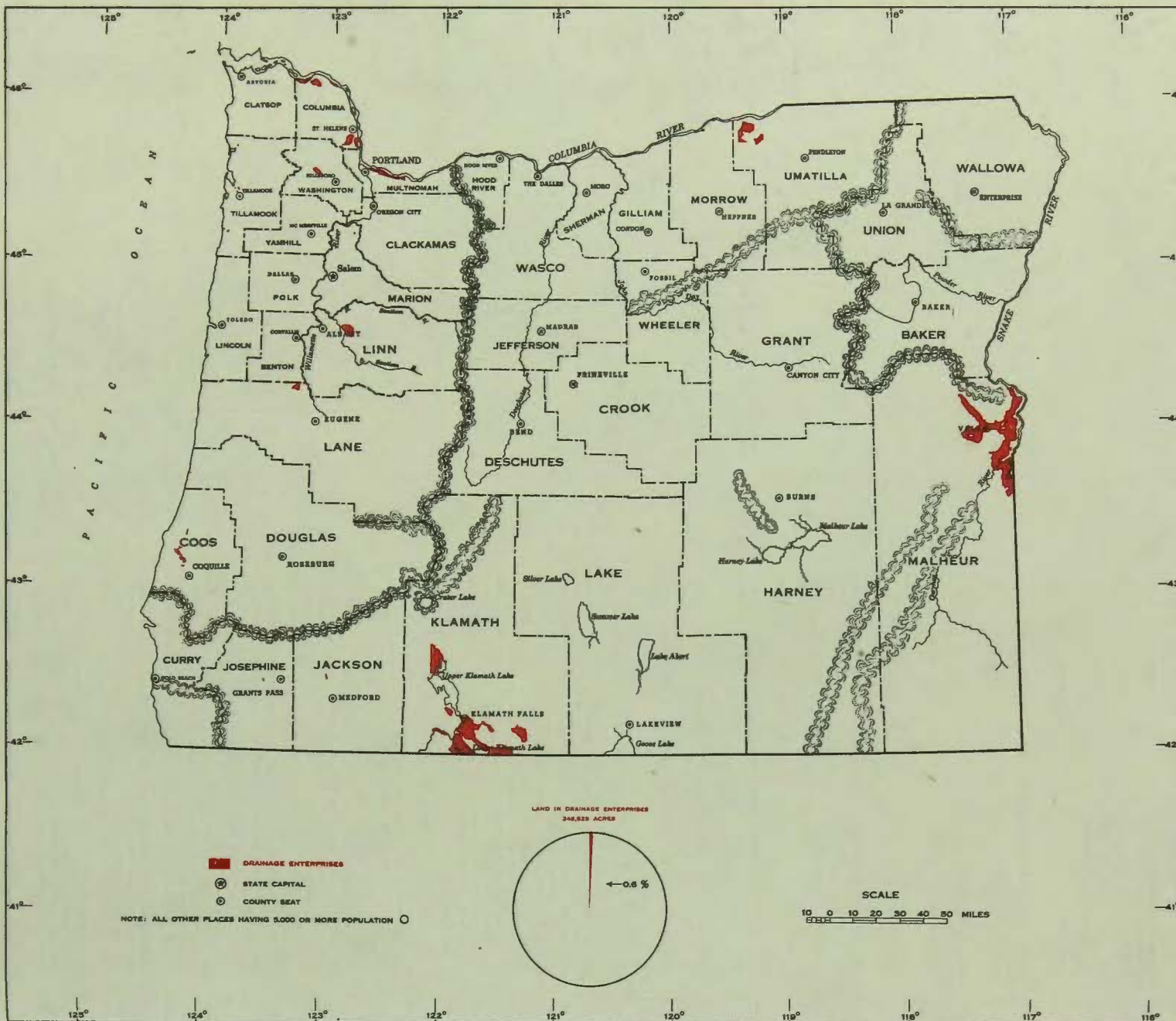
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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Cleveland	Garvin ¹	Kay	Lincoln	Oklahoma	Pottawatomie	Tulsa ¹	Other counties ²
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	³ 29	3	2	3	4	4	4	1	8
2 Open ditches:									
3 Completed.....miles.....1940..	334.3	32.0	19.0	28.0	68.8	25.0	56.5	11.0	94.0
4 1930..	303.0	40.5	16.7	12.0	59.5	.....	63.5	5.5	105.3
5 1920..	18.6	.....	.....	(4)	.....	.....	.....	.....	18.6
6 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
7 Tile drains:									
8 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
9 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:									
13 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
14 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 1920..	5.0	.....	.....	.....	.....	.....	.....	.....	5.0
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:									
18 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21 Pump capacity.....gal. per min. 1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 Land served by pumps.....acres.* 1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
25 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
25 Capital invested to January 1.....dollars.....1940..	1,971,350	89,900	185,000	59,384	786,251	78,652	369,163	20,500	382,500
26 1930..	2,283,598	128,200	184,000	100,000	790,963	.....	583,897	20,496	476,042
27 1920..	76,415	.....	.....	(4)	.....	.....	.....	.....	76,415
28 Estimated cost when completed.....dollars.....1940..	1,971,350	89,900	185,000	59,384	786,251	78,652	369,163	20,500	382,500
29 1930..	2,303,798	143,200	184,000	101,200	790,963	.....	583,897	20,496	480,042
30 1920..	77,415	.....	.....	(4)	.....	.....	.....	.....	77,415
31 Average cost per acre when completed.....dollars.....1940..	9.97	6.34	17.75	3.56	17.04	4.28	12.66	2.28	7.12
32 1930..	13.54	12.02	15.12	9.20	17.49	.....	16.73	2.29	10.44
33 1920..	6.37	.....	.....	(4)	.....	.....	.....	.....	6.37
34 Invested in and required for completion, 1940:									
35 Enterprises having open ditches only.....dollars..	1,971,350	89,900	185,000	59,384	786,251	78,652	369,163	20,500	382,500
36 Average amount per acre.....dollars.....	9.97	6.34	17.75	3.56	17.04	4.28	12.66	2.28	7.12
37 Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
38 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
39 Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
40 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
41 Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
43 Enterprises having open ditches and tile.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
44 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
48 Cost of maintenance and operation in 1939:									
49 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52 Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53 By enterprises not operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
54 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56 Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56 Federal aid in maintenance:									
57 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
FINANCIAL CONDITION									
58 Drainage taxes collected in 1939.....dollars..	8,638	.....	.....	.....	(5)	4,193	.....	.....	(5)
59 Enterprises reporting.....number.....	6	.....	.....	.....	2	3	.....	.....	1
60 Land in these enterprises.....acres.....	28,570	.....	.....	.....	(5)	11,320	.....	.....	(5)
61 Average amount collected per acre.....dollars..	0.30	.....	.....	.....	(5)	0.37	.....	.....	(5)
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	20,645	.....	10,085	.....	(5)	5,700	.....	.....	(5)
63 Enterprises reporting.....number.....	9	.....	2	.....	2	4	.....	.....	1
64 Land in these enterprises.....acres.....	46,030	.....	10,420	.....	(5)	18,360	.....	.....	(5)
65 Portion delinquent in these enterprises.....percent..	44.8	.....	96.8	.....	(5)	31.0	.....	.....	(5)
66 Total indebtedness, Dec. 31, 1939.....dollars..	262,199	.....	102,690	.....	(5)	41,967	(5)	.....	100,291
67 Enterprises reporting.....number.....	13	.....	2	.....	2	4	1	.....	4
68 Land in these enterprises.....acres.....	67,331	.....	10,420	.....	(5)	18,360	(5)	.....	26,003
69 Average indebtedness per acre.....dollars..	3.89	.....	9.86	.....	(5)	2.28	(5)	.....	3.86
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	86,941	.....	42,690	.....	(5)	(5)	(5)	.....	(5)
71 Enterprises reporting.....number.....	7	.....	2	.....	2	1	1	.....	1
72 Land in these enterprises.....acres.....	55,318	.....	10,420	.....	(5)	(5)	(5)	.....	(5)
73 Average arrearage per acre.....dollars..	1.61	.....	4.10	.....	(5)	(5)	(5)	.....	(5)
74 Reduction of debt by refinancing, prior to 1940.....dollars..	(9)	.....	.....	.....	.....	.....	.....	.....	(9)
75 Enterprises reporting.....number.....	3	.....	.....	.....	.....	.....	.....	.....	3
76 Land in these enterprises.....acres.....	29,310	.....	.....	.....	.....	.....	.....	.....	29,310
77 Average reduction per acre.....dollars									

OREGON

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE—OREGON

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	61,664,000	61,188,480	61,188,480				
Land in drainage enterprises.....acres.....	348,825	211,182	4,000	137,643	65.2	207,182	(1)
Improved.....acres.....	289,233	144,253	4,000	124,980	86.6	140,253	(1)
Unimproved:							
Timber and cut-over.....acres.....	4,862	9,912		-5,050	-50.9	9,912	
Other.....acres.....	74,730	57,017		17,713	31.1	57,017	
Drainage sufficient for normal crop.....acres.....	299,317	153,381	(2)	145,936	95.1		
Partly drained, for partial crop.....acres.....	20,898	27,228	(2)	-6,328	-23.2		
Unfit to raise any crop for lack of drainage.....acres.....	28,610	30,575		-1,965	-6.4	30,575	
In occupied farms.....acres.....	302,870	146,576	(2)	156,294	106.6		
In planted crops.....acres.....	241,080	116,987	(2)	124,103	106.1		
Idle.....acres.....	52,360	52,563	(2)	-203	-0.4		
Available for settlement.....acres.....	13,023	46,784	(2)	-33,761	-73.3		
Open ditches, completed.....miles.....	780.1	495.1		285.0	57.6	495.1	
Tile drains, completed.....miles.....	150.6	42.5	13.0	108.1	254.4	29.5	226.9
Drainage pumping plants, capacity.....horsepower.....	4,218	2,173		2,045	94.1	2,173	
.....gal. per min..	742,923	488,800		254,123	52.0	488,800	
Capital invested in enterprises.....dollars.....	5,482,012	4,166,549	200,000	1,316,463	31.6	3,965,549	(1)
Average per acre.....dollars.....	15.72	19.72	50.00	-4.00	-20.3	-30.28	-60.6

¹Percent not shown when more than 1,000.

²Not available.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	
	1940	1930	1920			1940	1940	1930		1920
	Acres	Acres	Acres			Acres	Acres	Acres		Acres
All enterprises.....	353,915	211,182	4,000	348,825	1,000 to 1,999 acres.....	15,984	42,697	4,000	15,984	
Less than 100 acres.....	177	150		177	2,000 to 4,999 acres.....	35,365			35,365	
100 to 199 acres.....	477	411		477	5,000 to 9,999 acres.....	55,341	51,451		53,651	
200 to 499 acres.....	4,100	1,910		8,700	10,000 to 19,999 acres.....	56,261	109,511		56,261	
500 to 999 acres.....	5,941	5,052		5,941	20,000 to 49,999 acres.....	124,669			121,669	
					50,000 to 99,999 acres.....	55,600			55,600	

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	348,825	100.0	5,482,012	100.0
Drainage districts.....	139,580	40.0	3,835,486	70.0
Irrigation enterprises:				
Federal ¹	178,642	51.2	1,209,397	22.0
Other.....	30,603	8.8	437,129	8.0

¹Includes projects or divisions of projects of United States Bureau of Reclamation operated by water users.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	348,825	100.0	211,182	100.0	4,000	100.0	5,482,012	100.0	4,166,549	100.0	200,000	100.0
Gravity drainage only by—												
Open ditches.....	96,868	27.8	61,237	29.0	4,000	100.0	873,135	15.9	560,998	13.4	200,000	100.0
Tile drains.....			500	0.2			20,000	0.5				
Open ditches and tile drains..	106,193	30.4	58,724	27.8			414,773	7.6	706,957	17.0		
All drained by pumping by—												
Open ditches.....	33,849	9.7	30,417	14.4			1,677,291	30.6	1,668,222	40.1		
Tile drains.....							750,000	13.7				
Open ditches and tile drains..	5,619	1.6										
Part only by pumping by—												
Open ditches.....	² 57,306	16.4	60,304	28.6			650,968	11.9	1,209,372	29.0		
Tile drains.....							1,115,845	20.3				
Open ditches and tile drains..	49,090	14.1										
Total area served by pumps.....	² 51,795	14.8	59,386	28.1								

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

²One enterprise reported pumps but not area served by them.

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises	CAPACITY			Land served
		Engine or motor		Pump	
		Number	Hp.	Percent		G. p. m.	Acres
All pumping enterprises.....	1940.. 26	4,218	100.0	742,323	51,795
	1930.. 17	2,173	100.0	488,800	59,386
	1920.. ..	.....	.....	.....	.....
Steam.....	1940.. 1	300	13.8	60,000	5,704
	1930.. ..	.....	.....	.....	.....
	1920.. ..	.....	.....	.....	.....
Electric.....	1940.. 21	3,413	80.9	577,423	39,226
	1930.. 12	1,693	77.9	402,100	50,973
	1920.. ..	.....	.....	.....	.....
Internal combustion.....	1940.. 3	165	3.9	50,500	1,905
	1930.. 4	180	8.3	26,700	2,709
	1920.. ..	.....	.....	.....	.....
Steam and electric.....	1940.. 1	575	13.6	100,000	5,664
	1930.. ..	.....	.....	.....	.....
	1920.. ..	.....	.....	.....	.....
Electric and internal combustion.....	1940.. 1	65	1.6	15,000	5,000
	1930.. ..	.....	.....	.....	.....
	1920.. ..	.....	.....	.....	.....

¹One enterprise reported pumps but not area served by them.

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Enterprises	PUMPS			Engine or motor capacity	Land served
		Number	Capacity			
			G. p. m.	Percent			Hp.	Acres
All pumping enterprises.....	1940.. 56	742,323	100.0	4,218	51,795	
	1930.. 31	488,800	100.0	2,173	59,386	
Centrifugal.....	1940.. 24	316,100	42.5	1,630	16,771	
	1930.. 24	260,000	53.2	1,455	38,970	
Rotary.....	1940.. 1	1,800	0.4	16	4,000	
	1930.. 4	11,050	1.5	60	5,776	
Screw.....	1940.. 2	1,673	0.2	18	1,046	
	1930.. ..	.....	.....	.....	.....
Turbine.....	1940.. 13	246,600	33.2	1,410	18,242	
	1930.. 6	227,000	46.4	702	8,400	
Centrifugal and—	1940.. 12	167,000	22.5	1,085	9,709	
Screw.....	1930.. 1	500	0.1	15	251	
	1940.. ..	.....	.....	.....	.....
	1930.. ..	.....	.....	.....	.....
Turbine.....	1940.. ..	.....	.....	.....	.....
	1930.. ..	.....	.....	.....	.....
Water wheel.....	1940.. ..	.....	.....	.....	.....
	1930.. ..	.....	.....	.....	.....

¹One enterprise reported pumps but not area served by them.

²Served by pumps located in Siskiyou County, California.

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	348,825	100.0	211,182	100.0	5,482,012	100.0	4,165,549	100.0	53,329	64,747
Enterprises in arrears.....	81,165	23.3	72,063	34.1	2,039,312	37.2	880,194	21.1	50,019	57,117
With some delinquent land.....	79,417	22.8	60,943	28.8	1,864,312	34.0	738,644	17.7	50,019	57,117
With no delinquent land.....	416	0.1	8,153	3.9	35,000	0.6	83,510	2.0	.....	.....
With no report on delinquency.....	1,332	0.4	2,967	1.4	140,000	2.6	58,040	1.4	.....	.....
Enterprises not in arrears.....	256,289	73.5	139,119	65.9	3,152,865	57.5	3,285,355	78.9	1,310	7,630
With some delinquent land.....	8,708	2.5	54,114	25.6	218,478	4.0	1,268,992	30.5	1,310	7,630
With no delinquent land.....	232,856	66.8	71,573	33.9	2,056,179	37.5	1,252,138	30.1	.....	.....
With no report on delinquency.....	14,725	4.2	13,432	6.4	878,208	16.0	764,225	18.3	.....	.....
Enterprises not reporting on arrearage.....	11,371	3.2	.....	.....	289,835	5.3	.....	.....	2,000	.....
With some delinquent land.....	5,356	1.5	.....	.....	161,973	3.0	.....	.....	2,000	.....
With no delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no report on delinquency.....	6,015	1.7	.....	.....	127,862	2.3	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	348,825	5,482,012	1,781,706	138,749	862,477	53,329	225,663
Enterprises in debt.....	190,947	3,673,491	1,781,706	138,749	736,977	53,212	207,587
In arrears, amount of arrearage stated.....	81,185	2,039,312	1,070,853	138,749	468,500	50,019	122,417
Collecting drainage taxes in 1939.....	79,609	1,962,312	1,062,125	132,209	468,500	49,419	122,417
No collections reported.....	1,556	77,000	8,728	6,540	.....	600	.....
Not in arrears.....	103,629	1,436,206	638,353	.....	223,277	1,193	81,245
Collecting drainage taxes in 1939.....	53,689	1,299,379	529,797	.....	211,277	1,193	81,245
No collections reported.....	49,940	136,827	108,556	.....	12,000	.....	.....
Not reporting as to arrears.....	6,153	197,973	72,500	.....	45,200	2,000	3,925
Collecting drainage taxes in 1939.....	6,153	197,973	72,500	.....	45,200	2,000	3,925
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Enterprises not in debt.....	151,066	1,693,780	.....	.....	105,000	117	16,419
Collecting drainage taxes in 1939.....	13,591	625,849	.....	.....	105,000	.....	16,419
No collections reported.....	137,475	1,067,931	.....	.....	.....	117	.....
Enterprises not reporting as to debt.....	6,812	114,741	.....	.....	20,500	.....	1,657
Collecting drainage taxes in 1939.....	1,690	28,879	.....	.....	.....	.....	1,657
No collections reported.....	5,122	85,862	.....	.....	20,500	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	348,825	100.0	5,482,012	100.0
Improvement of land already in farms.....	161,567	46.3	1,700,119	31.0
Reclamation of swamp land not previously in farms.....	62,259	17.9	882,365	16.1
Protection against overflow.....	33,281	9.5	2,114,796	38.6
Removal of alkali or seepage from irrigation.....	91,718	26.3	784,732	14.3

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	348,825	100.0	353,915	5,090	5,482,012	100.0
1905-1909.....	39,234	11.3	42,234	3,000	746,370	13.6
1910-1914.....	15,877	4.6	15,877	.....	118,738	2.2
1915-1919.....	87,993	25.2	89,683	1,690	2,021,560	36.9
1920-1924.....	75,387	21.6	75,787	400	1,817,906	33.2
1925-1929.....	53,791	15.4	53,791	.....	455,760	8.3
1930-1934.....	61,795	17.7	61,795	.....	192,778	3.5
1935-1939.....	14,748	4.2	14,748	.....	128,900	2.3

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	348,825	299,317	85.8	20,898	28,610	269,233	77.2	4,862	74,730	302,870	86.8	241,090	52,360	13,023
1905-1909.....	39,234	32,975	84.0	4,360	1,899	37,846	96.5	.....	1,388	37,846	96.5	31,551	1,404	.....
1910-1914.....	15,877	14,716	92.7	761	400	13,419	84.5	786	1,672	15,877	100.0	13,004	2,458	.....
1915-1919.....	87,993	76,190	86.6	8,623	3,180	66,557	75.6	2,132	19,304	78,968	89.1	58,777	10,587	7,150
1920-1924.....	75,387	49,753	66.0	3,704	21,930	48,359	64.1	1,150	25,878	50,326	66.8	39,542	11,149	1,100
1925-1929.....	53,791	52,770	98.1	.....	1,021	45,735	85.0	535	7,521	53,770	99.9	43,235	10,556	.....
1930-1934.....	61,795	61,165	99.0	450	180	45,789	74.1	39	15,967	56,485	91.4	43,672	16,006	4,623
1935-1939.....	14,748	11,748	79.6	3,000	.....	11,528	78.2	220	3,000	14,598	99.0	11,309	200	150

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

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STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 348,825	Acres 348,825	Acres 218,863	Acres 134,962	Dollars 98,126	Dollars 0.28	Dollars 0.46
Gravity drainage only.....	203,061	203,061	68,453	134,608	16,666	0.08	0.24
Open ditches only.....	95,636	95,636	34,285	61,351	10,359	0.11	0.30
Open ditches and levees.....	1,232	1,232	912	320	502	0.46	0.62
Open ditches and tile drains.....	106,193	106,193	33,256	72,937	5,745	0.05	0.17
Pumping for all or part of drainage.....	145,764	145,764	145,410	354	81,460	0.56	0.56
All drainage by pumping.....	39,468	39,468	39,114	354	42,696	1.08	1.09
Part pumping and part gravity.....	106,296	106,296	106,296	.....	38,764	0.36	0.36

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	348,825	100.0	5,482,012	100.0
Method:				
By district forces.....	206,925	59.3	3,537,576	64.5
By contract.....	12,786	3.7	401,774	7.3
Work apportioned to landowners.....	53,802	15.4	436,351	8.0
"None," or not reporting.....	75,312	21.6	1,106,311	20.2
Whether systematic:				
Reporting "yes".....	257,809	73.9	3,210,668	58.6
Reporting "no".....	91,016	26.1	2,271,344	41.4

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	348,825	178,652	51.2
Capital invested.....dollars..	5,482,012	2,448,893	44.7
Drainage works:			
Open ditches.....miles....	780.1	473.4	60.7
Tile drains.....miles....	150.6	14.0	9.3
Levees.....miles....	143.2	66.5	46.4

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS			AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees				Ditches	Tile	Levees
All enterprises reporting	Acres	Dollars	Miles	Miles	Miles		Acres	Dollars	Miles	Miles	Miles
Federal aid received.....	167,856	3,524,224	444.6	119.5	78.2	Civilian Conservation Corps.....	121,684	1,075,048	243.5	17.5	.....
						Corps of Engineers, U.S.A.....	17,654	1,482,317	86.0	100.0	54.1
						W.P.A. and Corps of Engineers.....	1,332	140,000	7.8	2.0	4.6
Work Projects Administration.....	26,157	701,859	102.3	.....	14.6	P.W.A. and Corps of Engineers.....	1,029	125,000	5.0	.....	5.0

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	348,825	1,217	0.6
Capital invested.....dollars..	5,482,012	28,692	0.5
Drainage works:			
Open ditches.....miles....	780.1	18.0	2.3
Tile drains.....miles....	150.6	.....	.....
Levees.....miles....	143.2	.....	.....

¹All land in these enterprises is dependent for protection upon levees of outside agencies.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Columbia	Coos	Jackson ¹	Klamath	Lane ¹	Linn ¹	
LAND AREA								
1	Approximate land area.....acres.....1940..	61,604,000	413,440	1,031,040	1,802,880	3,822,720	2,940,160	1,468,160
2	Drainage enterprises.....number.....1940..	² 66	11	5	1	11	1	1
3	Land in enterprises.....acres.....1940..	348,625	19,568	5,345	404	124,017	3,500	13,000
4	.....1930..	211,182	17,574	5,344	.....	123,912	5,600	.....
5	.....1920..	4,000	.....	.....	.....	.....	.....	.....
6	Area of all enterprises, overlapping included.....acres.....1940..	353,915	19,568	5,345	404	127,017	3,600	13,000
7	Amount of overlapping.....acres.....1940..	5,090	.....	.....	.....	3,000	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	299,317	19,568	4,948	404	89,169	3,600	10,000
9	.....1930..	153,381	16,264	5,110	.....	82,379	3,800	.....
10	Increase or decrease (-), 1930-1940.....acres.....	145,936	3,304	-162	404	6,790	-200	10,000
11	.....percent.....	95.1	20.3	-3.2	.....	8.2	-5.3	.....
12	Land undrained, unfit for any crop.....acres.....1940..	29,610	.....	.....	.....	24,220	.....	.....
13	.....1930..	30,575	265	40	.....	24,300	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-1,965	-285	-40	.....	-80	.....	.....
15	.....percent.....	-6.4	-100.0	-100.0	.....	-0.3	.....	.....
16	Land partly drained, for partial crop.....acres.....1940..	20,898	.....	397	.....	10,628	.....	3,000
17	.....1930..	27,226	1,025	194	.....	17,233	1,800	.....
18	Increase or decrease (-), 1930-1940.....acres.....	-6,328	-1,025	203	.....	-6,605	-1,800	3,000
19	.....percent.....	-23.2	-100.0	104.6	.....	-38.3	-100.0	.....
20	Improved land.....acres.....1940..	269,239	17,113	5,275	404	83,740	3,400	10,000
21	.....1930..	144,253	8,621	3,584	.....	78,426	3,600	.....
22	.....1920..	4,000	.....	.....	.....	.....	.....	.....
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	4,862	2,426	70	.....	.....	.....	.....
24	.....1930..	9,912	1,566	1,671	.....	.....	1,500	.....
25	.....1920..	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres.....1940..	74,730	29	.....	.....	40,277	200	3,000
27	.....1930..	57,017	7,387	89	.....	45,486	300	.....
28	.....1920..	.....	.....	.....	.....	.....	.....	.....
29	Land in occupied farms.....acres.....1940..	302,870	17,329	5,345	404	90,308	3,500	13,000
30	.....1930..	146,576	10,610	5,101	.....	79,019	3,900	.....
31	Increase or decrease (-), 1930-1940.....acres.....	156,294	6,719	244	404	11,289	-300	13,000
32	.....percent.....	106.6	63.3	4.8	.....	14.3	-7.7	.....
33	Land in planted crops.....acres.....1940..	241,090	15,069	5,275	404	71,218	3,400	10,000
34	.....1930..	116,987	8,005	2,101	.....	65,701	2,000	.....
35	Increase or decrease (-), 1930-1940.....acres.....	124,103	7,064	3,174	404	5,517	1,400	10,000
36	.....percent.....	106.1	88.2	151.1	.....	8.4	70.0	.....
37	Land idle.....acres.....1940..	52,360	3,926	50	.....	9,551	200	.....
38	.....1930..	52,563	8,815	788	.....	30,601	2,585	.....
39	Increase or decrease (-), 1930-1940.....acres.....	-203	-4,889	-738	.....	-21,050	-2,385	.....
40	.....percent.....	-0.4	-55.5	-93.6	.....	-68.8	-92.3	.....
41	Land available for settlement.....acres.....1940..	13,023	1,400	.....	.....	7,000	.....	.....
42	.....1930..	48,784	6,479	2,200	.....	29,901	1,700	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-35,761	-5,079	-2,200	.....	-22,901	-1,700	.....
44	.....percent.....	-73.3	-78.4	-100.0	.....	-75.6	-100.0	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	95,636	.....	4,774	.....	21,935	3,600	13,000
46	Length of these ditches.....miles.....	198.0	.....	18.5	.....	31.5	3.7	7.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	1,232	.....	320	.....	.....	.....	.....
49	Length of these ditches.....miles.....	8.8	.....	4.0	.....	.....	.....	.....
50	Length of these levees.....miles.....	4.2	.....	1.3	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	106,193	.....	.....	404	.....	.....	.....
60	Length of these open ditches.....miles.....	66.1	.....	.....	0.2	.....	.....	.....
61	Length of these tile.....miles.....	21.6	.....	.....	2.0	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ³.....acres.....	145,764	19,568	251	.....	102,082	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	507.2	98.5	3.0	.....	300.7	.....	.....
70	Length of tile owned by these enterprises.....miles.....	129.0	100.0	.....	.....	8.0	.....	.....
71	Length of levees owned by these enterprises.....miles.....	139.0	69.4	.....	.....	46.8	.....	.....
72	Part protected by levees of an outside agency.....acres.....	2,127	.....	.....	.....	2,127	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 63.
³ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE—OREGON

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Malheur	Marion ¹	Multnomah	Tillamook	Umatilla	Washington ¹	Other counties ²
LAND AREA								
1	Approximate land area.....acres.....1940..	6,316,800	750,720	271,360	713,600	2,067,840	458,240	.....
2	Drainage enterprises.....number.....1940..	17	2	6	6	3	1	.....
3	Land in enterprises.....acres.....1940..	140,523	410	12,490	2,297	24,010	3,161	.....
4	.....1930..	22,102	200	12,506	1,491	9,453	1,500	11,000
5	.....1920..	4,000	.....	.....	.....	.....	.....	.....
6	Area of all enterprises, overlapping included.....acres.....1940..	142,613	410	12,490	2,297	24,010	3,161	.....
7	Amount of overlapping.....acres.....1940..	2,090	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	135,243	410	11,158	2,114	20,703	2,000	.....
9	.....1930..	14,060	200	12,256	1,472	8,550	1,300	7,990
10	Increase or decrease (-), 1930-1940.....acres.....	121,183	210	-1,098	642	12,153	700	-7,990
11	.....percent.....	851.9	105.0	-9.0	43.6	142.1	53.8	-100.0
12	Land undrained, unfit for any crop.....acres.....1940..	3,730	.....	260	.....	.....	400	.....
13	.....1930..	4,355	.....	250	.....	745	100	200
14	Increase or decrease (-), 1930-1940.....acres.....	-925	.....	10	.....	-745	300	-200
15	.....percent.....	-19.9	.....	4.0	.....	-100.0	300.0	-100.0
16	Land partly drained, for partial crop.....acres.....1940..	1,550	.....	1,072	183	3,307	761	.....
17	.....1930..	3,387	.....	.....	19	158	100	3,310
18	Increase or decrease (-), 1930-1940.....acres.....	-1,837	.....	1,072	164	3,149	661	-3,310
19	.....percent.....	-54.2	.....	.....	863.2	(³)	661.0	-100.0
20	Improved land.....acres.....1940..	113,258	326	11,032	1,986	20,699	2,000	.....
21	.....1930..	20,435	150	11,481	776	9,340	1,300	6,340
22	.....1920..	4,000	.....	.....	.....	.....	.....	.....
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	.....	84	1,318	203	.....	761	.....
24	.....1930..	.....	50	675	110	.....	200	4,140
25	.....1920..	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres.....1940..	27,265	.....	140	108	3,311	400	.....
27	.....1930..	1,667	.....	350	605	113	.....	1,020
28	.....1920..	.....	.....	.....	.....	.....	.....	.....
29	Land in occupied farms.....acres.....1940..	132,856	371	12,350	2,297	21,849	3,161	.....
30	.....1930..	18,325	150	11,232	1,491	8,906	1,500	6,340
31	Increase or decrease (-), 1930-1940.....acres.....	114,531	221	1,118	806	12,941	1,661	-6,340
32	.....percent.....	625.0	147.3	10.0	54.0	145.3	110.7	-100.0
33	Land in planted crops.....acres.....1940..	107,407	228	8,276	1,954	15,859	2,000	.....
34	.....1930..	17,385	150	9,586	50	7,499	1,300	3,210
35	Increase or decrease (-), 1930-1940.....acres.....	90,022	78	-1,310	1,904	8,360	700	-3,210
36	.....percent.....	517.8	52.0	-13.7	(³)	111.5	53.8	-100.0
37	Land idle.....acres.....1940..	30,607	45	1,914	205	4,701	1,161	.....
38	.....1930..	3,700	50	1,904	.....	320	200	3,600
39	Increase or decrease (-), 1930-1940.....acres.....	26,907	-5	10	205	4,381	961	-3,600
40	.....percent.....	727.2	-10.0	0.5	.....	(³)	480.5	-100.0
41	Land available for settlement.....acres.....1940..	4,623	.....	.....	.....	.....	.....	.....
42	.....1930..	2,130	.....	844	.....	370	.....	5,160
43	Increase or decrease (-), 1930-1940.....acres.....	2,493	.....	-844	.....	-370	.....	-5,160
44	.....percent.....	117.0	.....	-100.0	.....	-100.0	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	28,259	410	81	1,528	18,888	3,161	.....
46	Length of these ditches.....miles.....	81.6	11.0	2.0	10.1	26.1	6.5	.....
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	143	709	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	0.4	4.4	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	1.0	1.9	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	100,667	.....	.....	.....	5,122	.....	.....
60	Length of these open ditches.....miles.....	56.9	.....	.....	.....	9.0	.....	.....
61	Length of these tile.....miles.....	18.1	.....	.....	.....	1.5	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	11,597	.....	12,266	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	20.2	.....	84.8	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	19.0	.....	2.0	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	22.8	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Includes Benton and Clatsop Counties in 1930.

³Percent not shown when more than 1,000.

⁴Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - OREGON

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM ^a (See definitions in Introduction)	THE STATE	Columbia	Coos	Jackson ¹	Klamath	Lane ¹	Linn ¹
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	2 65	11	5	1	11	1	1
Open ditches:							
2 Completed.....miles.....1940..	780.1	98.5	25.5	0.2	332.2	3.7	7.0
3	1930..	495.1	68.5	23.0	232.5	3.0	.....
4	1920..	.....	.....	.....	.....	.....	.....
5 Additional length authorized.....miles.....1940..	35.0	.....	.....	.....	25.0	.....	.....
6 Tile drains:							
7 Completed.....miles.....1940..	150.6	100.0	.....	2.0	8.0	.....	.....
8	1930..	42.5	1.7	.....	8.0	.....	.....
9	1920..	13.0	.....	.....	.....	.....	.....
10 Additional length authorized.....miles.....1940..	200.0	200.0	.....	.....	.....	.....	.....
11 Levees and dikes:							
12 Completed.....miles.....1940..	143.2	69.4	1.3	.....	46.8	.....	.....
13	1930..	121.4	51.8	0.8	42.0	.....	.....
14	1920..	.....	.....	.....	.....	.....	.....
15 Additional length authorized.....miles.....1940..	25.0	.....	.....	.....	25.0	.....	.....
16 Pumping plants:							
17 Engine capacity.....horsepower.....1940..	4,218	2,310	15	.....	475	.....	.....
18	1930..	2,173	975	.....	230	.....	.....
19	1920..	.....	.....	.....	.....	.....	.....
20 Pump capacity.....gal. per min.....1940..	742,923	433,500	500	.....	96,550	.....	.....
21	1930..	488,800	193,200	.....	42,600	.....	.....
22	1920..	.....	.....	.....	.....	.....	.....
23 Land served by pumps.....acres.....1940..	51,795	19,528	251	.....	18,966	.....	.....
24	1930..	59,386	16,396	.....	26,604	.....	.....
25	1920..	.....	.....	.....	.....	.....	.....
26 Wells pumped for drainage.....number.....1940..	14	3	.....	.....	1	.....	.....
27	1930..	1	.....	.....	.....	.....	.....
CAPITAL INVESTED							
28 Capital invested to January 1.....dollars.....1940..	5,482,012	1,684,717	151,842	13,624	1,412,430	6,861	16,500
29	1930..	4,165,549	1,051,269	144,098	1,329,977	8,900	.....
30	1920..	200,000	.....	.....	.....	.....	.....
31 Estimated cost when completed.....dollars.....1940..	5,951,454	1,884,717	151,842	13,624	1,658,372	6,861	16,500
32	1930..	4,843,647	1,051,269	144,098	1,926,075	9,900	.....
33	1920..	200,000	.....	.....	.....	.....	.....
34 Average cost per acre when completed.....dollars.....1940..	17.06	96.32	28.41	33.72	13.37	1.90	1.27
35	1930..	22.94	59.82	26.96	15.54	1.77	.....
36	1920..	50.00	.....	.....	.....	.....	.....
37 Invested in and required for completion, 1940:							
38 Enterprises having open ditches only.....dollars..	851,035	.....	131,842	.....	128,869	6,861	16,500
39 Average amount per acre.....dollars..	8.90	.....	27.62	.....	5.88	1.90	1.27
40 Enterprises having open ditches and levees.....dollars..	23,100	.....	10,000	.....	.....	.....	.....
41 Average amount per acre.....dollars..	18.75	.....	31.25	.....	.....	.....	.....
42 Enterprises having tile only.....dollars..	.....	.....	.....	.....	.....	.....	.....
43 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
44 Enterprises having tile and levees.....dollars..	498,273	.....	.....	13,624	.....	.....	.....
45 Average amount per acre.....dollars..	4.13	.....	.....	33.72	.....	.....	.....
46 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
47 Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....
48 Enterprises operating pumping plants ².....dollars..	4,639,046	1,884,717	(4)	.....	1,539,503	.....	.....
49 Average amount per acre.....dollars..	31.83	96.32	(4)	.....	15.04	.....	.....
MAINTENANCE AND OPERATION							
50 Cost of maintenance and operation in 1939:							
51 By enterprises operating pumping plants.....dollars..	81,460	23,219	(4)	.....	28,282	.....	.....
52 Enterprises reporting.....number.....	25	10	1	.....	7	.....	.....
53 Land in these enterprises.....acres.....	145,410	19,214	(4)	.....	102,333	.....	.....
54 Average cost per acre.....dollars..	0.56	1.21	(4)	.....	0.28	.....	.....
55 By enterprises not operating pumping plants.....dollars..	16,636	.....	4,516	.....	3,093	.....	.....
56 Enterprises reporting.....number.....	22	.....	3	.....	3	.....	.....
57 Land in these enterprises.....acres.....	68,453	.....	4,774	.....	7,585	.....	.....
58 Average cost per acre.....dollars..	0.24	.....	0.94	.....	0.41	.....	.....
59 Federal aid in maintenance:							
60 Enterprises reporting.....number.....	27	9	.....	.....	2	.....	1
61 Land in these enterprises.....acres.....	167,856	17,783	.....	.....	(5)	.....	13,000
FINANCIAL CONDITION							
62 Drainage taxes collected in 1939.....dollars..	225,663	39,250	5,723	.....	96,419	.....	.....
63 Enterprises reporting.....number.....	37	9	4	.....	6	.....	.....
64 Land in these enterprises.....acres.....	154,732	17,739	5,025	.....	99,881	.....	.....
65 Average amount collected per acre.....dollars..	1.46	2.21	1.14	.....	0.96	.....	.....
66 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	53,329	4,112	.....	.....	40,933	.....	.....
67 Enterprises reporting.....number.....	13	3	.....	.....	4	.....	.....
68 Land in these enterprises.....acres.....	93,481	9,529	.....	.....	69,319	.....	.....
69 Portion delinquent in these enterprises.....percent..	57.0	43.2	.....	.....	59.0	.....	.....
70 Total indebtedness, Dec. 31, 1939.....dollars..	1,781,706	366,000	50,000	.....	940,836	.....	.....
71 Enterprises reporting.....number.....	30	3	4	.....	9	.....	.....
72 Land in these enterprises.....acres.....	190,947	8,244	5,025	.....	119,821	.....	.....
73 Average indebtedness per acre.....dollars..	9.33	44.40	9.95	.....	7.85	.....	.....
74 Indebtedness in arrears, Dec. 31, 1939.....dollars..	138,749	(5)	.....	.....	(5)	.....	.....
75 Enterprises reporting.....number.....	8	1	.....	.....	2	.....	.....
76 Land in these enterprises.....acres.....	81,165	(5)	.....	.....	(5)	.....	.....
77 Average arrearage per acre.....dollars..	1.71	(5)	.....	.....	(5)	.....	.....
78 Reduction of debt by refinancing, prior to 1940.....dollars..	862,477	(5)	.....	.....	96,020	.....	.....
79 Enterprises reporting.....number.....	10	2	.....	.....	3	.....	.....
80 Land in these enterprises.....acres.....	63,045	(5)	.....	.....	34,025	.....	.....
81 Average reduction per acre.....dollars..	13.68	(5)	.....	.....	2.88	.....	.....

^a Not distributed by counties. ¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 63. ³ Data in lines 46 and 47 are not included in lines 34 to 45. ⁴ Data for 1 enterprise in Coos County included in data for Klamath County. ⁵ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1. ⁶ Data for 1 enterprise in Multnomah County included in data for Columbia County.

CENSUS OF DRAINAGE — OREGON

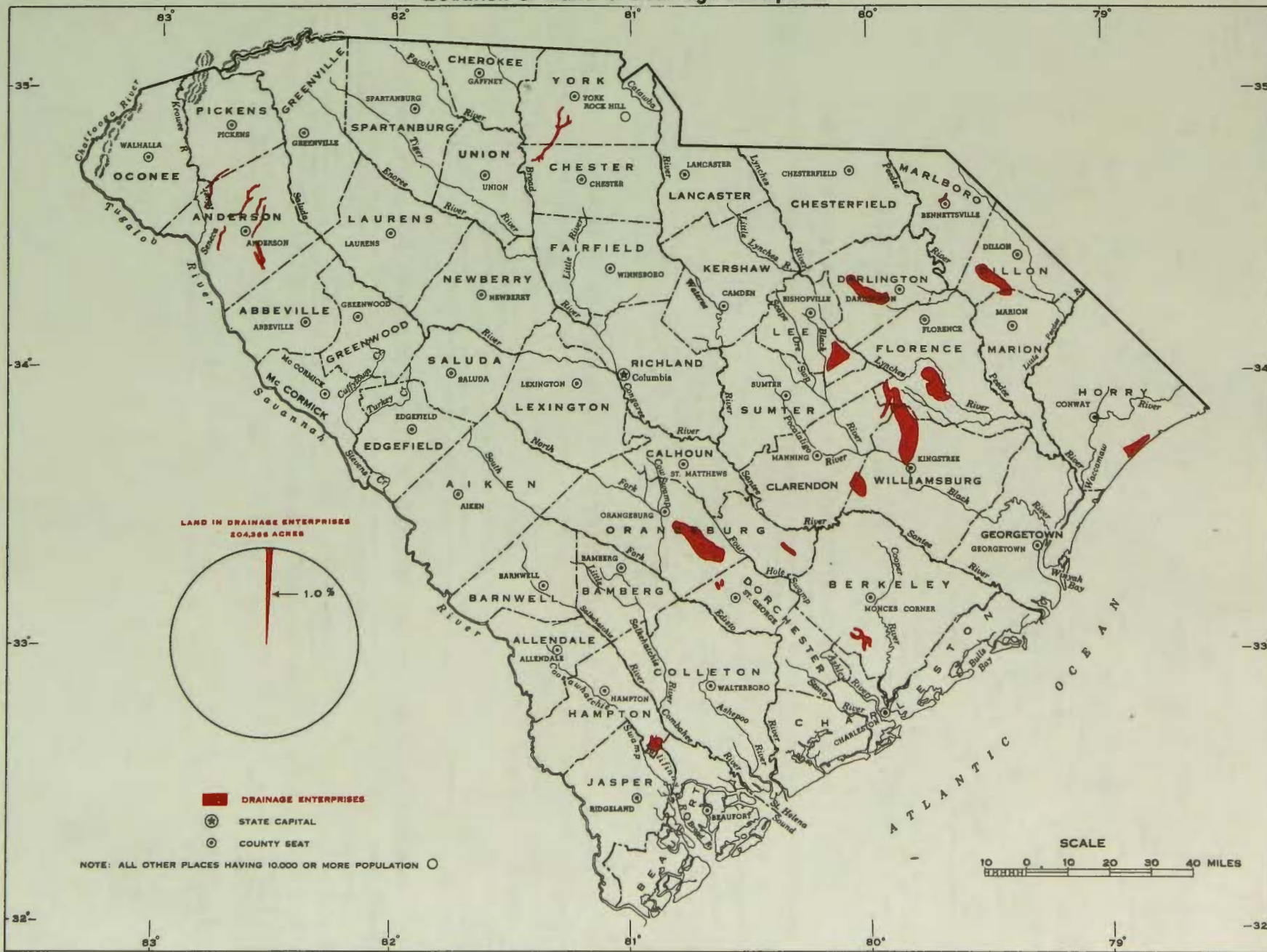
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Malheur	Marion ¹	Multnomah	Tillamook	Umatilla	Washington ¹	Other counties ²
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	17	2	6	6	3	1	
2	Open ditches:							
3	Completed.....miles.....1940..	158.7	11.0	87.2	14.5	35.1	6.5	
4	.....1930..	42.2	6.5	77.0	8.8	17.6	6.0	10.0
5	.....1920..							
5	Additional length authorized.....miles.....1940..	10.0						
6	Tile drains:							
7	Completed.....miles.....1940..	37.1		2.0		1.5		
8	.....1930..	30.0		2.0		0.8		
9	.....1920..							
9	Additional length authorized.....miles.....1940..							
10	Levees and dikes:							
11	Completed.....miles.....1940..			23.8	1.9			
12	.....1930..			22.5	0.1			4.2
13	.....1920..							
13	Additional length authorized.....miles.....1940..							
14	Pumping plants:							
15	Engine capacity.....horsepower....1940..	33		1,385				
16	.....1930..	16		952				
17	.....1920..							
17	Pump capacity.....gal. per min..1940..	3,473		208,900				
18	.....1930..	1,800		251,000				
19	.....1920..							
20	Land served by pumps.....acres.....1940..	1,366		11,684				
21	.....1930..	4,000		12,386				
22	.....1920..							
23	Wells pumped for drainage.....number.....1940..	3		7				
24	.....1930..	1						
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	978,163	6,616	946,559	33,800	203,900	27,000	
26	.....1930..	529,789	2,216	887,425	24,975	110,800	24,000	52,100
27	.....1920..	200,000						
28	Estimated cost when completed.....dollars.....1940..	1,001,663	6,616	946,559	33,800	203,900	27,000	
29	.....1930..	549,789	2,216	947,425	24,975	110,800	24,000	53,100
30	.....1920..	200,000						
31	Average cost per acre when completed.....dollars.....1940..	7.13	16.14	75.78	14.71	8.49	8.54	
32	.....1930..	24.88	11.08	75.75	16.75	11.72	16.00	4.62
33	.....1920..	50.00						
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	389,709	6,616	3,500	22,100	118,038	27,000	
35	Average amount per acre.....dollars.....	13.79	16.14	43.21	14.46	6.25	8.54	
36	Enterprises having open ditches and levees.....dollars..			1,400	11,700			
37	Average amount per acre.....dollars.....			9.79	15.21			
38	Enterprises having tile only.....dollars.....							
39	Average amount per acre.....dollars.....							
40	Enterprises having tile and levees.....dollars.....							
41	Average amount per acre.....dollars.....							
42	Enterprises having open ditches and tile.....dollars..	338,787				85,862		
43	Average amount per acre.....dollars.....	3.36				16.76		
44	Enterprises having ditches, tile, and levees.....dollars..							
45	Average amount per acre.....dollars.....							
46	Enterprises operating pumping plants ³.....dollars..	273,167		941,659				
47	Average amount per acre.....dollars.....	23.55		76.77				
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..	5,271		24,688				
49	Enterprises reporting.....number.....	3		4				
50	Land in these enterprises.....acres.....	11,597		12,266				
51	Average cost per acre.....dollars.....	0.45		2.01				
52	By enterprises not operating pumping plants.....dollars..	7,114	120	(⁴)	983	(⁴)	350	
53	Enterprises reporting.....number.....	5	2	(⁴)	2	(⁴)	1	
54	Land in these enterprises.....acres.....	39,396	410	(⁴)	1,992	(⁴)	3,161	
55	Average cost per acre.....dollars.....	0.18	0.29	(⁴)	0.49	(⁴)	0.11	
Federal aid in maintenance:								
56	Enterprises reporting.....number.....	4	1	4	4	2		
57	Land in these enterprises.....acres.....	65,689	214	10,791	1,384	(⁴)		
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	17,603	411	64,447	1,313.		497	
59	Enterprises reporting.....number.....	6	2	4	5		1	
60	Land in these enterprises.....acres.....	16,543	410	10,034	1,939		3,161	
61	Average amount collected per acre.....dollars..	1.06	1.00	6.42	0.68		0.16	
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	8,259	25	(⁵)				
63	Enterprises reporting.....number.....	4	1	1				
64	Land in these enterprises.....acres.....	14,437	196	(⁵)				
65	Portion delinquent in these enterprises.....percent..	57.2	12.8	(⁵)				
66	Total indebtedness, Dec. 31, 1939.....dollars..	133,915	100	289,912	943			
67	Enterprises reporting.....number.....	6	1	4	3			
68	Land in these enterprises.....acres.....	44,853	196	11,447	1,361			
69	Average indebtedness per acre.....dollars.....	2.98	0.51	25.33	0.69			
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	45,080		(⁴)				
71	Enterprises reporting.....number.....	3		2				
72	Land in these enterprises.....acres.....	8,551		(⁴)				
73	Average arrearage per acre.....dollars.....	5.27		(⁴)				
74	Reduction of debt by refinancing, prior to 1940.....dollars..	(⁴)		(⁴)		(⁴)		
75	Enterprises reporting.....number.....	2		2		1		
76	Land in these enterprises.....acres.....	(⁴)		(⁴)		(⁴)		
77	Average reduction per acre.....dollars.....	(⁴)		(⁴)		(⁴)		

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ²Includes Benton and Clatsop Counties in 1930. ³Data in lines 46 and 47 are not included in lines 34 to 45. ⁴Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1. ⁵Data for 1 enterprise in Multnomah County included in data for Columbia County.

SOUTH CAROLINA

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE—SOUTH CAROLINA

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	19,580,160	19,516,800	19,516,800	.....	.....	.....	.....
Land in drainage enterprises.....acres.....	204,366	208,249	140,031	-3,883	-1.9	68,218	48.7
Improved.....acres.....	111,815	75,592	59,075	36,223	47.9	16,517	28.0
Unimproved:							
Timber and cut-over.....acres.....	92,343	120,313	64,955	-27,970	-23.2	55,358	85.2
Other.....acres.....	208	12,344	16,001	-12,136	-98.3	-3,657	-22.8
Drainage sufficient for normal crop.....acres.....	200,866	139,587	(¹)	61,279	43.9	.....	.....
Partly drained, for partial crop.....acres.....	2,000	35,660	(¹)	-33,660	-94.4	.....	.....
Unfit to raise any crop for lack of drainage.....acres.....	1,500	33,002	² 18,206	-31,502	-95.4	14,796	81.3
In occupied farms.....acres.....	202,002	94,744	(¹)	107,258	113.2	.....	.....
In planted crops.....acres.....	91,351	61,606	(¹)	29,745	48.3	.....	.....
Idle.....acres.....	110,851	128,396	(¹)	-15,545	-12.3	.....	.....
Available for settlement.....acres.....	.....	71,834	(¹)	-71,834	-100.0	.....	.....
Open ditches, completed.....miles.....	459.9	423.0	262.7	36.9	8.7	160.3	61.0
Tile drains, completed.....miles.....	.....	150.0	101.5	-150.0	-100.0	48.5	47.8
Drainage pumping plants, capacity.....horsepower.....	.....	.....	155	.....	.....	-155	-100.0
.....gal. per min..	.....	.....	44,600	.....	.....	-44,600	-100.0
Capital invested in enterprises.....dollars.....	1,241,300	1,265,276	582,183	-23,976	-1.9	683,093	117.3
Average per acre.....dollars.....	6.07	6.08	4.16	-0.01	-0.2	1.92	46.2

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES			SIZE	AREA OF ENTERPRISES		
	1940	1930	1920		1940	1930	1920
All enterprises.....	Acres 204,366	Acres 208,249	Acres 140,031	1,000 to 1,999 acres.....	Acres 7,736	Acres 27,109	Acres 19,793
Less than 100 acres.....	40	39	40	2,000 to 4,999 acres.....	18,024	56,398	20,400
100 to 199 acres.....	.....	.....	.....	5,000 to 9,999 acres.....	56,398	44,628	40,000
200 to 499 acres.....	.....	496	.....	10,000 to 19,999 acres.....	40,253	132,322	40,000
500 to 999 acres.....	5,458	3,655	2,198	20,000 to 49,999 acres.....	76,457	.....	57,600
				50,000 to 99,999 acres.....	.....	.....	.....

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	204,366	100.0	1,241,300	100.0
Drainage districts.....	182,426	89.3	1,108,000	89.3
Individually owned projects.....	21,940	10.7	133,300	10.7

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	204,366	100.0	208,249	100.0	¹ 140,031	100.0	1,241,300	100.0	1,265,276	100.0	¹ 582,183	100.0
Gravity drainage only by—												
Open ditches.....	204,366	100.0	207,049	99.4	130,831	93.4	1,241,300	100.0	1,130,276	89.3	319,183	54.8
Open ditches and tile drains.....	.....	.....	1,200	0.6	² 9,200	6.6	.....	.....	135,000	10.7	253,000	45.2
All or part by pumping.....	.....	.....	.....	.....	(²)	.....	.....	.....	.....	.....	(²)	.....
Total area served by pumps.....	.....	.....	.....	.....	2,940	2.1	.....	.....	.....	.....	.....	.....

¹Includes 2 enterprises operating drainage pumps.

²Undetermined amount included with gravity drainage.

CENSUS OF DRAINAGE — SOUTH CAROLINA

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	204,366	100.0	208,249	100.0	1,241,300	100.0	1,265,276	100.0	101,358	73,789
Enterprises in arrears.....	77,087	37.7	63,403	30.4	646,500	52.1	454,215	35.9	69,158	36,150
With some delinquent land.....	75,697	37.0	54,403	26.1	640,384	51.6	365,515	28.9	69,158	36,150
With no delinquent land.....	1,390	0.7	.....	.....	6,116	0.5	.....	.....	.....	.....
With no report on delinquency.....	.....	.....	9,000	4.3	.....	.....	88,700	7.0	.....	.....
Enterprises not in arrears.....	127,279	62.3	144,846	69.6	594,800	47.9	811,061	64.1	32,200	37,639
With some delinquent land.....	43,593	21.3	74,642	35.9	179,000	14.4	367,311	29.0	32,200	37,639
With no delinquent land.....	83,686	40.9	70,204	33.7	415,800	33.5	443,750	35.1	.....	.....

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	204,366	1,241,300	636,250	372,150	88,500	101,358	24,849
Enterprises in debt.....	182,426	1,108,000	636,250	372,150	88,500	101,358	24,849
In arrears, amount of arrearage stated.....	77,087	646,500	408,750	372,150	8,000	69,158	2,900
Collecting drainage taxes in 1939.....	9,500	52,582	40,000	26,000	8,000	9,500	2,900
No collections reported.....	67,587	593,918	368,750	346,150	.....	59,658	.....
Not in arrears.....	105,339	461,500	227,500	.....	80,500	32,200	21,949
Collecting drainage taxes in 1939.....	105,339	461,500	227,500	.....	80,500	32,200	21,949
Enterprises not in debt.....	21,940	133,300	.....	.....	.....	.....	.....
No collections reported.....	21,940	133,300	.....	.....	.....	.....	.....

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	204,366	100.0	1,241,300	100.0
Improvement of land already in farms.....	¹ 197,366	96.6	1,191,300	96.0
Reclamation of swamp land not previously in farms.....	7,000	3.4	50,000	4.0

¹It is probable that, when the enterprises were organized, a considerable portion of this acreage was swamp land not previously farmed although forming parts of large plantations.

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land in enterprises ¹		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	204,366	100.0	1,241,300	100.0
1910-1914.....	7,775	3.8	69,500	5.6
1915-1919.....	66,520	32.5	537,418	43.3
1920-1924.....	64,964	31.8	317,800	25.6
1925-1929.....	65,107	31.9	316,582	25.5

¹No overlapping of enterprises reported in South Carolina.

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND					
		Drained		Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	204,366	98.3	2,000	1,500	111,815	54.7	92,343	208	202,002	98.8	91,351	110,851	.....
1910-1914.....	7,775	87.1	1,000	.....	3,600	46.3	4,175	.....	7,775	100.0	1,500	4,225	.....
1915-1919.....	66,520	100.0	.....	.....	34,475	51.8	31,837	208	66,520	100.0	20,320	46,200	.....
1920-1924.....	64,964	96.2	1,000	1,500	31,867	49.1	33,097	.....	62,850	96.7	30,231	34,619	.....
1925-1929.....	65,107	100.0	.....	.....	41,873	64.3	23,234	.....	64,857	99.6	39,300	25,807	.....

CENSUS OF DRAINAGE—SOUTH CAROLINA

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 204,366	Acres 204,366	Acres 5,600	Acres 198,766	Dollars 800	Dollars (¹)	Dollars 0.14
Gravity drainage only: Open ditches only.....	204,366	204,366	5,600	198,766	800	(¹)	0.14

¹Less than 1 cent per acre.

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	204,366	100.0	1,241,300	100.0
Method, "none," or not reporting.....	204,366	100.0	1,241,300	100.0
Whether systematic:				
Reporting "yes".....	5,600	2.7	25,000	2.0
Reporting "no".....	198,766	97.3	1,216,300	98.0

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
			Miles	Miles	Miles
All enterprises reporting Federal aid received.....	Acres 67,481	Dollars 334,000	Miles 129.0	.....	.....
Work Projects Administration.....	67,481	334,000	129.0

CENSUS OF DRAINAGE—SOUTH CAROLINA

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Anderson	Berkeley ¹	Clarendon	Darling- ton ¹	Florence	Hampton ¹	Lee ¹	Other counties ²	
LAND AREA										
1	Approximate land area.....acres....1940..	19,580,160	496,640	776,960	444,160	348,800	515,200	359,680	261,760	4,852,480
2	Drainage enterprises.....number....1940..	32	6	1	3	2	4	1	1	14
3	Land in enterprises.....acres....1940..	204,366	8,564	7,000	7,267	18,350	28,166	5,600	14,377	115,042
4	.....1930..	208,249	3,217	6,000	7,457	18,586	30,642	(⁴)	(⁴)	142,347
5	.....1920..	140,031	(⁴)	(⁴)	4,300	(⁴)	(⁴)	(⁴)	(⁴)	135,731
6	Area of all enterprises, overlapping included.....acres....1940..	204,366	8,564	7,000	7,267	18,350	28,166	5,600	14,377	115,042
7	Amount of overlapping.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres....1940..	200,866	8,564	6,000	7,267	18,350	28,166	5,600	14,377	112,542
9	.....1930..	139,587	.....	3,500	3,230	17,428	20,622	(⁴)	(⁴)	94,807
10	Increase or decrease (-), 1930-1940.....acres.....	61,279	8,564	2,500	4,037	922	7,544	.....	.....	17,735
11	.....percent.....	43.9	.....	71.4	125.0	5.3	36.6	.....	.....	18.7
12	Land undrained, unfit for any crop.....acres....1940..	1,500	.....	.....	.....	.....	.....	.....	.....	1,500
13	.....1930..	33,002	3,217	2,500	2,631	.....	5,756	(⁴)	(⁴)	18,898
14	Increase or decrease (-), 1930-1940.....acres.....	-31,502	-3,217	-2,500	-2,631	.....	-5,756	.....	.....	-17,398
15	.....percent.....	-95.4	.....	-100.0	-100.0	.....	-100.0	.....	.....	-92.1
16	Land partly drained, for partial crop.....acres....1940..	2,000	.....	1,000	.....	.....	.....	.....	.....	1,000
17	.....1930..	35,660	.....	.....	1,596	1,158	4,204	(⁴)	.....	28,642
18	Increase or decrease (-), 1930-1940.....acres.....	-33,660	.....	1,000	-1,596	-1,158	-4,204	.....	.....	-27,642
19	.....percent.....	-94.4	.....	.....	-100.0	-100.0	-100.0	.....	.....	-96.5
20	Improved land.....acres....1940..	111,815	5,440	3,000	4,350	10,221	20,123	2,600	8,500	57,581
21	.....1930..	75,592	(⁴)	3,500	1,750	9,700	10,250	(⁴)	(⁴)	50,392
22	.....1920..	59,075	(⁴)	(⁴)	344	.....	(⁴)	(⁴)	.....	58,731
Unimproved land:										
23	Woodland and cut-over land.....acres....1940..	92,343	3,124	4,000	2,917	8,129	8,043	3,000	5,877	57,253
24	.....1930..	120,313	3,217	2,500	4,716	8,596	14,561	.....	(⁴)	86,723
25	.....1920..	64,955	(⁴)	(⁴)	3,956	.....	.....	(⁴)	.....	60,999
26	Other unimproved land.....acres....1940..	208	.....	.....	.....	.....	.....	.....	.....	208
27	.....1930..	12,344	.....	.....	991	290	5,831	(⁴)	.....	5,232
28	.....1920..	16,001	(⁴)	(⁴)	.....	.....	(⁴)	(⁴)	.....	16,001
29	Land in occupied farms.....acres....1940..	202,002	8,564	7,000	7,267	18,350	28,166	5,600	14,127	112,928
30	.....1930..	94,744	.....	250	2,962	17,878	19,700	(⁴)	(⁴)	53,954
31	Increase or decrease (-), 1930-1940.....acres.....	107,258	8,564	6,750	4,305	472	8,466	.....	.....	58,974
32	.....percent.....	113.2	.....	(⁵)	145.3	2.6	43.0	.....	.....	109.3
33	Land in planted crops.....acres....1940..	91,351	4,740	1,000	3,650	9,200	18,750	2,600	8,500	42,911
34	.....1930..	61,606	.....	250	1,300	7,000	8,875	(⁴)	(⁴)	44,181
35	Increase or decrease (-), 1930-1940.....acres.....	29,745	4,740	750	2,350	2,200	9,875	.....	.....	-1,270
36	.....percent.....	48.3	.....	300.0	180.8	31.4	111.3	.....	.....	-2.9
37	Land idle.....acres....1940..	110,851	3,774	4,000	3,617	9,150	9,416	3,000	5,877	72,017
38	.....1930..	126,396	3,217	5,750	4,608	11,528	16,095	.....	(⁴)	85,198
39	Increase or decrease (-), 1930-1940.....acres.....	-15,545	557	-1,750	-991	-2,378	-6,679	3,000	.....	-13,181
40	.....percent.....	-12.3	17.3	-30.4	-21.5	-20.6	-41.5	.....	.....	-15.5
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	71,834	.....	3,500	.....	.....	6,242	(⁴)	.....	62,092
43	Increase or decrease (-), 1930-1940.....acres.....	-71,834	.....	-3,500	.....	.....	-6,242	.....	.....	-62,092
44	.....percent.....	-100.0	.....	-100.0	.....	.....	-100.0	.....	.....	-100.0
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	204,366	8,564	7,000	7,267	18,350	28,166	5,600	14,377	115,042
46	Length of these ditches.....miles.....	459.9	64.5	12.0	17.0	40.0	70.8	32.0	19.0	204.6
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Includes Chester, Dillon, Dorchester, Horry, Marion, Marlboro, Oconee, Orangeburg, Pickens, Williamsburg, and York Counties in 1940; Bamberg, Chester, Dillon, Dorchester, Hampton, Horry, Lee, Marlboro, Oconee, Orangeburg, Pickens, Williamsburg, and York Counties in 1930; and Anderson, Beaufort, Berkeley, Charleston, Colleton, Dorchester, Hampton, Horry, Oconee, Orangeburg, Pickens, Williamsburg, and York Counties in 1920.

³An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 24.

⁴Included in "Other counties."

⁵Percent not shown when more than 1,000.

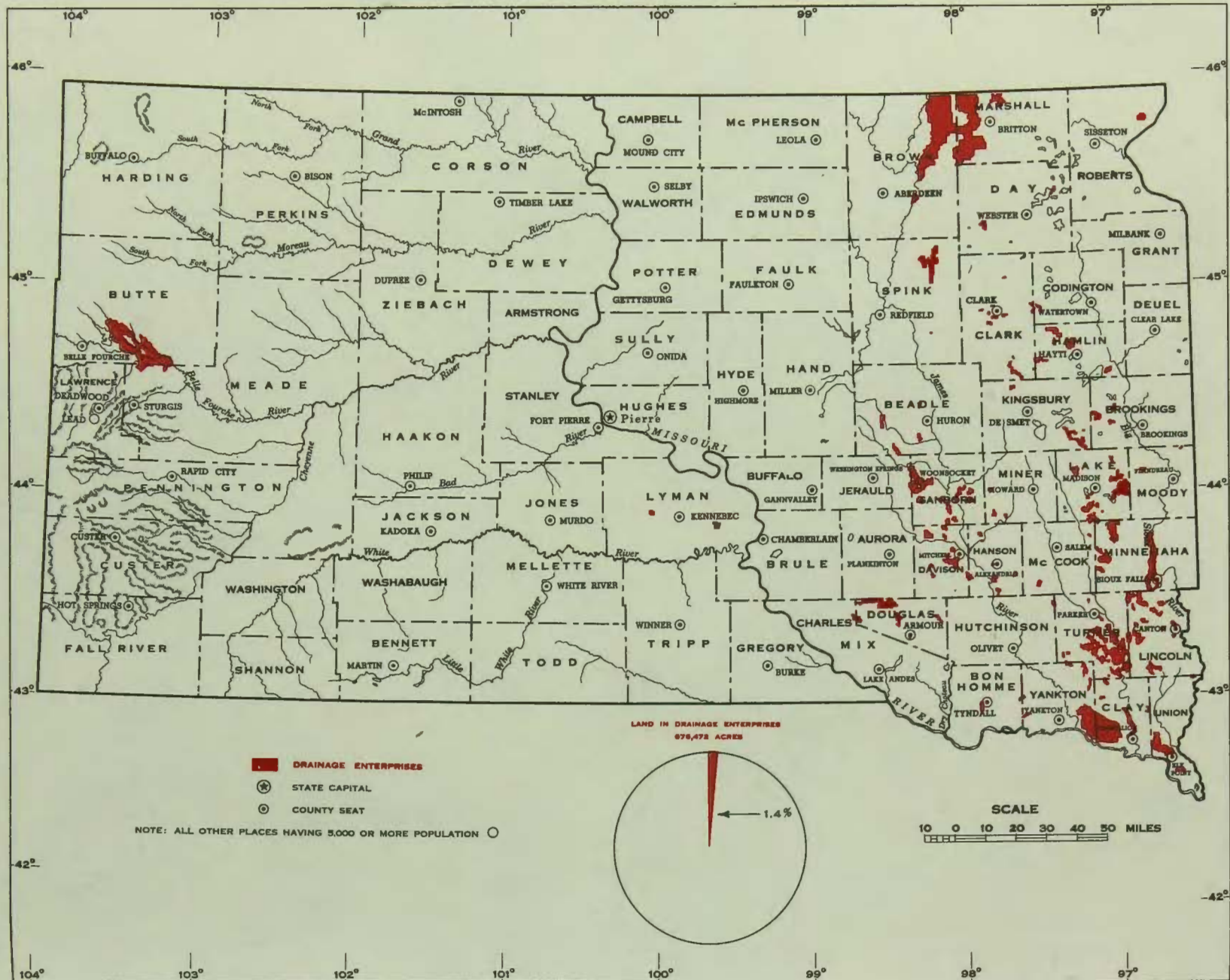
CENSUS OF DRAINAGE—SOUTH CAROLINA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Anderson	Berkeley ¹	Clarendon	Darlington ¹	Florence	Hampton ¹	Lee ¹	Other counties ²
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	32	6	1	3	2	4	1	1	14
2 Open ditches:									
3 Completed.....miles.....1940..	459.9	64.5	12.0	17.0	40.0	70.8	32.0	19.0	204.6
4 1930..	423.0	36.7	5.0	9.5	38.6	40.5	(*)	(*)	232.7
5 1920..	262.7	(*)	(*)	2.4	.....	.....	(*)	(*)	260.3
6 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
7 Tile drains:									
8 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	(*)	(*)	.....
9 1930..	150.0	.....	.....	.....	.....	.....	(*)	(*)	150.0
10 1920..	101.5	(*)	(*)	.....	.....	.....	(*)	(*)	101.5
11 Levees and dikes:									
12 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
13 1930..	11.0	.....	.....	.....	.....	.....	(*)	(*)	11.0
14 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16 Pumping plants:									
17 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 1920..	155	(*)	(*)	.....	.....	.....	(*)	(*)	155
20 Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 1920..	44,600	(*)	(*)	.....	.....	.....	(*)	(*)	44,600
23 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
25 1920..	2,940	(*)	(*)	.....	.....	.....	(*)	(*)	2,940
26 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
28 1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
29 Capital invested to January 1.....dollars.....1940..	1,241,300	196,767	50,000	35,526	114,500	147,971	25,000	65,000	606,536
30 1930..	1,265,276	96,853	84,750	31,750	114,000	95,000	(*)	(*)	942,923
31 1920..	582,183	(*)	(*)	4,000	.....	.....	(*)	(*)	578,183
32 Estimated cost when completed.....dollars.....1940..	1,241,300	196,767	50,000	35,526	114,500	147,971	25,000	65,000	606,536
33 1930..	1,333,276	96,853	84,750	31,750	114,000	161,000	(*)	(*)	944,323
34 1920..	936,514	(*)	(*)	12,000	.....	.....	(*)	(*)	924,514
35 Average cost per acre when completed.....dollars.....1940..	6.07	22.97	7.14	4.88	6.23	5.25	4.46	4.52	5.27
36 1930..	6.40	30.11	14.12	4.26	6.13	5.25	(*)	(*)	5.94
37 1920..	6.69	(*)	(*)	2.79	.....	.....	(*)	(*)	6.81
38 Invested in and required for completion, 1940:									
39 Enterprises having open ditches only.....dollars..	1,241,300	196,767	50,000	35,526	114,500	147,971	25,000	65,000	606,536
40 Average amount per acre.....dollars.....	6.07	22.97	7.14	4.88	6.23	5.25	4.46	4.52	5.27
41 Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
42 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
43 Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
44 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
45 Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises having open ditches and tile.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49 Enterprises having ditches, tile, and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51 Enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
53 Cost of maintenance and operation in 1939:									
54 By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....	.....
55 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57 Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58 By enterprises not operating pumping plants.....dollars..	800	.....	.....	.....	.....	.....	800	.....	.....
59 Enterprises reporting.....number.....	1	.....	.....	.....	.....	.....	1	.....	.....
60 Land in these enterprises.....acres.....	5,600	.....	.....	.....	.....	.....	5,600	.....	.....
61 Average cost per acre.....dollars.....	0.14	.....	.....	.....	.....	.....	0.14	.....	.....
62 Federal aid in maintenance:									
63 Enterprises reporting.....number.....	4	.....	.....	.....	(*)	1	.....	(*)	1
64 Land in these enterprises.....acres.....	67,481	.....	.....	.....	.....	.....	.....	.....	67,481
FINANCIAL CONDITION									
65 Drainage taxes collected in 1939.....dollars..	24,849	.....	.....	(*)	2,600	7,009	.....	3,600	11,640
66 Enterprises reporting.....number.....	12	.....	.....	.....	1	3	.....	1	5
67 Land in these enterprises.....acres.....	114,839	.....	.....	(*)	7,221	22,623	.....	14,377	70,816
68 Average amount collected per acre.....dollars..	0.21	.....	.....	(*)	0.36	0.30	.....	0.25	0.16
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	101,358	7,724	.....	.....	11,129	(*)	.....	.....	82,505
70 Enterprises reporting.....number.....	16	5	.....	.....	1	2	.....	.....	8
71 Land in these enterprises.....acres.....	119,290	7,724	.....	.....	11,129	(*)	.....	.....	100,407
72 Portion delinquent in these enterprises.....percent..	85.0	100.0	.....	.....	100.0	(*)	.....	.....	82.1
73 Total indebtedness, Dec. 31, 1939.....dollars..	636,250	123,000	.....	18,600	56,000	80,000	.....	24,000	334,650
74 Enterprises reporting.....number.....	26	5	.....	3	2	4	.....	1	11
75 Land in these enterprises.....acres.....	182,426	7,724	.....	7,267	18,360	28,166	.....	14,377	106,542
76 Average indebtedness per acre.....dollars..	3.48	15.92	.....	2.55	3.05	2.84	.....	1.66	3.14
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	372,150	123,000	.....	(*)	22,000	(*)	.....	.....	227,150
78 Enterprises reporting.....number.....	15	5	.....	.....	1	2	.....	.....	6
79 Land in these enterprises.....acres.....	77,087	7,724	.....	(*)	11,128	(*)	.....	.....	58,234
80 Average arrearage per acre.....dollars..	4.82	15.92	.....	(*)	1.97	(*)	.....	.....	3.60
81 Reduction of debt by refinancing, prior to 1940.....dollars..	88,500	.....	.....	.....	.....	(*)	.....	26,000	62,500
82 Enterprises reporting.....number.....	5	.....	.....	.....	.....	1	.....	1	3
83 Land in these enterprises.....acres.....	80,721	.....	.....	.....	.....	(*)	.....	14,377	66,344
84 Average reduction per acre.....dollars..	1.09	.....	.....	.....	.....	(*)	.....	1.80	0.94

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ² Includes Chester, Dillon, Dorchester, Horry, Marion, Marlboro, Oconee, Orangeburg, Pickens, Williamsburg, and York Counties in 1940; Bamberg, Chester, Dillon, Dorchester, Hampton, Horry, Lee, Marlboro, Oconee, Orangeburg, Pickens, Williamsburg, and York Counties in 1930; and Anderson, Beaufort, Berkeley, Charleston, Colleton, Dorchester, Hampton, Horry, Oconee, Orangeburg, Pickens, Williamsburg, and York Counties in 1920. ³ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 24. ⁴ Included in "Other counties." ⁵ Includes data for counties indicated by footnote 4 in addition to counties named in footnote 2.

SOUTH DAKOTA LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE—SOUTH DAKOTA

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres....	48,983,040	49,195,520	49,195,520				
Land in drainage enterprises.....acres....	676,472	697,758	222,062	-21,286	-3.0	475,696	214.2
Improved.....acres....	652,922	661,540	178,540	-8,618	-1.3	483,000	270.5
Unimproved:							
Timber and cut-over.....acres....	.....	588	4	-588	-100.0	594	(1)
Other.....acres....	23,550	35,630	43,518	-12,080	-33.9	-7,888	-18.0
Drainage sufficient for normal crop.....acres....	666,966	614,210	(2)	52,726	8.6		
Partly drained, for partial crop.....acres....	6,376	56,947	(2)	-50,571	-88.8		
Unfit to raise any crop for lack of drainage.....acres....	3,160	26,601	2 6,067	-23,441	-88.1	20,534	338.5
In occupied farms.....acres....	647,173	684,746	(2)	-37,573	-5.5		
In planted crops.....acres....	526,407	567,285	(2)	-40,878	-7.2		
Idle.....acres....	118,654	51,905	(2)	66,749	128.6		
Available for settlement.....acres....	15,140	13,000	(2)	2,140	16.5		
Open ditches, completed.....miles....	840.7	854.4	237.8	-13.7	-1.6	616.6	259.3
Tile drains, completed.....miles....	335.8	315.3	179.3	20.5	6.5	136.0	75.9
Capital invested in enterprises.....dollars..	5,078,771	4,534,768	1,461,063	544,003	12.0	3,073,705	210.4
Average per acre.....dollars..	7.51	6.50	6.58	1.01	15.5	-0.08	-1.2

¹ More than 1,000 percent.

² Not available.

³ Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
All enterprises.....	711,572	697,758	234,201	676,472	1,000 to 1,999 acres.....	91,140	Acres	Acres	Acres
Less than 100 acres.....	240	348	519	230	2,000 to 4,999 acres.....	149,157	191,905	68,146	85,580
100 to 199 acres.....	800	872	560	560	5,000 to 9,999 acres.....	65,929	97,962	17,788	143,012
200 to 499 acres.....	10,055	10,635	10,027	9,975	10,000 to 19,999 acres.....	49,698	196,697	124,226	62,969
500 to 999 acres.....	37,250	33,181	13,495	35,450	20,000 to 49,999 acres.....	142,815	.....	.....	47,603
					50,000 to 99,999 acres.....	164,488	166,758	.....	133,565
									157,528

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	676,472	100.0	5,078,771	100.0
County drains.....	603,966	89.3	4,349,256	85.6
Irrigation enterprises:				
Federal.....	72,506	10.7	729,515	14.4
Other.....				

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	676,472	100.0	697,758	100.0	222,062	100.0	5,078,771	100.0	4,534,768	100.0	1,461,063	100.0
Gravity drainage only by—												
Open ditches.....	485,392	71.8	604,139	86.6	222,062	100.0	2,806,786	55.3	3,284,019	72.4	1,461,063	100.0
Tile drains.....	77,465	11.4	68,877	9.9			1,060,952	20.9	794,016	17.5		
Open ditches and tile drains..	113,615	16.8	24,742	3.5			1,209,033	23.8	456,733	10.1		
All or part by pumping.....												

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

CENSUS OF DRAINAGE—SOUTH DAKOTA

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	676,472	100.0	697,758	100.0	5,078,771	100.0	4,534,768	100.0	25,225	32,970
Enterprises in arrears.....	150,438	22.2	63,800	9.1	532,633	10.5	283,731	6.3	21,215	9,660
With some delinquent land.....	150,438	22.2	61,200	8.8	532,633	10.5	276,131	6.1	21,215	9,660
With no delinquent land.....			2,600	0.3			7,600	0.2		
Enterprises not in arrears.....	526,034	77.8	633,958	90.9	4,546,138	89.5	4,251,037	93.7	4,010	23,310
With some delinquent land.....	31,940	4.8	136,574	19.6	493,629	9.7	686,663	15.1	4,010	23,310
With no delinquent land.....	494,094	73.0	422,418	60.5	4,052,509	79.8	3,020,687	66.6		
With no report on delinquency.....			74,966	10.8			543,697	12.0		

¹ If any land is delinquent in 2 or more overlapping enterprises, these areas are too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	676,472	5,078,771	1,132,904	91,800	118,410	25,225	40,740
Enterprises in debt.....	311,342	2,842,121	1,132,904	91,800	117,319	25,225	39,807
In arrears, amount of arrearage stated.....	150,438	532,633	107,300	91,800	19,636	21,215	3,124
Collecting drainage taxes in 1939.....	138,918	428,250	45,060	29,560	19,636	19,615	3,124
No collections reported.....	11,520	104,383	62,240	62,240		1,600	
Not in arrears.....	160,904	2,309,488	1,025,604		97,683	4,010	36,683
Collecting drainage taxes in 1939.....	81,858	1,479,701	243,889		80,623	3,010	36,683
No collections reported.....	79,046	829,787	781,715		17,060	1,000	
Enterprises not in debt.....	365,130	2,236,650			1,091		933
Collecting drainage taxes in 1939.....	10,800	74,781					933
No collections reported.....	354,330	2,161,869			1,091		

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	676,472	100.0	5,078,771	100.0	Removal of alkali or seepage from irrigation..... Reclamation of swamp land not previously in farms.....	72,506	10.7	729,515	14.4
Improvement of land already in farms.....	580,326	85.8	3,789,480	74.6					
Protection against overflow.....	23,640	3.5	559,776	11.0					

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
	676,472	100.0	711,572	35,100	5,078,771	100.0
All enterprises.....	676,472	100.0	711,572	35,100	5,078,771	100.0
1905-1909.....	210,229	31.1	230,359	20,130	1,284,038	25.3
1910-1914.....	74,057	10.9	78,337	4,280	812,591	16.0
1915-1919.....	141,514	20.9	145,154	3,640	1,273,208	25.1
1920-1924.....	249,202	36.9	256,242	7,040	1,697,384	33.4
1925-1929.....	1,470	0.2	1,480	10	11,550	0.2

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement	
		Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Percent	Acres	Acres	Acres	
All enterprises..	676,472	666,936	98.6	6,376	3,160	652,922	96.5		23,550	647,173	95.7	526,407	118,654	15,140
1905-1909.....	210,229	210,229	100.0			210,229	100.0			204,159	97.1	170,622	33,537	
1910-1914.....	74,057	74,057	100.0			74,057	100.0			73,917	99.8	63,224	10,693	
1915-1919.....	141,514	141,514	100.0			141,514	100.0			140,434	99.2	117,039	23,206	
1920-1924.....	249,202	239,666	96.2	6,376	3,160	225,652	90.5		23,550	227,183	91.2	174,192	51,078	15,140
1925-1929.....	1,470	1,470	100.0			1,470	100.0			1,470	100.0	1,330	140	

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

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STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 676,472	Acres 676,472	Acres 104,146	Acres 572,326	Dollars 2,311	Dollars (¹)	Dollars 0.02
Gravity drainage only.....	676,472	676,472	104,146	572,326	2,311	(¹)	0.02
Open ditches only.....	483,232	483,232	23,176	460,056	115	(¹)	(¹)
Open ditches and levees.....	2,160	2,160	.....	2,160	.....	.....	.....
Tile drains only.....	77,465	77,465	4,920	72,545	329	(¹)	0.07
Open ditches and tile drains.....	113,615	113,615	76,050	37,565	1,867	0.02	0.02
Pumping for all or part of drainage.....	.....	.....	.....	.....	.....	.....	.....

¹Less than 1/2 cent per acre.

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	676,472	100.0	5,078,771	100.0
Method:				
By district forces.....	636,912	94.2	5,008,197	98.6
"None," or not reporting.....	39,560	5.8	70,574	1.4
Whether systematic:				
Reporting "yes".....	636,912	94.2	5,008,197	98.6
Reporting "no".....	39,560	5.8	70,574	1.4

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	676,472	74,186	11.0
Capital invested.....dollars..	5,078,771	821,315	16.2
Drainage works:			
Open ditches.....miles....	840.7	206.8	24.8
Tile drains.....miles....	335.8	18.2	5.4
Levees.....miles....	7.4	.....	.....

CENSUS OF DRAINAGE—SOUTH DAKOTA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		THE STATE	Beadle	Brookings	Brown	Butte ¹	Clark	Clay
LAND AREA								
1	Approximate land area.....acres....1940..	48,983,040	807,040	512,640	1,073,280	1,440,640	624,640	257,920
2	Drainage enterprises.....number...1940..	1 215	5	4	3	1	10	9
3	Land in enterprises.....acres....1940..	676,472	8,160	4,440	98,798	69,730	6,560	54,065
4	.....1930..	697,758	17,840	1,440	103,230	72,000	7,520	62,564
5	.....1920..	222,062	.....	1,200	.....	.....	.....	39,829
6	Area of all enterprises, overlapping included.....acres....1940..	711,572	8,320	6,560	105,758	69,730	6,640	62,205
7	Amount of overlapping.....acres....1940..	35,100	150	2,120	6,980	.....	80	8,140
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	666,936	8,160	4,440	98,798	63,530	6,560	54,065
9	.....1930..	614,210	17,840	1,440	72,230	63,000	7,520	61,976
10	Increase or decrease (-), 1930-1940.....acres.....	52,726	-9,680	3,000	26,568	530	-960	-7,911
11	.....percent.....	8.6	-54.3	208.3	36.8	0.8	-12.8	-12.8
12	Land undrained, unfit for any crop.....acres....1940..	3,160	.....	.....	.....	3,000	.....	.....
13	.....1930..	26,601	.....	.....	10,500	8,000	.....	.....
14	Increase or decrease (-), 1930-1940.....acres.....	-23,441	.....	.....	-10,500	-5,000	.....	.....
15	.....percent.....	-88.1	.....	.....	-100.0	-62.5	.....	.....
16	Land partly drained, for partial crop.....acres....1940..	6,376	.....	.....	.....	3,200	.....	.....
17	.....1930..	56,947	.....	.....	20,500	1,000	.....	588
18	Increase or decrease (-), 1930-1940.....acres.....	-50,571	.....	.....	-20,500	2,200	.....	-588
19	.....percent.....	-88.8	.....	.....	-100.0	230.0	.....	-100.0
20	Improved land.....acres....1940..	652,922	8,160	4,440	98,798	46,730	6,560	54,065
21	.....1930..	661,540	17,840	1,440	92,730	64,000	7,520	61,976
22	.....1920..	178,540	.....	1,080	.....	.....	.....	38,829
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	588	.....	.....	.....	.....	.....	588
25	.....1920..	4	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres....1940..	23,550	.....	.....	.....	23,000	.....	.....
27	.....1930..	35,630	.....	.....	10,500	8,000	.....	.....
28	.....1920..	43,518	.....	120	.....	.....	.....	1,000
29	Land in occupied farms.....acres....1940..	647,173	8,160	4,440	98,798	48,400	6,400	54,065
30	.....1930..	684,746	17,840	1,440	103,230	59,000	7,520	62,564
31	Increase or decrease (-), 1930-1940.....acres.....	-37,573	-9,680	3,000	-4,432	-10,600	-1,120	-8,499
32	.....percent.....	-5.5	-54.3	208.3	-4.3	-18.0	-14.9	-13.6
33	Land in planted crops.....acres....1940..	526,407	7,231	3,905	72,528	37,100	5,180	45,646
34	.....1930..	567,285	16,056	1,000	91,472	46,000	6,686	57,541
35	Increase or decrease (-), 1930-1940.....acres.....	-40,878	-8,825	2,905	-18,944	-8,900	-1,506	-11,895
36	.....percent.....	-7.2	-55.0	290.5	-20.7	-19.3	-22.5	-20.7
37	Land idle.....acres....1940..	118,654	929	535	26,270	11,200	1,220	8,419
38	.....1930..	51,905	.....	.....	10,500	13,000	.....	588
39	Increase or decrease (-), 1930-1940.....acres.....	66,749	929	535	15,770	-1,800	1,220	7,831
40	.....percent.....	128.6	.....	.....	150.2	-13.8	.....	(²)
41	Land available for settlement.....acres....1940..	15,140	.....	.....	.....	15,000	.....	.....
42	.....1930..	13,000	.....	.....	.....	13,000	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	2,140	.....	.....	.....	2,000	.....	.....
44	.....percent.....	16.5	.....	.....	.....	15.4	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	483,232	8,160	4,240	98,798	.....	2,200	51,561
46	Length of these ditches.....miles.....	557.5	13.0	8.4	50.9	.....	4.5	60.6
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	2,160	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	16.0	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	7.4	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	77,465	.....	.....	.....	.....	4,360	824
53	Length of these tile.....miles.....	246.8	.....	.....	.....	.....	11.3	1.7
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	113,615	.....	200	.....	69,730	.....	1,680
60	Length of these open ditches.....miles.....	267.2	.....	0.3	.....	198.4	.....	2.8
61	Length of these tile.....miles.....	89.0	.....	0.1	.....	7.1	.....	0.6
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Eliminating duplication of intercounty

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

Codington	Davidson	Douglas	Hamlin	Hanson	Kingsbury	Lake	Lincoln	McCook	Marshall	Meade ^o	Miner	
442,240	276,480	278,400	332,800	275,840	524,160	365,440	368,640	369,280	560,000	2,218,240	365,440	1
3	9	6	6	7	3	17	22	3	5	1	3	2
2,360	15,700	19,553	13,880	8,495	7,640	25,700	32,271	2,080	94,640	2,776	2,800	3
250	12,960	22,970	19,030	7,469	5,519	22,277	23,680	789	82,224	2,500	233	4
(²)	6,138	7,120	(²)	3,640	1,930	28,240	.....	.....	47,520	.....	(²)	5
2,360	16,020	19,553	13,880	8,495	7,640	25,660	33,391	2,080	95,760	2,776	2,800	6
.....	320	.....	.....	.....	.....	160	1,120	.....	1,120	.....	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
2,360	15,700	19,553	13,880	8,495	7,640	25,700	32,271	2,080	94,640	2,440	2,800	9
250	12,960	21,810	19,030	7,469	3,539	22,277	23,680	789	65,300	2,500	233	10
2,110	2,740	-2,257	-5,150	1,026	4,101	3,423	8,591	1,291	26,340	-60	2,567	11
844.0	21.1	-10.3	-27.1	13.7	115.9	15.4	36.3	163.6	40.3	-2.4	(²)	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	13
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
2,360	15,700	19,553	13,880	8,495	7,640	25,700	32,271	2,080	94,640	2,226	2,800	21
250	12,960	21,810	19,030	7,469	4,682	22,277	23,520	789	78,925	2,000	233	22
(²)	5,463	4,984	(²)	3,071	1,778	22,451	.....	.....	23,760	.....	(²)	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
(²)	.....	.....	(²)	.....	.....	.....	.....	.....	.....	.....	(²)	25
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
(²)	675	2,136	(²)	569	152	5,789	.....	.....	23,760	.....	(²)	28
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29
1,760	15,560	19,473	13,800	7,895	7,640	25,700	32,271	1,440	94,640	2,630	2,740	30
250	12,960	22,970	19,030	7,469	5,519	22,277	23,680	789	82,222	2,500	233	31
1,510	2,600	-3,497	-5,230	426	2,121	3,423	8,591	651	12,418	130	2,507	32
604.0	20.1	-15.2	-27.5	5.7	38.4	15.4	36.3	82.5	15.1	5.2	(²)	33
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34
1,560	12,750	14,360	12,340	6,380	6,940	22,475	27,954	1,200	78,340	2,200	1,840	35
225	7,600	20,248	17,127	6,791	4,430	18,642	22,474	590	67,185	2,000	152	36
1,335	5,150	-5,888	-4,787	-411	2,410	3,833	5,480	610	11,155	200	1,688	37
593.3	67.8	-29.1	-28.0	-6.0	54.4	20.6	24.4	103.4	16.6	10.0	(²)	38
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39
200	2,810	3,380	1,460	1,515	800	3,225	4,317	240	16,300	430	900	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
200	2,810	3,380	1,460	1,515	842	3,225	4,317	240	9,617	500	900	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
2,360	7,060	240	4,415	15,660	12,306	2,080	1,680	53
8.0	14.5	0.8	11.5	68.8	53.8	5.2	2.1	54
.....	55
.....	56
.....	57
.....	58
.....	59
.....	60
.....	61
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.....	68
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.....	71
.....	72

enterprises, the number for the State is 202. The number of schedules tabulated is 215. ²Included in "Other counties." ³Percent not shown when more than 1,000.

CENSUS OF DRAINAGE—SOUTH DAKOTA

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Minnehaha	Moody	Sanborn	Turner	Union	Yankton	Other counties ¹
LAND AREA								
1	Approximate land area.....acres.....1940..	521,600	334,720	365,440	391,040	290,560	335,360	4,526,720
2	Drainage enterprises.....number.....1940..	12	3	13	43	6	11	10
3	Land in enterprises.....acres.....1940..	43,600	4,400	32,280	51,720	16,898	27,770	30,156
4	.....1930..	42,378	5,008	35,050	59,620	.....	43,265	47,942
5	.....1920..	21,444	6,000	9,700	32,270	.....	12,085	4,946
6	Area of all enterprises, overlapping included.....acres.....1940..	46,905	4,400	32,600	57,240	16,898	33,545	30,156
7	Amount of overlapping.....acres.....1940..	3,305	.....	320	5,520	.....	5,775	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	43,600	4,400	32,280	51,720	16,898	27,770	30,156
9	.....1930..	42,378	5,008	35,050	50,344	.....	43,265	34,322
10	Increase or decrease (-), 1930-1940.....acres.....	1,222	-608	-2,770	1,376	16,898	-15,495	-4,166
11	.....percent.....	2.9	-12.1	-7.9	2.7	.....	-35.8	-12.1
12	Land undrained, unfit for any crop.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
13	.....1930..	.....	.....	.....	3,559	.....	.....	1,500
14	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	-3,559	.....	.....	-1,500
15	.....percent.....	.....	.....	.....	-100.0	.....	.....	.....
16	Land partly drained, for partial crop.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
17	.....1930..	.....	.....	.....	5,717	.....	.....	12,120
18	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	-5,717	.....	.....	-12,120
19	.....percent.....	.....	.....	.....	-100.0	.....	.....	.....
20	Improved land.....acres.....1940..	43,600	4,400	32,280	51,720	16,898	27,770	30,156
21	.....1930..	42,378	5,008	34,250	50,046	.....	43,265	47,142
22	.....1920..	20,083	5,400	9,700	25,347	.....	12,085	4,509
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....
25	.....1920..	.....	.....	.....	.....	.....	.....	24
26	Other unimproved land.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
27	.....1930..	.....	.....	800	9,574	.....	.....	800
28	.....1920..	1,361	600	.....	6,923	.....	.....	433
29	Land in occupied farms.....acres.....1940..	38,800	4,400	31,990	51,560	16,898	27,717	29,996
30	.....1930..	42,378	5,008	35,050	59,620	.....	43,265	47,932
31	Increase or decrease (-), 1930-1940.....acres.....	-3,578	-608	-3,060	-8,060	16,898	-15,548	-17,936
32	.....percent.....	-8.4	-12.1	-8.7	-13.5	.....	-35.9	-37.4
33	Land in planted crops.....acres.....1940..	31,352	3,700	26,200	41,977	14,760	24,139	24,430
34	.....1930..	33,518	4,500	19,690	45,362	.....	40,933	37,063
35	Increase or decrease (-), 1930-1940.....acres.....	-2,166	-800	6,510	-3,385	14,760	-16,794	-12,633
36	.....percent.....	-6.5	-17.8	33.1	-7.5	.....	-41.0	-34.1
37	Land idle.....acres.....1940..	7,169	700	5,790	9,583	2,118	3,578	5,566
38	.....1930..	.....	.....	3,740	4,718	.....	200	8,200
39	Increase or decrease (-), 1930-1940.....acres.....	7,169	700	2,050	4,865	2,118	3,378	-2,634
40	.....percent.....	.....	.....	54.8	103.1	.....	(³)	-32.1
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
42	.....1930..	.....	.....	.....	.....	.....	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	.....	.....	.....	.....
44	.....percent.....	.....	.....	.....	.....	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	26,080	1,280	23,840	38,600	16,658	25,410	28,916
46	Length of these ditches.....miles.....	24.4	3.5	36.1	78.3	41.0	29.3	36.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	2,160	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	16.0	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	7.4	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	9,520	.....	7,000	7,560	240	920	1,240
53	Length of these tile.....miles.....	15.3	.....	25.3	22.8	1.0	4.4	0.3
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	8,000	3,120	1,440	3,400	.....	1,440	.....
60	Length of these open ditches.....miles.....	0.3	5.3	0.2	4.6	.....	2.8	.....
61	Length of these tile.....miles.....	12.1	16.2	4.7	4.0	.....	0.5	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹Includes Bon Homme, Charles Mix, Day, Lyman, Roberts, and Spink Counties in 1940; Bon Homme, Day, Lyman, Roberts, and Spink Counties in 1930; and Codington, Grant, Hamlin, Miner, and Spink Counties in 1920.

²Not distributable by counties.

³Percent not shown when more than 1,000.

CENSUS OF DRAINAGE—SOUTH DAKOTA

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAIN-
TENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM	(See definitions in Introduction)	THE STATE	Beadle	Brookings	Brown	Butte ¹	Clark	Clay
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	215	5	4	3	1	10	9
Open ditches:								
2	Completed.....miles.....1940..	840.7	13.0	8.7	50.9	198.4	4.5	63.4
3	.....1930..	854.4	29.2	5.0	46.5	80.0	8.5	89.2
4	.....1920..	237.8		4.3				37.0
5	Additional length authorized.....miles.....1940..							
Tile drains:								
6	Completed.....miles.....1940..	335.8		0.1		7.1	11.3	2.3
7	.....1930..	315.3	9.6				7.4	4.5
8	.....1920..	179.3						
9	Additional length authorized.....miles.....1940..							
Levees and dikes:								
10	Completed.....miles.....1940..	7.4						
11	.....1930..							
12	.....1920..	2.4						
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..							
15	.....1930..							
16	.....1920..							
17	Pump capacity.....gal. per min.....1940..							
18	.....1930..							
19	.....1920..							
20	Land served by pumps.....acres.....1940..							
21	.....1930..							
22	.....1920..							
23	Wells pumped for drainage.....number.....1940..							
24	.....1930..							
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	5,078,771	6,496	12,832	228,653	692,540	35,665	697,981
26	.....1930..	4,534,768	117,053	2,600	222,876	400,000	32,635	738,508
27	.....1920..	1,461,063		1,776				333,136
28	Estimated cost when completed.....dollars.....1940..	5,078,771	6,496	12,832	228,653	692,540	35,665	697,981
29	.....1930..	4,784,768	117,053	2,600	222,876	650,000	32,635	738,508
30	.....1920..	1,732,729		1,776				333,136
31	Average cost per acre when completed.....dollars.....1940..	7.51	0.80	2.89	2.31	9.93	5.44	12.91
32	.....1930..	6.86	6.56	1.80	2.16	9.03	4.34	11.80
33	.....1920..	7.80		1.48				8.36
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	2,790,503	6,496	10,027	228,653		8,112	680,496
35	Average amount per acre.....dollars..	5.77	0.80	2.36	2.31		3.69	13.20
36	Enterprises having open ditches and levees.....dollars..	18,283						
37	Average amount per acre.....dollars..	8.46						
38	Enterprises having tile only.....dollars..	1,060,952					27,553	5,251
39	Average amount per acre.....dollars..	13.70					6.32	6.37
40	Enterprises having tile and levees.....dollars..							
41	Average amount per acre.....dollars..							
42	Enterprises having open ditches and tile.....dollars..	1,209,033		2,805		692,540		12,234
43	Average amount per acre.....dollars..	10.64		14.02		9.93		7.28
44	Enterprises having ditches, tile, and levees.....dollars..							
45	Average amount per acre.....dollars..							
46	Enterprises operating pumping plants.....dollars..							
47	Average amount per acre.....dollars..							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..							
49	Enterprises reporting.....number.....							
50	Land in these enterprises.....acres.....							
51	Average cost per acre.....dollars..							
52	By enterprises not operating pumping plants.....dollars..	2,311				1,270		(⁵)
53	Enterprises reporting.....number.....	7				1		1
54	Land in these enterprises.....acres.....	104,146				69,730		(⁵)
55	Average cost per acre.....dollars..	0.02				0.02		(⁵)
Federal aid in maintenance:								
56	Enterprises reporting.....number.....	1						
57	Land in these enterprises.....acres.....	(⁴)						
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..	40,740			(⁵)			(⁵)
59	Enterprises reporting.....number.....	15			1			1
60	Land in these enterprises.....acres.....	231,576			(⁵)			(⁵)
61	Average amount collected per acre.....dollars..	0.18			(⁵)			(⁵)
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	25,225			(⁵)			(⁵)
63	Enterprises reporting.....number.....	12			2			1
64	Land in these enterprises.....acres.....	182,378			(⁵)			(⁵)
65	Portion delinquent in these enterprises.....percent..	13.8			(⁵)			(⁵)
66	Total indebtedness, Dec. 31, 1939.....dollars..	1,132,904			(⁵)	692,540		(⁵)
67	Enterprises reporting.....number.....	20			2	1		1
68	Land in these enterprises.....acres.....	311,342			(⁵)	69,730		(⁵)
69	Average indebtedness per acre.....dollars..	3.64			(⁵)	9.93		(⁵)
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	91,800			(⁵)			
71	Enterprises reporting.....number.....	6			2			
72	Land in these enterprises.....acres.....	150,438			(⁵)			
73	Average arrearage per acre.....dollars..	0.61			(⁵)			
74	Reduction of debt by refinancing, prior to 1940.....dollars..	118,410						
75	Enterprises reporting.....number.....	9						
76	Land in these enterprises.....acres.....	31,533						
77	Average reduction per acre.....dollars..	3.76						

¹For counties having less than 3 enterprises, the data are published only by written permission of each enterprise affected.

²Eliminating duplication of intercounty enterprises, the number for the State is 202. The number of schedules tabulated is 215.

³Where there are less than 3 enterprises reporting, data are included only in the State totals.

⁴Where there are less than 3 enterprises reporting in the State, data are not shown.

CENSUS OF DRAINAGE—SOUTH DAKOTA

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND

ITEM (See definitions in Introduction)		Codington	Davison	Douglas	Hamlin	Hanson	Kingsbury	Lake
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	3	9	6	6	7	3	17
Open ditches:								
2	Completed.....miles.....1940..		10.0	46.8	24.6	7.5	30.9	6.6
3	1930..	7.5	16.0	30.8	21.2	2.7	38.2	8.7
4	1920..	(³)	22.8	11.5	(³)	0.8	32.1	9.5
5	Additional length authorized.....miles.....1940..							
Tile drains:								
6	Completed.....miles.....1940..	8.0	14.5	0.3	1.8	11.9	4.7	105.4
7	1930..	3.1	7.5		2.0	20.7	3.0	116.3
8	1920..	(³)	19.0	0.2	(³)	7.6	3.0	82.6
9	Additional length authorized.....miles.....1940..							
Levees and dikes:								
10	Completed.....miles.....1940..							
11	1930..							
12	1920..							
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..							
15	1930..							
16	1920..							
17	Pump capacity.....gal. per min.....1940..							
18	1930..							
19	1920..							
20	Land served by pumps.....acres.....1940..							
21	1930..							
22	1920..							
23	Wells pumped for drainage.....number.....1940..							
24	1930..							
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	23,624	101,391	206,771	53,450	45,064	60,687	384,943
26	1930..	23,621	34,947	175,070	35,248	39,938	112,928	385,447
27	1920..	(³)	66,420	24,000	(³)	27,000	67,058	246,072
28	Estimated cost when completed.....dollars.....1940..	23,624	101,391	206,771	53,450	45,064	60,687	384,943
29	1930..	23,621	34,947	175,070	35,248	39,938	112,928	385,447
30	1920..	(³)	66,420	24,000	(³)	27,000	67,058	363,832
31	Average cost per acre when completed.....dollars.....1940..	10.01	6.46	10.57	3.85	5.30	7.94	14.98
32	1930..	94.48	2.70	7.62	1.85	5.35	20.46	17.30
33	1920..	(³)	10.82	3.37	(³)	7.42	34.75	12.88
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..		18,482	198,018	42,650	11,512	906	
35	Average amount per acre.....dollars..		2.14	11.71	3.59	3.89	0.69	
36	Enterprises having open ditches and levees.....dollars..							
37	Average amount per acre.....dollars..							
38	Enterprises having tile only.....dollars..	23,624	82,909		1,500	31,052		184,840
39	Average amount per acre.....dollars..	10.01	11.74		6.25	7.03		11.80
40	Enterprises having tile and levees.....dollars..							
41	Average amount per acre.....dollars..							
42	Enterprises having open ditches and tile.....dollars..			8,753	9,300	2,500	59,781	200,103
43	Average amount per acre.....dollars..			3.32	5.28	2.23	9.46	19.93
44	Enterprises having ditches, tile, and levees.....dollars..							
45	Average amount per acre.....dollars..							
46	Enterprises operating pumping plants.....dollars..							
47	Average amount per acre.....dollars..							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..							
49	Enterprises reporting.....number.....							
50	Land in these enterprises.....acres.....							
51	Average cost per acre.....dollars..							
52	By enterprises not operating pumping plants.....dollars..						(⁴)	
53	Enterprises reporting.....number.....							1
54	Land in these enterprises.....acres.....						(⁴)	
55	Average cost per acre.....dollars..						(⁴)	
Federal aid in maintenance:								
56	Enterprises reporting.....number.....							
57	Land in these enterprises.....acres.....							
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars..			(⁴)	(⁴)		(⁴)	3,531
59	Enterprises reporting.....number.....			2	1		1	3
60	Land in these enterprises.....acres.....			(⁴)	(⁴)		(⁴)	11,960
61	Average amount collected per acre.....dollars..			(⁴)	(⁴)		(⁴)	0.30
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....			(⁴)				2,200
63	Enterprises reporting.....number.....			1				3
64	Land in these enterprises.....acres.....			(⁴)				6,980
65	Portion delinquent in these enterprises.....percent..			(⁴)				31.5
66	Total indebtedness, Dec. 31, 1939.....dollars..			(⁴)				129,993
67	Enterprises reporting.....number.....			2				4
68	Land in these enterprises.....acres.....			(⁴)				14,940
69	Average indebtedness per acre.....dollars..			(⁴)				8.70
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..			(⁴)				
71	Enterprises reporting.....number.....			1				
72	Land in these enterprises.....acres.....			(⁴)				
73	Average arrearage per acre.....dollars..			(⁴)				
74	Reduction of debt by refinancing, prior to 1940.....dollars..			(⁴)				59,879
75	Enterprises reporting.....number.....			2				4
76	Land in these enterprises.....acres.....			(⁴)				14,940
77	Average reduction per acre.....dollars..			(⁴)				4.01

¹For counties having less than 3 enterprises, the data are published only by written permission of each enterprise affected.

²Includes Bon Homme, Charles Mix, Day, Lyman, Roberts, and Spink Counties in 1940; Bon Homme, Day, Lyman, Roberts, and Spink Counties in 1930; and Codington, Grant, Hamlin, Miner, and Spink Counties in 1920.

CENSUS OF DRAINAGE—SOUTH DAKOTA

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1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

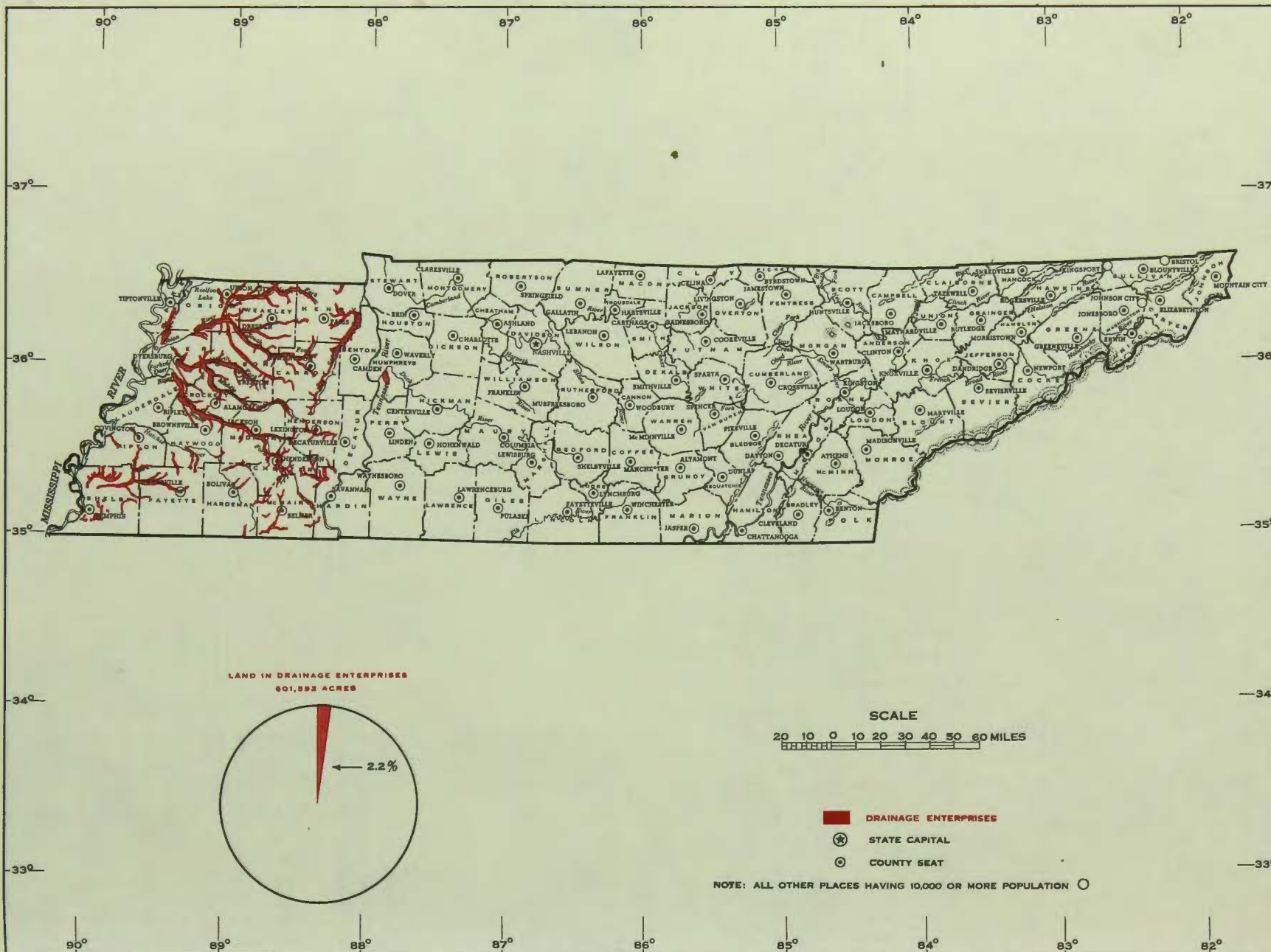
Lincoln	McCook	Marshall	Meade ¹	Miner	Minnehaha	Moody	Sanborn	Turner	Union	Yankton	Other counties ²	
22	3	5	1	3	12	3	13	43	6	11	10	1
43.1		40.8	10.4	2.9	24.7	8.8	36.3	98.9	41.0	32.1	36.4	2
26.0		48.5	7.0	3.0	23.0	7.3	61.0	211.3		46.7	37.1	3
		15.8		(³)	14.6	4.0		60.5		6.7	16.2	4
												5
54.5	5.2			2.1	27.4	16.2	30.0	26.8	1.0	4.9	0.3	6
48.8	8.5			1.0	12.3	15.0	27.0	11.1		9.4	8.1	7
				(³)	14.9	8.6	11.3	26.2			5.7	8
												9
								7.4				10
								2.4				11
												12
												13
												14
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												19
												20
												21
												22
												23
												24
356,132	23,777	334,320	36,975	7,175	774,615	70,829	208,493	220,838	77,536	335,105	76,879	25
327,796	25,348	296,501	20,000	7,052	615,347	58,334	144,403	252,859		376,313	89,944	26
		53,000		(³)	301,436	36,581	50,000	162,774		57,000	34,810	27
356,132	23,777	334,320	36,975	7,175	774,615	76,829	208,493	220,838	77,536	335,105	76,879	28
327,796	25,348	296,501	20,000	7,052	615,347	58,334	144,403	252,859		376,313	89,944	29
		96,905		(³)	326,436	86,581	85,000	162,774		57,000	34,810	30
11.04	11.43	3.53	13.32	2.56	17.77	17.46	6.46	4.27	4.59	12.07	2.55	31
13.84	32.13	3.61	8.00	30.27	14.52	11.65	4.12	4.24		5.70	1.88	32
		2.04		(³)	15.22	14.43	8.76	5.04		4.72	4.08	33
31,937		334,320	36,975	1,637	575,101	2,472	40,098	111,737	76,419	300,977	73,478	34
1.85		3.53	13.32	1.46	22.05	1.93	1.68	2.89	4.59	11.84	2.54	35
								18,283				36
								8.46				37
314,496	23,777			5,538	103,492		158,812	70,905	1,117	22,685	3,401	38
25.56	11.43			3.30	10.87		22.60	9.38	4.65	24.66	2.74	39
												40
9,699					96,022	74,357	9,583	19,913		11,443		42
3.56					12.00	23.83	6.65	5.86		7.95		43
												44
												45
												46
												47
												48
												49
												50
329			75									51
3			1									52
4,920			2,776									53
0.07			0.03									54
												55
							1					56
							(⁴)					57
		(⁴)			(⁴)	(⁴)	(⁴)			(⁴)		58
		(⁴)	1		(⁴)	(⁴)	(⁴)			(⁴)	1	59
		(⁴)			(⁴)	(⁴)	(⁴)			(⁴)		60
		(⁴)			(⁴)	(⁴)	(⁴)			(⁴)		61
		(⁴)			(⁴)	(⁴)	(⁴)			(⁴)		62
		(⁴)	2		(⁴)	(⁴)	(⁴)			(⁴)		63
		(⁴)			(⁴)	(⁴)	(⁴)			(⁴)		64
		(⁴)			(⁴)	(⁴)	(⁴)			(⁴)		65
		(⁴)	36,975		(⁴)	(⁴)	69,407			(⁴)		66
		(⁴)	1		(⁴)	(⁴)	3			(⁴)	1	67
		(⁴)	2,776		(⁴)	(⁴)	9,720			(⁴)		68
		(⁴)	13.32		(⁴)	(⁴)	7.14			(⁴)		69
		(⁴)										70
		(⁴)										71
		(⁴)										72
		(⁴)										73
	(⁴)				(⁴)	(⁴)						74
	(⁴)	1			(⁴)	(⁴)	1					75
	(⁴)				(⁴)	(⁴)						76
	(⁴)				(⁴)	(⁴)						77

³Included in "Other counties."

⁴Where there are less than 3 enterprises reporting, data are included only in the State totals.

TENNESSEE

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — TENNESSEE

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres....	26,855,040	26,679,680	26,679,680				
Land in drainage enterprises.....acres....	601,592	593,560	363,671	8,032	1.4	229,869	63.2
Improved.....acres....	328,153	286,008	163,218	42,145	14.7	122,790	75.2
Unimproved:							
Timber and cut-over.....acres....	166,804	219,510	189,945	-52,706	-24.0	29,565	15.6
Other.....acres....	106,635	88,042	10,508	16,583	21.1	77,534	737.8
Drainage sufficient for normal crop.....acres....	222,013	367,805	(1)	-145,792	-39.6		
Partly drained, for partial crop.....acres....	114,623	92,525	(1)	22,098	23.9		
Unfit to raise any crop for lack of drainage.....acres....	264,956	133,230	2 104,063	131,726	98.9	29,167	28.0
In occupied farms.....acres....	579,283	413,791	(1)	165,492	40.0		
In planted crops.....acres....	232,923	212,690	(1)	20,233	9.5		
Idle.....acres....	359,113	324,469	(1)	34,644	10.7		
Available for settlement.....acres....	6,037	44,467	(1)	-38,430	-86.4		
Open ditches, completed.....miles....	1,508.0	1,413.0	777.3	95.0	6.7	635.7	81.8
Tile drains, completed.....miles....			0.3			-0.3	-100.0
Capital invested in enterprises.....dollars..	6,501,750	6,366,747	2,925,944	135,003	2.1	3,440,803	117.6
Average per acre.....dollars..	10.81	10.73	8.05	0.08	0.7	2.68	33.3

¹ Not available.

² Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
	Acres	Acres	Acres	Acres		Acres	Acres	Acres	Acres
All enterprises.....	618,172	599,392	363,671	601,592	1,000 to 1,999 acres.....	74,530	209,899	117,651	69,482
Less than 100 acres.....	75	97	121	75	2,000 to 4,999 acres.....	151,149			146,162
100 to 199 acres.....	800	271		800	5,000 to 9,999 acres.....	147,473	115,598	91,612	145,372
200 to 499 acres.....	11,020	8,423	2,156	10,894	10,000 to 19,999 acres.....	132,240			129,831
500 to 999 acres.....	31,339	28,581	12,465	30,001	20,000 to 49,999 acres.....	69,546	236,523	139,666	68,975

¹ The sum of the areas in the individual enterprises, without deduction for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	601,592	100.0	6,501,750	100.0
Drainage districts.....	586,136	97.4	6,471,846	99.5
County drains.....	14,286	2.4	27,604	0.4
Individually owned projects.....	1,200	0.2	2,300	0.1

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	601,592	100.0	593,560	100.0	363,671	100.0	6,501,750	100.0	6,366,747	100.0	2,925,944	100.0
Gravity drainage only by—												
Open ditches.....	601,592	100.0	593,560	100.0	363,171	99.9	6,501,750	100.0	6,366,747	100.0	2,920,944	99.8
Tile drains.....					500	0.1					5,000	0.2

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	601,592	100.0	593,560	100.0	6,501,750	100.0	6,366,747	100.0	163,732	207,034
Enterprises in arrears.....	443,913	73.8	393,902	66.4	5,177,044	79.6	4,486,918	70.5	141,121	174,399
With some delinquent land.....	439,696	73.1	329,551	55.5	5,125,524	78.8	3,954,566	62.1	141,121	174,399
With no delinquent land.....	4,217	0.7	33,891	5.7	51,520	0.8	312,100	4.9		
With no report on delinquency.....			30,460	5.2			220,252	3.5		
Enterprises not in arrears.....	157,679	26.2	199,658	33.6	1,324,706	20.4	1,879,829	29.5	22,611	32,635
With some delinquent land.....	83,561	13.9	151,322	25.5	668,458	10.3	1,381,011	21.7	22,611	32,635
With no delinquent land.....	74,118	12.3	27,470	4.6	656,248	10.1	279,617	4.4		
With no report on delinquency.....			20,866	3.5			219,201	3.4		

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

CENSUS OF DRAINAGE — TENNESSEE

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	601,592	6,501,750	1,898,137	1,741,945	304,450	163,732	160,551
Enterprises in debt.....	487,553	5,566,345	1,898,137	1,741,945	304,450	157,085	149,333
In arrears, amount of arrearage stated.....	443,913	5,177,044	1,820,597	1,741,945	89,130	141,121	146,385
Collecting drainage taxes in 1939.....	303,907	3,368,952	982,527	907,375	89,130	95,238	146,385
No collections reported.....	140,006	1,809,092	838,070	834,570	.....	45,883	.....
Not in arrears.....	43,640	389,301	77,540	.....	215,320	15,964	2,948
Collecting drainage taxes in 1939.....	40,486	368,500	70,300	.....	212,200	15,769	2,948
No collections reported.....	3,154	20,801	7,240	.....	3,120	195	.....
Enterprises not in debt.....	114,039	935,405	.....	.....	.....	6,647	11,218
Collecting drainage taxes in 1939.....	44,621	322,700	.....	.....	.....	5,175	11,218
No collections reported.....	69,418	612,705	.....	.....	.....	1,472	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	601,592	100.0	6,501,750	100.0	Reclamation of swamp land not previously in farms.....	56,442	9.4	649,104	10.0
Improvement of land already in farms....	173,658	28.9	2,036,601	31.3	Protection against overflow.....	371,492	61.7	3,816,045	58.7

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
	601,592	100.0	618,172	16,580	6,501,750	100.0
All enterprises.....	601,592	100.0	618,172	16,580	6,501,750	100.0
1910-1914.....	115,677	19.2	123,421	7,744	1,174,263	18.1
1915-1919.....	335,710	55.8	343,959	8,249	3,583,525	55.1
1920-1924.....	119,484	19.9	119,671	187	1,652,317	25.4
1925-1929.....	2,561	0.4	2,561	.....	28,700	0.4
1930-1934.....	1,963	0.3	1,963	.....	5,000	0.1
1935-1939.....	26,197	4.4	26,597	400	57,945	0.9

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

² The sum of the areas of the individual enterprises.

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Acres
All enterprises..	601,592	222,013	36.9	114,623	264,956	328,153	54.5	166,804	106,635	579,283	96.3	232,923	359,113	6,037
1910-1914.....	115,677	22,128	19.1	24,304	69,245	58,815	50.8	36,453	20,409	114,742	99.2	29,587	85,866	.....
1915-1919.....	335,710	106,530	31.7	68,452	160,728	177,103	52.8	93,002	65,605	328,981	98.0	130,489	199,229	.....
1920-1924.....	119,484	72,963	61.1	17,158	29,363	72,195	60.4	29,770	17,519	109,738	91.8	57,937	58,257	6,037
1925-1929.....	2,561	1,031	40.3	620	910	2,143	83.7	290	128	2,561	100.0	1,768	793	.....
1930-1934.....	1,963	1,178	60.0	491	294	1,669	85.0	196	98	1,963	100.0	1,669	294	.....
1935-1939.....	26,197	18,183	69.4	3,598	4,416	16,228	61.9	7,093	2,876	21,298	81.3	11,473	14,674	.....

¹ Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
		Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	601,592	601,592	109,154	492,438	5,832	0.01	0.05
Gravity drainage only.....	601,592	601,592	109,154	492,438	5,832	0.01	0.05
Open ditches only.....	592,097	592,097	109,154	482,943	5,832	0.01	0.05
Open ditches and levees.....	9,495	9,495	9,495

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STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	601,582	100.0	6,501,750	100.0
Method:				
By district forces.....	6,808	1.1	1,700	(1)
Work apportioned to landowners.....	28,125	4.7	160,487	2.5
"None," or not reporting.....	566,659	94.2	6,339,553	97.5
Whether systematic:				
Reporting "yes".....	34,933	5.8	162,197	2.5
Reporting "no".....	562,504	93.5	6,308,058	97.0
Not reporting.....	4,155	0.7	31,495	0.5

¹Less than one-tenth of 1 percent.

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	Acres 21,064	Dollars 29,304	Miles 31.2	Miles	Miles
Work Projects Administration.....	21,064	29,304	31.2	.....	.....

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	601,592	13,150	0.5
Capital invested.....dollars..	6,501,750	33,150	0.5
Drainage works:			
Open ditches.....miles....	1,508.0	5.0	0.3
Tile drains.....miles....	.....	.....	.....
Levees.....miles....	30.0	.....	.....

¹The land actually dependent upon outside agencies for protection is 1,250 acres, which is 39.7 percent of all land in these protected enterprises.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION

ITEM (See definitions in Introduction)		THE STATE	Benton ¹	Carroll	Chester	Crockett	Dyer	Fayette
LAND AREA								
1	Approximate land area.....acres....1940..	26,855,040	275,200	381,440	182,400	172,160	337,280	450,560
2	Drainage enterprises.....number....1940..	³ 207	1	16	16	11	11	9
3	Land in enterprises.....acres....1940..	601,592	12,631	42,229	16,759	24,147	42,647	22,495
4	.....1930..	593,560	(⁴)	50,442	16,397	32,907	51,902	24,103
5	.....1920..	363,671	(⁴)	33,724	13,125	17,282	43,106	1,928
6	Area of all enterprises, overlapping included.....acres....1940..	618,172	12,631	42,403	17,479	24,147	44,214	22,682
7	Amount of overlapping.....acres....1940..	16,580	.....	174	720	.....	1,567	187
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	222,013	6,316	8,446	7,197	9,965	28,658	18,822
9	.....1930..	367,905	(⁴)	44,305	12,054	20,233	37,700	5,048
10	Increase or decrease (-), 1930-1940.....acres.....	-145,792	.....	-35,859	-4,857	-10,318	-9,042	13,774
11	.....percent.....	-39.6	.....	-80.9	-40.3	-50.9	-24.0	272.9
12	Land undrained, unfit for any crop.....acres....1940..	264,956	5,052	21,110	5,900	12,505	12,322	2,080
13	.....1930..	133,230	(⁴)	2,589	8,623	8,623	15,362	15,362
14	Increase or decrease (-), 1930-1940.....acres.....	131,726	.....	18,521	3,662	3,882	4,822	-13,282
15	.....percent.....	98.9	.....	715.4	171.3	45.0	64.3	-86.5
16	Land partly drained, for partial crop.....acres....1940..	114,623	1,263	12,673	3,762	1,677	1,667	1,593
17	.....1930..	92,525	(⁴)	3,548	2,205	4,001	6,702	3,693
18	Increase or decrease (-), 1930-1940.....acres.....	22,098	.....	9,125	1,557	-2,324	-5,035	-2,100
19	.....percent.....	23.9	.....	257.2	70.6	-58.1	-75.1	-56.9
20	Improved land.....acres....1940..	328,153	6,316	32,141	8,564	12,620	26,668	12,286
21	.....1930..	286,008	(⁴)	19,206	7,877	20,773	30,568	4,748
22	.....1920..	163,218	(⁴)	8,043	8,422	8,669	18,853	1,169
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	166,804	3,789	7,974	4,582	6,847	8,326	6,040
24	.....1930..	219,510	(⁴)	9,381	8,340	9,110	14,400	3,800
25	.....1920..	189,945	(⁴)	24,971	4,703	8,613	24,253	759
26	Other unimproved land.....acres....1940..	106,635	2,526	2,114	3,613	4,680	7,653	4,167
27	.....1930..	88,042	.....	21,853	180	3,024	6,934	15,555
28	.....1920..	10,508	(⁴)	710	.....	.....	.....	.....
29	Land in occupied farms.....acres....1940..	579,283	10,105	42,229	16,759	24,147	42,647	20,943
30	.....1930..	413,791	(⁴)	49,895	8,407	26,442	36,000	6,798
31	Increase or decrease (-), 1930-1940.....acres.....	165,492	.....	-6,666	8,352	-9,295	6,647	14,145
32	.....percent.....	40.0	.....	-13.6	99.3	-8.7	18.5	208.1
33	Land in planted crops.....acres....1940..	232,923	3,158	29,632	4,070	6,519	24,820	12,026
34	.....1930..	212,690	(⁴)	17,325	7,805	16,871	23,700	4,011
35	Increase or decrease (-), 1930-1940.....acres.....	20,233	.....	12,307	-3,735	-10,352	1,120	8,015
36	.....percent.....	9.5	.....	71.0	-47.8	-61.4	4.7	199.8
37	Land idle.....acres....1940..	359,113	9,473	12,597	12,689	17,627	17,827	7,054
38	.....1930..	324,469	(⁴)	27,567	8,592	13,980	23,500	16,749
39	Increase or decrease (-), 1930-1940.....acres.....	34,644	.....	-14,970	4,097	3,647	-5,673	-9,695
40	.....percent.....	10.7	.....	-54.3	47.7	26.1	-24.1	-57.9
41	Land available for settlement.....acres....1940..	6,037	.....	.....	.....	.....	.....	6,037
42	.....1930..	44,467	.....	.....	.....	.....	.....	9,518
43	Increase or decrease (-), 1930-1940.....acres.....	-38,430	.....	.....	.....	.....	.....	-3,481
44	.....percent.....	-86.4	.....	.....	.....	.....	.....	-36.6
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	592,097	12,631	42,229	16,759	24,147	42,647	22,495
46	Length of these ditches.....miles.....	1,499.6	11.0	132.0	74.7	65.6	83.0	58.5
47	Part protected by levees of an outside agency.....acres.....	1,250	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	9,495	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	8.4	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	30.0	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

² Includes Decatur, Lake, and Lauderdale Counties in 1940; Benton, Decatur, Lake, Lauderdale, and Montgomery Counties in 1930; and Benton, Lauderdale, Montgomery, and Sumner Counties in 1920.

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AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

Gibson	Hardeman	Hardin	Haywood	Henderson	Henry	Humphreys ¹	McNairy	Madison	Obion	Shelby	Tipton	Weakley	Other counties ²	
368,480	419,200	380,800	332,160	329,600	383,360	355,200	364,160	359,040	352,000	480,640	293,120	368,640	638,080	1
19	5	9	8	16	5	1	16	13	13	16	4	14	4	2
67,370	7,557	12,760	36,459	24,799	32,409	6,808	26,653	35,964	46,162	55,578	13,048	65,115	10,002	3
67,050	5,865	13,643	37,206	25,615	32,914	.....	25,333	52,092	49,738	17,547	12,980	56,158	21,768	4
46,484	5,642	19,345	35,334	20,684	31,569	.....	12,729	23,174	27,160	.....	.....	12,499	19,966	5
66,661	7,557	19,189	37,030	27,129	32,409	6,808	27,471	37,475	46,162	56,228	13,048	65,447	10,002	6
1,291	.....	6,429	571	2,330	.....	.....	618	1,511	.....	650	.....	332	.....	7
16,840	2,382	4,831	12,225	2,776	15,200	6,808	13,302	1,305	.....	40,087	10,719	12,883	3,251	8
54,255	5,115	8,548	18,440	16,365	10,919	.....	15,474	37,861	29,271	6,500	10,600	23,469	11,598	9
-37,415	-2,733	-3,717	-6,215	-13,589	4,281	6,808	-2,172	-36,556	-29,271	33,587	119	-10,586	-8,347	10
-69.0	-53.4	-43.5	-33.7	-63.0	39.2	.....	-14.0	-96.6	-100.0	516.7	1.1	-45.1	-72.0	11
33,684	4,222	6,141	17,467	12,702	9,723	.....	10,671	34,601	28,118	5,448	640	39,463	3,207	12
6,496	550	4,480	10,320	3,948	8,238	.....	5,222	9,006	11,608	4,863	950	26,944	4,393	13
27,188	3,672	1,661	7,147	8,754	1,485	.....	5,449	25,595	16,510	585	-310	12,519	-1,186	14
418.5	687.6	37.1	69.2	221.7	18.0	.....	104.3	284.2	142.2	12.0	-32.6	46.5	-27.0	15
16,846	953	1,788	6,767	9,321	7,486	.....	2,680	58	18,044	10,043	1,689	12,769	3,544	16
6,299	200	515	8,446	5,302	13,757	.....	4,637	5,225	8,859	6,184	1,430	5,745	5,777	17
10,547	753	1,273	-1,679	4,019	-6,271	.....	-1,957	-5,167	9,185	3,659	259	7,024	-2,233	18
167.4	376.5	247.2	-19.9	75.8	-45.6	.....	-42.2	-98.9	103.7	62.4	18.1	122.3	-38.6	19
33,686	4,456	6,012	20,601	13,033	9,723	5,106	21,264	12,016	25,118	35,269	9,305	28,721	5,246	20
37,034	2,931	9,341	16,307	11,527	23,039	.....	16,974	15,462	21,900	6,500	8,000	19,095	14,724	21
22,951	2,201	11,334	20,059	11,433	6,800	.....	7,041	11,727	13,676	.....	.....	2,791	8,049	22
12,992	2,517	5,305	13,912	7,621	12,963	1,362	1,753	20,761	16,107	13,056	2,612	15,144	3,141	23
28,626	1,003	1,426	16,413	5,061	9,775	.....	3,504	35,380	25,231	4,400	4,400	32,716	6,544	24
23,533	3,941	8,011	15,275	8,655	21,660	.....	5,688	11,447	13,484	.....	.....	.....	15,552	25
20,692	584	1,443	1,946	4,145	9,723	340	3,636	3,187	4,937	7,253	1,131	21,250	1,615	26
1,390	1,931	2,776	4,486	9,027	100	.....	4,855	1,250	2,607	6,647	580	4,347	500	27
.....	.....	.....	.....	596	3,129	.....	.....	.....	.....	.....	.....	(³)	56,073	28
67,370	7,557	12,760	34,513	24,799	32,409	6,808	26,653	35,453	45,219	41,273	12,522	65,115	10,002	29
60,610	3,303	9,360	16,925	25,615	25,175	.....	15,799	25,168	37,521	8,500	11,700	32,177	15,396	30
6,760	4,254	3,400	17,588	-816	7,234	6,808	10,854	10,285	7,698	32,773	822	32,938	-5,394	31
11.2	128.8	36.3	103.9	-3.2	28.7	.....	68.7	40.9	20.5	385.6	7.0	102.4	-35.0	32
13,472	2,710	3,464	16,564	9,393	9,723	3,830	15,561	8,387	15,395	28,816	8,288	14,626	2,469	33
22,040	2,600	7,191	14,174	11,177	10,933	.....	12,874	14,350	13,900	6,250	7,800	10,942	8,747	34
-8,568	110	-3,727	2,390	-1,784	-1,210	3,830	2,687	-5,993	1,495	22,566	488	3,684	-6,278	35
-38.9	4.2	-51.8	16.9	-16.0	-11.1	.....	20.9	-41.6	10.8	361.0	6.2	33.7	-71.8	36
53,898	4,847	9,022	19,895	15,406	17,071	2,978	11,092	27,577	30,767	26,762	4,550	50,489	7,492	37
37,833	3,203	6,233	14,635	13,037	16,886	.....	12,162	36,719	29,154	9,750	4,400	41,562	8,507	38
16,065	1,644	2,789	5,260	2,369	185	2,978	-1,070	-9,142	1,613	17,012	150	8,927	-1,015	39
42.5	51.3	44.7	35.9	18.2	1.1	.....	-8.8	-24.9	5.5	174.5	3.4	21.5	-11.9	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	2,312	38	7,200	.....	.....	.....	1,812	9,610	4,547	6,660	.....	2,070	700	42
.....	-2,312	-38	-7,200	.....	.....	.....	-1,812	-9,610	-4,547	-6,660	.....	-2,070	-700	43
.....	-100.0	-100.0	-100.0	.....	.....	.....	-100.0	-100.0	-100.0	-100.0	.....	-100.0	-100.0	44
67,370	7,557	12,760	36,459	24,799	32,409	6,808	26,653	35,964	46,162	55,578	13,048	55,620	10,002	45
130.2	31.2	52.6	69.9	97.9	128.5	7.0	106.6	84.7	94.7	98.8	41.0	114.0	17.7	46
.....	1,250	47
.....	9,495	48
.....	8.4	49
.....	30.0	50
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³An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 155.

⁴Included in "Other counties."

⁵Includes data for Weakley County with other counties named in footnote 2.

CENSUS OF DRAINAGE - TENNESSEE

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930,

ITEM (See definitions in Introduction)		THE STATE	Benton ¹	Carroll	Chester	Crockett	Dyer	Fayette
DRAINAGE WORKS								
1	Drainage enterprises.....number.....1940..	3 207	1	16	16	11	11	9
Open ditches:								
2	Completed.....miles.....1940..	1,508.0	11.0	132.0	74.7	65.6	83.0	58.5
3	.....1930..	1,413.0	(⁴)	122.1	75.6	69.0	89.5	79.0
4	.....1920..	777.3	(⁴)	114.9	61.8	39.5	71.2	5.0
5	Additional length authorized.....miles.....1940..	2.8						
Tile drains:								
6	Completed.....miles.....1940..							
7	.....1930..							
8	.....1920..	0.3	(⁴)					
9	Additional length authorized.....miles.....1940..							
Levees and dikes:								
10	Completed.....miles.....1940..	30.0						
11	.....1930..	29.8						
12	.....1920..	42.3	(⁴)					
13	Additional length authorized.....miles.....1940..							
Pumping plants:								
14	Engine capacity.....horsepower.....1940..							
15	.....1930..							
16	.....1920..							
17	Pump capacity.....gal. per min.....1940..							
18	.....1930..							
19	.....1920..							
20	Land served by pumps.....acres.....1940..							
21	.....1930..							
22	.....1920..							
23	Wells pumped for drainage.....number.....1940..							
24	.....1930..							
CAPITAL INVESTED								
25	Capital invested to January 1.....dollars.....1940..	6,501,750	123,200	470,202	173,198	232,480	517,852	316,860
26	.....1930..	6,366,747	(⁴)	435,904	160,719	345,832	588,501	482,119
27	.....1920..	2,925,944	(⁴)	310,216	124,946	179,355	346,511	14,451
28	Estimated cost when completed.....dollars.....1940..	6,508,428	123,200	470,202	173,198	232,480	517,852	316,860
29	.....1930..	6,416,812	(⁴)	437,969	160,719	345,832	588,501	482,119
30	.....1920..	3,447,991	(⁴)	360,566	125,941	179,355	466,011	15,660
31	Average cost per acre when completed.....dollars.....1940..	10.82	9.75	11.13	10.33	9.63	12.14	14.08
32	.....1930..	10.81	(⁴)	8.68	9.80	10.51	11.34	20.00
33	.....1920..	9.48	(⁴)	10.69	9.60	10.38	10.81	8.12
Invested in and required for completion, 1940:								
34	Enterprises having open ditches only.....dollars..	6,343,747	123,200	470,202	173,198	232,480	517,852	316,860
35	Average amount per acre.....dollars.....	10.71	9.75	11.13	10.33	9.63	12.14	14.08
36	Enterprises having open ditches and levees.....dollars..	164,681						
37	Average amount per acre.....dollars.....	17.34						
38	Enterprises having tile only.....dollars.....							
39	Average amount per acre.....dollars.....							
40	Enterprises having tile and levees.....dollars.....							
41	Average amount per acre.....dollars.....							
42	Enterprises having open ditches and tile.....dollars..							
43	Average amount per acre.....dollars.....							
44	Enterprises having ditches, tile, and levees.....dollars..							
45	Average amount per acre.....dollars.....							
46	Enterprises operating pumping plants.....dollars.....							
47	Average amount per acre.....dollars.....							
MAINTENANCE AND OPERATION								
Cost of maintenance and operation in 1939:								
48	By enterprises operating pumping plants.....dollars..							
49	Enterprises reporting.....number.....							
50	Land in these enterprises.....acres.....							
51	Average cost per acre.....dollars.....							
52	By enterprises not operating pumping plants.....dollars..	5,832					3,638	
53	Enterprises reporting.....number.....	19					4	
54	Land in these enterprises.....acres.....	109,154					15,928	
55	Average cost per acre.....dollars.....	0.05					0.23	
Federal aid in maintenance:								
56	Enterprises reporting.....number.....	12						
57	Land in these enterprises.....acres.....	21,064						
FINANCIAL CONDITION								
58	Drainage taxes collected in 1939.....dollars.....	160,551		4,356	3,810	7,058	10,944	9,233
59	Enterprises reporting.....number.....	96		7	3	9	7	4
60	Land in these enterprises.....acres.....	389,014		28,685	9,161	20,065	23,415	17,668
61	Average amount collected per acre.....dollars.....	0.41		0.15	0.41	0.35	0.47	0.52
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	163,732	4,541	16,374	596	4,354	9,706	8,181
63	Enterprises reporting.....number.....	145	1	11	3	11	8	6
64	Land in these enterprises.....acres.....	523,257	12,631	37,351	1,109	24,147	33,703	21,254
65	Portion delinquent in these enterprises.....percent.....	31.3	36.0	43.8	53.7	18.0	28.8	36.5
66	Total indebtedness, Dec. 31, 1939.....dollars.....	1,898,137	100,800	163,610	11,600	29,625	114,165	115,110
67	Enterprises reporting.....number.....	133	1	11	5	7	8	6
68	Land in these enterprises.....acres.....	487,553	12,631	37,351	2,225	17,235	33,703	21,254
69	Average indebtedness per acre.....dollars.....	3.89	7.98	4.38	5.21	1.72	3.39	5.42
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	1,741,945	100,800	157,110	8,860	29,625	110,965	87,610
71	Enterprises reporting.....number.....	124	1	11	3	7	7	6
72	Land in these enterprises.....acres.....	443,913	12,631	37,351	1,049	17,235	32,942	21,254
73	Average arrearage per acre.....dollars.....	3.92	7.98	4.21	8.45	1.72	3.37	4.12
74	Reduction of debt by refinancing, prior to 1940.....dollars..	304,450			(⁵)		(⁵)	
75	Enterprises reporting.....number.....	8			1		1	
76	Land in these enterprises.....acres.....	55,322			(⁵)		(⁵)	
77	Average reduction per acre.....dollars.....	5.50			(⁵)		(⁵)	

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² Includes Decatur, Lake, and Lauderdale Counties in 1940; Benton, Decatur, Lake, Lauderdale, and Montgomery Counties in 1930; and Benton, Lauderdale, Montgomery, and Sumner Counties in 1920.
³ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 155.

CENSUS OF DRAINAGE — TENNESSEE

AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

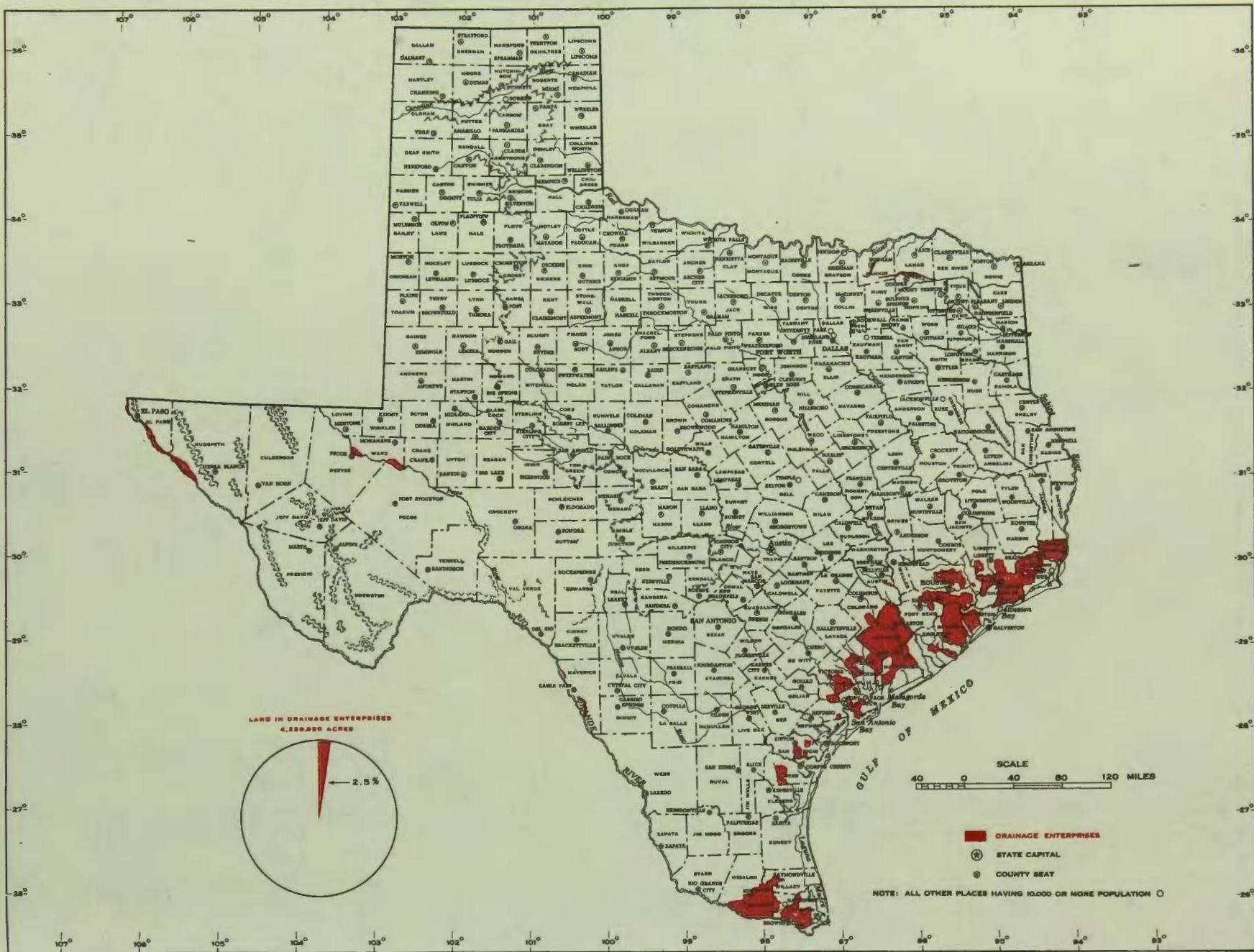
Gibson	Hardeman	Hardin	Haywood	Henderson	Henry	Rumphreys ¹	McNairy	Madison	Obion	Shelby	Tipton	Weakley	Other counties ²	
19	5	9	8	16	5	1	16	13	13	16	4	14	4	1
130.2	31.2	52.6	69.9	97.9	128.5	7.0	106.6	84.7	94.7	98.8	41.0	122.4	17.7	2
122.1	16.0	40.5	71.0	105.0	97.0	.....	100.8	86.3	88.5	37.0	34.0	120.1	59.5	3
79.3	17.6	44.6	58.3	64.2	35.5	.....	52.2	48.8	58.0	.....	.....	(4)	26.4	4
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.8	.....	.....	.....	5
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(4)	0.3	8
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	13.8	.....	.....	30.0	.....	11
.....	.....	.....	.....	.....	.....	.....	.....	.....	13.8	.....	.....	16.0	.....	12
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	(4)	28.5	13
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24
612,942	66,000	125,815	257,610	267,416	361,850	1,700	321,352	359,319	653,679	569,734	213,000	710,881	126,660	25
591,030	44,102	115,656	287,358	212,485	346,350	.....	252,691	376,767	679,008	239,502	245,000	709,361	254,362	26
328,095	36,915	95,210	206,951	175,076	116,975	.....	112,737	185,585	392,750	.....	.....	193,543	106,628	27
612,942	66,000	125,815	257,610	267,416	361,850	1,700	321,352	359,319	653,679	576,412	213,000	710,881	126,660	28
591,030	44,102	115,656	287,358	212,485	366,350	.....	252,691	376,767	679,008	239,502	245,000	709,361	262,362	29
328,095	45,117	95,210	221,742	188,576	327,791	.....	114,387	185,585	400,450	.....	.....	193,543	199,962	30
9.10	8.73	9.86	7.06	10.78	11.78	0.25	12.06	9.99	14.16	10.37	16.32	10.92	12.66	31
8.81	7.52	8.54	7.72	8.30	11.74	.....	9.97	7.23	13.65	13.65	18.88	12.63	12.05	32
7.06	8.14	4.92	6.28	9.12	10.38	.....	8.99	8.01	14.74	.....	.....	15.48	10.02	33
612,942	66,000	125,815	257,610	267,416	361,850	1,700	321,352	359,319	653,679	576,412	213,000	546,200	126,660	34
9.10	8.73	9.86	7.06	10.78	11.78	0.25	12.06	9.99	14.16	10.37	16.32	9.82	12.66	35
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	164,681	.....	36
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17.34	.....	37
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	45
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	47
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	48
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	49
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
794	.....	(9)	.....	.....	.....	.....	.....	.....	.....	.....	(9)	1,058	(9)	51
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52
45,295	.....	(9)	.....	.....	.....	.....	.....	.....	.....	.....	.....	40,883	(9)	53
0.02	.....	(9)	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.02	(9)	54
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	55
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	57
.....	.....	.....	.....	.....	.....	6,808	.....	.....	.....	.....	11	.....	.....	58
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	59
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60
8,745	3,196	(9)	2,701	3,036	(9)	451	1,778	4,209	2,697	67,005	(9)	27,741	2,676	61
14	3	.....	5	6	.....	1	4	4	6	5	.....	10	3	62
64,779	6,191	(9)	32,089	5,458	(9)	6,808	11,236	23,123	16,294	41,322	(9)	59,510	9,491	63
0.13	0.52	(9)	0.08	0.56	(9)	0.07	0.16	0.18	0.16	1.62	(9)	0.47	0.28	64
10,245	3,591	3,919	9,065	5,575	9,600	3,373	6,336	7,589	18,592	9,276	2,336	27,591	2,892	65
16	5	.....	7	16	.....	1	8	7	10	5	.....	12	4	66
65,257	7,557	7,850	36,075	24,552	31,974	6,808	15,582	32,480	38,455	41,322	13,048	62,100	10,002	67
15.7	47.5	49.9	25.1	22.7	30.0	49.5	40.7	23.4	48.3	22.4	17.9	44.4	28.9	68
85,174	13,285	19,888	61,440	60,799	243,250	.....	44,332	56,200	298,797	174,500	47,500	237,482	20,580	69
13	4	.....	6	16	.....	.....	9	4	11	5	.....	10	4	70
49,292	6,970	8,659	32,645	23,776	31,974	.....	15,582	28,088	42,276	41,322	13,048	59,510	10,002	71
1.73	1.81	2.30	1.88	2.56	7.61	.....	2.84	2.00	7.07	4.22	3.64	3.99	2.06	72
81,764	13,285	15,928	61,440	59,197	243,250	.....	31,072	50,700	280,947	148,500	47,500	192,792	20,580	73
12	4	.....	6	15	.....	.....	8	3	10	5	.....	9	4	74
48,795	6,970	6,807	32,645	23,650	31,974	.....	15,582	22,663	36,154	41,322	13,048	31,839	10,002	75
1.68	1.91	2.34	1.88	2.50	7.61	.....	1.99	2.24	7.77	3.59	3.64	6.06	2.06	76
(9)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	77
(9)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	78
(9)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79
(9)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	80

⁴ Included in "Other counties."

⁵ Includes data for Weakley County with other counties named in footnote 2.

⁶ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

TEXAS LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — TEXAS

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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	168,732,160	167,934,720	167,934,720				
Land in drainage enterprises.....acres.....	4,218,850	2,883,356	2,166,128	1,335,494	46.3	717,226	33.1
Improved.....acres.....	2,720,604	2,011,044	1,107,153	709,560	35.3	903,891	81.6
Unimproved:							
Timber and cut-over.....acres.....	524,488	176,511	111,922	347,977	197.1	64,589	57.7
Other.....acres.....	973,758	695,801	947,053	277,957	39.9	-251,252	-26.5
Drainage sufficient for normal crop.....acres.....	2,812,607	2,178,417	(1)	634,190	29.1		
Partly drained, for partial crop.....acres.....	1,023,903	486,322	(1)	537,581	110.5		
Unfit to raise any crop for lack of drainage.....acres.....	382,340	218,617	(2) 201,051	163,723	74.9	17,566	8.7
In occupied farms.....acres.....	2,819,775	1,895,486	(1)	924,289	48.8		
In planted crops.....acres.....	1,083,769	1,278,207	(1)	-194,438	-15.2		
Idle.....acres.....	1,421,438	816,461	(1)	604,977	74.1		
Available for settlement.....acres.....	686,332	772,223	(1)	-83,691	-10.9		
Open ditches, completed.....miles.....	4,906.3	3,661.8	2,728.5	1,244.5	34.0	933.3	34.2
Tile drains, completed.....miles.....	14.1	8.5		5.6	65.9	8.5	
Drainage pumping plants, capacity.....horsepower.....	186	510		-324	-63.5	510	
gal. per min.....	42,982	33,930		9,052	26.7	33,930	
Capital invested in enterprises.....dollars.....	14,047,181	12,002,949	5,700,805	2,044,232	17.0	6,302,144	110.5
Average per acre.....dollars.....	3.33	4.16	2.63	-0.83	-20.0	1.53	58.2

¹Not available.

²Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
All enterprises.....	4,531,170	2,883,356	2,166,128	4,218,850	10,000 to 19,999 acres.....	174,768	1,006,763	746,544	138,768
200 to 499 acres.....	260	800	1,957	260	20,000 to 49,999 acres.....	1,117,688	984,527	918,105	1,061,688
500 to 999 acres.....	4,056	53,733	9,619	4,056	50,000 to 99,999 acres.....	1,156,660	772,871	457,871	1,004,160
1,000 to 1,999 acres.....	32,675	54,662	32,032	32,675	100,000 to 199,999 acres.....	285,840	987,520	919,700	285,840
2,000 to 4,999 acres.....	71,143	54,662	32,032	71,143	200,000 to 499,999 acres.....	690,560	690,560	690,560	919,700
5,000 to 9,999 acres.....					500,000 acres and over.....				690,560

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,218,850	100.0	14,047,181	100.0
Drainage districts.....	3,844,378	91.1	9,764,083	69.5
Irrigation enterprises:				
Federal.....	74,708	1.8	1,622,872	11.6
Other.....	259,384	6.1	2,633,549	18.7
Individually owned projects.....	40,380	1.0	26,677	0.2

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	4,218,850	100.0	2,883,356	100.0	2,166,128	100.0	14,047,181	100.0	12,002,949	100.0	5,700,805	100.0
Gravity drainage only by—												
Open ditches.....	3,967,869	94.1	2,560,477	88.8	2,166,128	100.0	10,740,477	76.5	8,465,317	70.5	5,700,805	100.0
Tile drains.....	117,720	2.8	235,600	8.2			1,027,641	7.8	1,530,000	12.8		
Open ditches and tile drains.....												
All drained by pumping by—			20,279	0.7					425,049	3.5		
Open ditches.....												
Tile drains.....												
Open ditches and tile drains.....												
Part only by pumping by—			67,000	2.3			2,122,872	15.1	1,582,583	13.2		
Open ditches.....	94,708	2.2					156,191	1.1				
Tile drains.....												
Open ditches and tile drains.....	38,553	0.9										
Total area served by pumps.....	17,990	0.4	21,079	0.7								

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

CENSUS OF DRAINAGE — TEXAS

STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940, 1930, AND 1920

KIND OF POWER	Enterprises	CAPACITY			Land served Acres
		Engine or motor		Pump	
		Number	Hp.	Percent		G. p. m.
All pumping enterprises.....	1940.. 4 1930.. 2 1920.. ..	186 510	100.0 100.0	42,982 33,930	17,990 21,079
Electric.....	1940.. 4 1930.. 2 1920.. ..	186 510	100.0 100.0	42,982 33,930	17,990 21,079

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP	Enterprises	PUMPS			Engine or motor capacity Hp.	Land served Acres
		Number	Capacity			
			G. p. m.	Percent		
All pumping enterprises.....	1940.. 11 1930.. 53	42,982 33,930	100.0 100.0	186 510	17,990 21,079	
Centrifugal.....	1940.. 3 1930.. 53	13,250 33,930	30.8 100.0	59 510	8,000 21,079	
Turbine.....	1940.. 8 1930.. ..	29,732	69.2	127	9,990	

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	4,218,850	100.0	2,883,356	100.0	14,047,181	100.0	12,002,949	100.0	488,677	274,682
Enterprises in arrears.....	185,752	4.4	26,938	0.9	855,173	6.1	739,000	6.2	37,805	13,355
With some delinquent land.....	93,552	2.2	23,827	0.8	525,141	3.8	589,000	4.9	37,805	13,355
With no delinquent land.....	67,900	1.6	.....	.....	230,032	1.6	.....	.....	.....	.....
With no report on delinquency.....	24,300	0.6	3,111	0.1	100,000	0.7	150,000	1.3	.....	.....
Enterprises not in arrears.....	4,033,098	95.6	2,856,418	99.1	13,192,008	93.9	11,263,949	93.8	450,872	261,327
With some delinquent land.....	3,613,348	85.6	2,015,574	69.9	9,122,910	65.0	8,046,450	67.0	450,872	261,327
With no delinquent land.....	387,272	9.2	772,867	26.8	4,036,098	28.7	2,537,450	21.1	.....	.....
With no report on delinquency.....	32,478	0.8	67,877	2.4	33,000	0.2	680,049	5.7	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises Acres	Capital invested Dollars	Indebtedness Dollars	Arrearage in payment of bonds Dollars	Reduction of debt by refinancing Dollars	Delinquent in drainage taxes ¹ Acres	Drainage taxes collected in 1939 Dollars
All enterprises.....	4,218,850	14,047,181	4,574,165	46,110	781,199	488,677	1,017,878
Enterprises in debt.....	3,425,763	10,914,249	4,574,165	46,110	781,199	426,227	931,525
In arrears, amount of arrearage stated.....	185,752	855,173	66,510	46,110	6,550	37,805	20,888
Collecting drainage taxes in 1939.....	161,452	755,173	56,510	36,110	6,550	37,805	20,888
No collections reported.....	24,300	100,000	10,000	10,000	.....	.....	.....
Not in arrears.....	3,240,011	10,059,076	4,507,655	.....	774,649	388,422	910,637
Collecting drainage taxes in 1939.....	3,217,011	9,909,076	4,507,104	.....	774,649	388,422	910,637
No collections reported.....	23,000	150,000	551	.....	.....	.....	.....
Enterprises not in debt.....	793,087	3,132,932	.....	.....	.....	62,450	86,353
Collecting drainage taxes in 1939.....	529,236	1,222,706	.....	.....	.....	62,450	86,353
No collections reported.....	263,851	1,910,226	.....	.....	.....	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,218,850	100.0	14,047,181	100.0
Improvement of land already in farms.....	3,295,074	78.1	7,115,278	50.7
Reclamation of swamp land not previously in farms.....	322,180	7.6	842,000	6.0
Protection against overflow.....	130,963	3.1	1,440,032	10.2
Removal of alkali or seepage from irrigation.....	470,633	11.2	4,649,871	33.1

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STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	4,218,850	100.0	4,531,170	312,320	14,047,181	100.0
1900-1904.....			36,000	36,000	248,181	1.8
1905-1909.....	1,013,610	24.0	1,175,830	162,220	3,031,442	21.6
1910-1914.....	1,041,836	24.7	1,124,936	83,100	3,813,694	27.1
1915-1919.....	521,655	12.4	532,655	11,000	3,127,153	22.2
1920-1924.....	320,127	7.6	320,127		2,245,818	16.0
1925-1929.....	163,234	3.9	183,234	20,000	1,050,320	7.5
1930-1934.....	50,891	1.2	50,891		334,000	2.4
1935-1939.....	1,107,497	26.2	1,107,497		185,573	1.4

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	4,218,850	2,812,607	66.7	1,023,903	382,340	2,720,604	64.5	524,488	973,758	2,819,775	66.8	1,083,769	1,421,438	588,332
1905-1909.....	² 1,013,610	772,093	76.2	144,149	97,368	704,987	69.6	101,242	207,381	650,855	64.2	282,818	345,734	122,000
1910-1914.....	1,041,836	705,959	67.8	181,527	154,350	682,762	65.5	103,334	255,740	694,053	66.6	239,289	343,747	126,935
1915-1919.....	521,655	423,462	81.2	61,538	36,655	370,776	71.1	93,380	57,499	431,153	82.6	169,863	129,944	36,790
1920-1924.....	320,127	260,914	81.5	50,713	8,500	222,794	69.6	44,197	53,136	189,654	59.2	89,572	143,786	98,500
1925-1929.....	163,234	152,246	93.3	8,302	2,686	133,652	81.9	8,040	21,542	140,453	86.0	71,618	21,053	17,227
1930-1934.....	50,891	47,413	93.2	3,332	146	48,413	95.1	1,159	1,319	48,996	96.3	19,498	1,009	
1935-1939.....	1,107,497	450,520	40.7	574,342	82,635	557,220	50.3	173,136	377,141	664,601	60.0	211,111	436,165	286,880

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²Includes one enterprise organized in 1900-1904, entirely overlapped by a later organization.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 4,218,850	Acres 4,218,850	Acres 3,405,678	Acres 813,172	Dollars 368,239	Dollars 0.09	Dollars 0.11
Gravity drainage only.....	4,065,589	4,065,589	3,278,417	807,172	326,938	0.08	0.10
Open ditches only.....	3,809,573	3,809,573	3,049,408	760,165	303,570	0.08	0.10
Open ditches and levees.....	158,296	158,296	134,789	23,507	1,323	0.01	0.01
Open ditches and tile drains.....	117,720	117,720	94,220	23,500	22,045	0.19	0.23
Pumping for all or part of drainage.....	133,261	133,261	127,261	6,000	41,301	0.31	0.32
Part pumping and part gravity.....	133,261	133,261	127,261	6,000	41,301	0.31	0.32

STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	4,218,850	100.0	14,047,181	100.0
Method:				
By district forces.....	3,165,799	75.0	9,618,361	68.5
By contract.....	922,659	21.9	3,215,170	22.9
Work apportioned to landowners.....	4,380	0.1	650	(¹)
"None," or not reporting.....	126,012	3.0	1,213,000	8.6
Whether systematic:				
Reporting "yes".....	3,570,175	84.6	10,275,340	73.1
Reporting "no".....	648,675	15.4	3,771,841	26.9

¹Less than one-tenth of 1 percent.

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STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	4,218,850	2,582,151	61.2
Capital invested.....dollars..	14,047,181	7,735,373	55.1
Drainage works:			
Open ditches.....miles....	4,906.3	2,672.5	54.5
Tile drains.....miles....	14.1	13.1	92.9
Levees.....miles....	61.7	12.0	19.4

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	Acres 1,156,080	Dollars 1,933,291	Miles 1,055.5	Miles 1.1	Miles
Work Projects Administration.....	1,156,080	1,933,291	1,055.5	1.1	.....
Other kind or combination.....	.....	.....	.....	.....	.....

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	4,218,850	1,461,935	10.9
Capital invested.....dollars..	14,047,181	4,166,111	29.6
Drainage works:			
Open ditches.....miles....	4,906.3	902.2	18.4
Tile drains.....miles....	14.1	8.1	57.4
Levees.....miles....	61.7	1.0	1.6

¹The land actually dependent upon outside agencies for protection is 389,539 acres, which is 84.3 percent of all land in these protected enterprises.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Brazoria	Calhoun	Cameron	Chambers	Delta	El Paso ¹	
LAND AREA								
1	Approximate land area.....acres....1940..	168,732,100	922,240	343,680	535,120	395,520	176,640	674,560
2	Drainage enterprises.....number...1940..	² 91	8	4	9	4	3	1
3	Land in enterprises.....acres....1940..	4,218,850	395,743	77,893	238,489	395,520	10,775	74,708
4	.....1930..	2,883,356	352,725	79,570	213,556	(³)	24,168	67,000
5	.....1920..	2,166,128	327,362	36,426	202,556	16,000	.....	56,000
6	Area of all enterprises, overlapping included.....acres....1940..	4,531,170	395,743	77,893	251,589	490,520	10,775	74,708
7	Amount of overlapping.....acres....1940..	312,320	.....	.....	13,100	95,000	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	2,612,607	257,190	68,900	160,184	222,480	8,595	66,429
9	.....1930..	2,178,417	188,089	31,738	186,156	(³)	9,000	51,000
10	Increase or decrease (-), 1930-1940.....acres.....	634,190	69,101	37,162	-25,972	.....	-405	17,429
11	.....percent.....	29.1	36.7	117.1	-14.0	.....	-4.5	34.2
12	Land undrained, unfit for any crop.....acres....1940..	382,340	61,683	3,420	73,205	62,729	555	5,410
13	.....1930..	218,617	35,269	20,139	21,700	(³)	12,168	5,000
14	Increase or decrease (-), 1930-1940.....acres.....	163,723	26,414	-16,719	51,505	.....	-11,613	410
15	.....percent.....	74.9	74.9	-83.0	237.4	.....	-95.4	8.2
16	Land partly drained, for partial crop.....acres....1940..	1,023,903	76,870	5,573	5,100	110,311	1,625	869
17	.....1930..	486,322	129,367	27,693	5,700	(³)	3,000	11,000
18	Increase or decrease (-), 1930-1940.....acres.....	537,581	-52,497	-22,120	-600	.....	-1,375	-10,131
19	.....percent.....	110.5	-40.6	-79.9	-10.5	.....	-45.8	-92.1
20	Improved land.....acres....1940..	2,720,604	220,506	53,087	120,439	197,760	8,750	69,298
21	.....1930..	2,011,044	188,089	17,238	134,056	(³)	9,500	66,000
22	.....1920..	1,107,153	⁴ 145,000	27,320	⁴ 78,000	12,500	.....	⁴ 28,500
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	524,488	18,293	12,000	33,300	98,880	1,438	.....
24	.....1930..	176,511	2,295	.....	35,000	(³)	2,500	.....
25	.....1920..	111,922	2,072	.....	.....	900	.....	.....
26	Other unimproved land.....acres....1940..	973,758	156,944	12,806	84,750	98,880	587	5,410
27	.....1930..	695,801	162,341	62,332	44,500	(³)	12,168	1,000
28	.....1920..	947,053	180,290	9,106	124,556	2,600	.....	27,500
29	Land in occupied farms.....acres....1940..	2,619,775	203,276	66,000	101,836	200,214	9,106	73,003
30	.....1930..	1,895,486	334,725	17,238	125,056	(³)	12,000	66,000
31	Increase or decrease (-), 1930-1940.....acres.....	924,289	-131,449	48,762	-23,220	.....	-2,894	7,003
32	.....percent.....	48.8	-39.3	282.9	-18.6	.....	-24.1	10.6
33	Land in planted crops.....acres....1940..	1,083,769	63,402	23,200	93,786	25,009	5,175	60,610
34	.....1930..	1,278,207	186,650	17,083	101,500	(³)	9,500	62,000
35	Increase or decrease (-), 1930-1940.....acres.....	-194,438	-123,248	6,117	-7,714	.....	-4,325	-1,390
36	.....percent.....	-15.2	-66.0	35.8	-7.6	.....	-45.5	-2.2
37	Land idle.....acres....1940..	1,421,438	204,131	10,500	101,982	250,000	.....	8,145
38	.....1930..	816,461	.....	47,994	90,600	(³)	12,100	4,000
39	Increase or decrease (-), 1930-1940.....acres.....	604,977	204,131	-37,494	11,382	.....	-12,100	4,145
40	.....percent.....	74.1	.....	-78.1	12.6	.....	-100.0	103.6
41	Land available for settlement.....acres....1940..	686,332	.....	.....	88,795	189,850	.....	.....
42	.....1930..	772,223	.....	42,167	66,800	(³)	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-83,891	.....	-42,167	21,995	.....	.....	.....
44	.....percent.....	-10.9	.....	-100.0	32.9	.....	.....	.....
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	3,809,573	395,743	77,893	70,760	395,520	6,440	.....
46	Length of these ditches.....miles.....	4,007.3	391.0	111.0	79.0	95.0	8.5	.....
47	Part protected by levees of an outside agency.....acres.....	145,758	.....	.....	70,500	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	158,296	.....	.....	11,456	.....	4,335	.....
49	Length of these ditches.....miles.....	206.0	.....	.....	16.0	.....	7.0	.....
50	Length of these levees.....miles.....	61.7	.....	.....	1.0	.....	9.0	.....
51	Part protected by levees of an outside agency.....acres.....	2,000	.....	.....	2,000	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	117,720	.....	.....	117,720	.....	.....	.....
60	Length of these open ditches.....miles.....	322.0	.....	.....	322.0	.....	.....	.....
61	Length of these tile.....miles.....	7.1	.....	.....	7.1	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	114,520	.....	.....	114,520	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	133,261	.....	.....	38,553	.....	.....	74,708
69	Length of open ditches owned by these enterprises.....miles.....	371.0	.....	.....	90.0	.....	.....	236.0
70	Length of tile owned by these enterprises.....miles.....	7.0	.....	.....	7.0	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	127,261	.....	.....	32,553	.....	.....	74,708

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 81.
³Included in "Other counties."
⁴Office estimate; the reported figures exceeded the improved acreage in all farms as determined by the Census of Agriculture.
⁵Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE - TEXAS

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Fannin	Fort Bend	Galveston	Harris	Hidalgo	Jackson	Lamar
LAND AREA								
1	Approximate land area.....acres....1940..	579,840	554,880	275,200	1,118,080	986,240	546,560	579,840
2	Drainage enterprises.....number....1940..	3	3	3	11	4	6	3
3	Land in enterprises.....acres....1940..	17,744	44,513	113,500	344,920	414,438	170,500	14,631
4	.....1930..	16,605	41,758	110,000	328,720	(¹)	161,029	17,816
5	.....1920..	36,915	36,915	238,266	357,871		137,873	
6	Area of all enterprises, overlapping included.....acres....1940..	17,744	55,513	123,500	344,920	597,658	170,500	14,631
7	Amount of overlapping.....acres....1940..		11,000	10,000		183,220		
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	15,750	35,413	86,000	310,182	412,038	80,250	11,955
9	.....1930..	15,605	41,758	69,650	220,788	(¹)	136,283	16,316
10	Increase or decrease (-), 1930-1940.....acres.....	145	-6,345	16,350	89,394		-56,033	-4,361
11	.....percent.....	0.9	-15.2	23.5	40.5		-41.1	-26.7
12	Land undrained, unfit for any crop.....acres....1940..	630	3,000	3,000		2,400	29,750	715
13	.....1930..	1,000		20,350	54,618		12,000	1,500
14	Increase or decrease (-), 1930-1940.....acres.....	-370	3,000	-17,350	-54,618	2,400	17,750	-785
15	.....percent.....	-37.0		-85.2	-100.0		147.9	-52.3
16	Land partly drained, for partial crop.....acres....1940..	1,364	6,100	24,500	34,738		60,500	1,961
17	.....1930..			20,000	53,314	(¹)	12,746	
18	Increase or decrease (-), 1930-1940.....acres.....	1,364	6,100	4,500	-18,576		47,754	1,961
19	.....percent.....			22.5	-34.8		374.6	
20	Improved land.....acres....1940..	16,220	37,913	70,200	273,720	346,223	100,000	11,630
21	.....1930..	9,250	31,000	66,900	253,915	(¹)	109,517	12,062
22	.....1920..		27,686	² 25,899	142,148	² 98,723	96,265	
Unimproved land:								
23	Woodland and cut-over land.....acres....1940..	564	4,200	500	37,285	26,685	43,250	2,198
24	.....1930..	6,355	3,600		63,809		17,425	5,754
25	.....1920..				79,770		14,021	
26	Other unimproved land.....acres....1940..	960	2,400	42,800	33,915	41,530	27,250	803
27	.....1930..	1,000	7,158	43,100	10,995	(¹)	34,087	
28	.....1920..		9,229	68,012	16,348	259,148	27,587	
29	Land in occupied farms.....acres....1940..	16,348	40,600	90,000	249,410	355,973	127,000	12,546
30	.....1930..	9,250	31,000	23,150	158,254	(¹)	109,017	12,062
31	Increase or decrease (-), 1930-1940.....acres.....	7,098	9,600	66,850	91,156		17,983	494
32	.....percent.....	76.7	31.0	288.8	57.6		16.5	4.0
33	Land in planted crops.....acres....1940..	11,890	30,000	8,500	50,000	150,000	34,000	6,535
34	.....1930..	9,250	31,000	2,400	97,102	(¹)	70,000	10,562
35	Increase or decrease (-), 1930-1940.....acres.....	2,640	-1,000	6,100	-47,102		-36,000	-4,027
36	.....percent.....	28.5	-3.2	254.2	-48.5		-51.4	-38.1
37	Land idle.....acres....1940..		6,100	14,200	133,952	3,520	40,000	
38	.....1930..	7,355		21,000	231,618		46,998	7,254
39	Increase or decrease (-), 1930-1940.....acres.....	-7,355	6,100	-6,800	-97,666	3,520	-6,998	-7,254
40	.....percent.....	-100.0		-32.4	-42.2		-14.9	-100.0
41	Land available for settlement.....acres....1940..		5,000		81,290	14,000	3,700	
42	.....1930..	6,355		65,750	123,039		35,099	5,254
43	Increase or decrease (-), 1930-1940.....acres.....	-6,355	5,000	-65,750	-41,749	14,000	-31,399	-5,254
44	.....percent.....	-100.0		-100.0	-33.9		-89.4	-100.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....		28,600	113,500	344,920	414,438	170,500	13,203
46	Length of these ditches.....miles.....		70.0	120.0	746.0	542.9	399.0	14.1
47	Part protected by levees of an outside agency.....acres.....					64,258		
48	Land drained by open ditches and own levees.....acres.....	17,744	15,913					1,428
49	Length of these ditches.....miles.....	60.1	60.0					4.9
50	Length of these levees.....miles.....	4.7	8.0					1.0
51	Part protected by levees of an outside agency.....acres.....							
52	Land drained by tile only.....acres.....							
53	Length of these tile.....miles.....							
54	Part protected by levees of an outside agency.....acres.....							
55	Land drained by tile and own levees.....acres.....							
56	Length of these tile.....miles.....							
57	Length of these levees.....miles.....							
58	Part protected by levees of an outside agency.....acres.....							
59	Land drained by open ditches and tile.....acres.....							
60	Length of these open ditches.....miles.....							
61	Length of these tile.....miles.....							
62	Part protected by levees of an outside agency.....acres.....							
63	Land drained by open ditches, tile, and levees.....acres.....							
64	Length of these open ditches.....miles.....							
65	Length of these tile.....miles.....							
66	Length of these levees.....miles.....							
67	Part protected by levees of an outside agency.....acres.....							
68	Land in enterprises operating pumping plants.....acres.....							
69	Length of open ditches owned by these enterprises.....miles.....							
70	Length of tile owned by these enterprises.....miles.....							
71	Length of levees owned by these enterprises.....miles.....							
72	Part protected by levees of an outside agency.....acres.....							

¹Included in "Other counties."

²Office estimate; the reported figures exceeded the improved acreage in all farms as determined by the Census of Agriculture.

CENSUS OF DRAINAGE — TEXAS

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Matagorda	Orange ¹	San Patricio	Victoria	Wichita ¹	Willacy ¹	Other counties ²	
LAND AREA								
1	Approximate land area.....acres.....1940..	730,240	227,840	440,960	571,520	391,680	380,800	8,821,120
2	Drainage enterprises.....number.....1940..	4	1	3	4	1	1	15
3	Land in enterprises.....acres.....1940..	212,380	208,000	58,407	135,813	3,332	36,740	1,250,804
4	.....1930..	215,198	.....	31,135	126,607	3,332	.....	1,094,137
5	.....1920..	223,394	22,000	.....	133,000	.....	.....	284,554
6	Area of all enterprises, overlapping included.....acres.....1940..	212,380	208,000	58,407	135,813	3,332	36,740	1,250,804
7	Amount of overlapping.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres.....1940..	129,000	104,000	56,000	91,926	3,332	36,740	654,243
9	.....1930..	202,335	.....	28,900	114,971	3,332	.....	862,496
10	Increase or decrease (-), 1930-1940.....acres.....	-73,335	104,000	27,100	-23,045	.....	36,740	-208,253
11	.....percent.....	-36.2	.....	93.8	-20.0	.....	.....	-24.1
12	Land undrained, unfit for any crop.....acres.....1940..	38,840	41,400	246	9,775	.....	.....	45,582
13	.....1930..	2,863	.....	100	2,852	.....	.....	29,058
14	Increase or decrease (-), 1930-1940.....acres.....	35,977	41,400	146	6,923	.....	.....	16,524
15	.....percent.....	(³)	.....	146.0	242.7	.....	.....	56.9
16	Land partly drained, for partial crop.....acres.....1940..	44,540	62,600	2,161	34,112	.....	.....	550,979
17	.....1930..	10,000	.....	2,135	8,784	.....	.....	202,583
18	Increase or decrease (-), 1930-1940.....acres.....	34,540	62,600	26	25,328	.....	.....	348,396
19	.....percent.....	345.4	.....	1.2	288.3	.....	.....	172.0
20	Improved land.....acres.....1940..	168,000	104,000	58,000	112,658	3,132	32,000	717,068
21	.....1930..	181,335	.....	23,681	91,190	3,332	.....	813,978
22	.....1920..	167,218	6,600	.....	102,750	.....	.....	148,544
Unimproved land:								
23	Woodland and cut-over land.....acres.....1940..	9,840	62,600	159	6,747	.....	.....	166,549
24	.....1930..	2,000	.....	7,454	.....	.....	.....	30,319
25	.....1920..	750	11,000	.....	.....	.....	.....	3,409
26	Other unimproved land.....acres.....1940..	34,540	41,400	248	16,408	200	4,740	367,187
27	.....1930..	31,863	.....	.....	35,417	.....	.....	249,840
28	.....1920..	55,426	4,400	.....	30,250	.....	.....	132,601
29	Land in occupied farms.....acres.....1940..	186,000	55,000	56,500	127,978	3,332	32,000	813,653
30	.....1930..	170,914	.....	23,681	95,198	3,332	.....	704,609
31	Increase or decrease (-), 1930-1940.....acres.....	15,086	55,000	32,819	32,780	.....	32,000	109,044
32	.....percent.....	8.8	.....	138.6	34.4	.....	.....	15.5
33	Land in planted crops.....acres.....1940..	44,250	16,000	37,500	62,551	3,132	23,000	335,229
34	.....1930..	45,000	.....	23,681	84,538	.....	.....	527,941
35	Increase or decrease (-), 1930-1940.....acres.....	-750	16,000	13,819	-21,987	3,132	23,000	-192,712
36	.....percent.....	-1.7	.....	58.4	-26.0	.....	.....	-36.5
37	Land idle.....acres.....1940..	30,000	178,000	1,000	13,412	200	.....	426,296
38	.....1930..	12,863	.....	2,454	16,072	3,332	.....	312,821
39	Increase or decrease (-), 1930-1940.....acres.....	17,137	178,000	-1,454	-2,660	-3,132	.....	113,475
40	.....percent.....	133.2	.....	-59.2	-16.6	-94.0	.....	36.3
41	Land available for settlement.....acres.....1940..	.....	65,000	.....	.....	.....	4,440	236,257
42	.....1930..	41,418	.....	7,454	16,180	.....	.....	362,707
43	Increase or decrease (-), 1930-1940.....acres.....	-41,418	65,000	-7,454	-16,180	.....	4,440	-126,450
44	.....percent.....	-100.0	.....	-100.0	-100.0	.....	.....	-34.9
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	136,960	208,000	58,407	103,813	3,332	36,740	1,230,804
46	Length of these ditches.....miles.....	211.0	85.0	108.0	193.0	7.0	28.3	798.5
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	11,000	.....
48	Land drained by open ditches and own levees.....acres.....	75,420	.....	.....	32,000	.....	.....	.....
49	Length of these ditches.....miles.....	38.0	.....	.....	20.0	.....	.....	.....
50	Length of these levees.....miles.....	26.0	.....	.....	12.0	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	.....	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
61	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁴.....acres.....	.....	.....	.....	.....	.....	.....	20,000
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	45.0
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	20,000

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.

²Includes Austin, Colorado, Hudspeth, Jefferson, Lampasas, Liberty, Maverick, Nueces, Refugio, Ward, and Wharton Counties in 1940; Bowie, Chambers, Colorado, De Witt, Henderson, Hidalgo, Hudspeth, Jefferson, Liberty, Nueces, Red River, Refugio, Ward, and Wharton Counties in 1930; and Colorado, De Witt, Henderson, Jefferson, Liberty, Nueces, Ward, and Wharton Counties in 1920.

³Percent not shown when more than 1,000.

⁴Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — TEXAS

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Brazoria	Calhoun	Cameron	Chambers	Delta	El Paso ¹
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	2 91	8	4	9	4	3	1
Open ditches:							
2 Completed.....miles.....1940..	4,906.3	391.0	111.0	507.0	95.0	15.5	236.0
3	1930..	3,661.8	361.2	271.0	(³)	38.6	180.0
4	1920..	2,728.5	456.2	45.0	165.0	30.0	70.0
5 Additional length authorized.....miles.....1940..	236.0	.....	.....	5.0	50.0	.....	3.0
Tile drains:							
6 Completed.....miles.....1940..	14.1	.....	.....	14.1	.....	.....	.....
7	1930..	8.5	.....	.....	.....	.....	.....
8	1920..	.....	.....	.....	.....	.....	.....
9 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:							
10 Completed.....miles.....1940..	61.7	.....	.....	1.0	.....	9.0	.....
11	1930..	215.9	.....	1.5	.....	8.0	25.0
12	1920..	59.8	15.0	.....	.....	.....	.....
13 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
Pumping plants:							
14 Engine capacity.....horsepower.....1940..	186	.....	.....	81	.....	.....	75
15	1930..	510	.....	.....	.....	.....	60
16	1920..	.....	.....	.....	.....	.....	.....
17 Pump capacity.....gal. per min.....1940..	42,982	.....	.....	16,250	.....	.....	20,000
18	1930..	33,930	.....	.....	.....	.....	20,000
19	1920..	.....	.....	.....	.....	.....	.....
20 Land served by pumps.....acres.....1940..	17,990	.....	.....	8,040	.....	.....	6,450
21	1930..	21,079	.....	.....	.....	.....	800
22	1920..	.....	.....	.....	.....	.....	.....
23 Wells pumped for drainage.....number.....1940..	2	.....	.....	.....	.....	.....	.....
24	1930..	44	.....	.....	.....	.....	.....
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	14,047,181	1,167,434	204,000	1,476,220	74,000	244,090	1,622,872
26	1930..	12,002,949	1,131,533	163,564	1,098,820	(⁵) 418,759	1,582,583
27	1920..	5,700,805	1,064,000	60,000	757,120	23,000	635,000
28 Estimated cost when completed.....dollars.....1940..	14,503,278	1,167,434	204,000	1,481,220	114,000	244,090	1,672,872
29	1930..	12,186,628	1,131,533	163,564	1,118,820	(⁵) 438,759	1,682,583
30	1920..	6,400,805	1,064,000	60,000	757,120	23,000	1,235,000
31 Average cost per acre when completed.....dollars.....1940..	3.44	2.85	2.62	6.21	0.29	22.65	22.39
32	1930..	4.23	3.21	2.06	5.24	(⁵) 18.15	25.11
33	1920..	2.95	3.25	1.65	3.74	1.44	22.05
Invested in and required for completion, 1940:							
34 Enterprises having open ditches only.....dollars..	10,162,665	1,167,434	204,000	236,579	114,000	95,680	.....
35 Average amount per acre.....dollars.....	2.67	2.95	2.62	3.34	0.29	14.86	.....
36 Enterprises having open ditches and levees.....dollars..	978,909	.....	.....	56,809	.....	148,430	.....
37 Average amount per acre.....dollars.....	6.18	.....	.....	4.87	.....	34.24	.....
38 Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....	.....
39 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
40 Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....
41 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
42 Enterprises having open ditches and tile.....dollars..	1,027,641	.....	.....	1,027,641	.....	.....	.....
43 Average amount per acre.....dollars.....	6.73	.....	.....	8.73	.....	.....	.....
44 Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....
45 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
46 Enterprises operating pumping plants.....dollars.....	2,334,063	.....	.....	161,191	.....	.....	1,672,872
47 Average amount per acre.....dollars.....	17.51	.....	.....	4.18	.....	.....	22.39
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48 By enterprises operating pumping plants.....dollars..	17,048	.....	.....	2,400	.....	.....	14,648
49 Enterprises reporting.....number.....	2	.....	.....	1	.....	.....	1
50 Land in these enterprises.....acres.....	107,261	.....	.....	32,553	.....	.....	74,708
51 Average cost per acre.....dollars.....	0.16	.....	.....	0.07	.....	.....	0.20
52 By enterprises not operating pumping plants.....dollars..	⁶ 351,191	45,325	.....	24,104	(⁷)	.....	.....
53 Enterprises reporting.....number.....	⁶ 60	6	.....	5	.....	1	.....
54 Land in these enterprises.....acres.....	⁶ 3,298,417	302,343	.....	176,176	(⁷)	.....	.....
55 Average cost per acre.....dollars.....	⁶ 0.11	0.15	.....	0.14	(⁷)	.....	.....
Federal aid in maintenance:							
56 Enterprises reporting.....number.....	15	.....	.....	1	.....	.....	.....
57 Land in these enterprises.....acres.....	1,156,090	.....	.....	(⁸)	.....	.....	.....
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars..	1,017,878	123,643	20,635	24,400	19,488	5,178	57,422
59 Enterprises reporting.....number.....	75	8	4	3	3	3	1
60 Land in these enterprises.....acres.....	3,907,689	395,743	77,893	169,576	395,520	10,775	74,708
61 Average amount collected per acre.....dollars.....	0.26	0.31	0.26	0.14	0.05	0.48	0.77
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	488,677	60,990	5,420	(⁶)	21,300	1,508	.....
63 Enterprises reporting.....number.....	69	8	4	2	3	3	.....
64 Land in these enterprises.....acres.....	3,706,900	395,743	77,893	(⁶)	395,520	10,775	.....
65 Portion delinquent in these enterprises.....percent.....	13.2	15.4	7.0	(⁶)	5.4	14.0	.....
66 Total indebtedness, Dec. 31, 1939.....dollars..	4,574,155	136,500	85,564	77,450	16,000	83,760	1,048,685
67 Enterprises reporting.....number.....	64	7	4	3	3	3	1
68 Land in these enterprises.....acres.....	3,425,763	376,304	77,893	169,576	395,520	10,775	74,708
69 Average indebtedness per acre.....dollars.....	1.34	0.36	1.23	0.46	0.04	7.77	14.04
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	46,110	.....	.....	(⁶)	.....	.....	.....
71 Enterprises reporting.....number.....	4	.....	.....	2	.....	.....	.....
72 Land in these enterprises.....acres.....	185,752	.....	.....	(⁶)	.....	.....	.....
73 Average arrearage per acre.....dollars.....	0.25	.....	.....	(⁶)	.....	.....	.....
74 Reduction of debt by refinancing, prior to 1940.....dollars..	781,199	.....	.....	(⁶)	.....	94,454	.....
75 Enterprises reporting.....number.....	12	.....	.....	1	.....	3	.....
76 Land in these enterprises.....acres.....	447,230	.....	.....	(⁶)	.....	10,775	.....
77 Average reduction per acre.....dollars.....	1.73	.....	.....	(⁶)	.....	8.77	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of such enterprise affected. ² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 81. ³ Included in "Other counties." ⁴ Data in lines 46 and 47 are not included in lines 34 to 45. ⁵ Data shown by written permission of enterprise affected. ⁶ Includes 1 enterprise operating pumping plant reporting cost of operation and maintenance. ⁷ Included with "Other counties" to avoid disclosure of an individual enterprise. ⁸ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnotes 1, 5, 6, and 7.

CENSUS OF DRAINAGE — TEXAS

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Fannin	Fort Bend	Galveston	Harris	Hidalgo	Jackson	Lamar
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	3	3	3	11	4	6	3
Open ditches:							
2 Completed.....miles.....1940..	60.1	130.0	120.0	746.0	542.9	399.0	19.0
3 1930..	10.0	65.0	195.0	484.5	(¹)	630.0	57.0
4 1920..		177.0	80.0	407.0	25.0	537.5	
5 Additional length authorized.....miles.....1940..		4.0			64.0		
Tile drains:							
6 Completed.....miles.....1940..							
7 1930..		0.1					
8 1920..							
9 Additional length authorized.....miles.....1940..							
Levees and dikes:							
10 Completed.....miles.....1940..	4.7	8.0					1.0
11 1930..	31.8	8.0			(¹)		45.0
12 1920..					15.0	1.0	
13 Additional length authorized.....miles.....1940..							
Pumping plants:							
14 Engine capacity.....horsepower.....1940..							
15 1930..							
16 1920..							
17 Pump capacity.....gal. per min.....1940..							
18 1930..							
19 1920..							
20 Land served by pumps.....acres.....1940..							
21 1930..							
22 1920..							
23 Wells pumped for drainage.....number.....1940..							
24 1930..							
CAPITAL INVESTED							
25 Capital invested to January 1.....dollars.....1940..	331,900	482,000	146,980	1,278,000	1,786,841	575,950	374,010
26 1930..	303,000	565,000	193,000	1,294,000	(¹)	522,572	401,041
27 1920..		180,000	165,000	615,000	176,000	453,452	
28 Estimated cost when completed.....dollars.....1940..	331,900	483,800	146,980	1,278,000	1,930,391	575,950	374,010
29 1930..	303,000	565,000	193,000	1,294,000	(¹)	522,572	401,041
30 1920..		180,000	165,000	615,000	176,000	453,452	
31 Average cost per acre when completed.....dollars.....1940..	18.70	10.87	1.29	3.70	4.66	3.38	25.56
32 1930..	18.25	13.53	1.75	3.94	(¹)	3.25	22.51
33 1920..		4.88	1.76	2.58	0.49	3.29	
Invested in and required for completion, 1940:							
34 Enterprises having open ditches only.....dollars.....		232,000	146,980	1,278,000	1,930,391	575,950	345,960
35 Average amount per acre.....dollars.....		8.11	1.29	3.70	4.66	3.38	26.20
36 Enterprises having open ditches and levees.....dollars.....	331,900	251,800					28,050
37 Average amount per acre.....dollars.....	18.70	15.82					19.64
38 Enterprises having tile only.....dollars.....							
39 Average amount per acre.....dollars.....							
40 Enterprises having tile and levees.....dollars.....							
41 Average amount per acre.....dollars.....							
42 Enterprises having open ditches and tile.....dollars.....							
43 Average amount per acre.....dollars.....							
44 Enterprises having ditches, tile, and levees.....dollars.....							
45 Average amount per acre.....dollars.....							
46 Enterprises operating pumping plants ⁴.....dollars.....							
47 Average amount per acre.....dollars.....							
MAINTENANCE AND OPERATION							
Cost of maintenance and operation in 1939:							
48 By enterprises operating pumping plants.....dollars.....							
49 Enterprises reporting.....number.....							
50 Land in these enterprises.....acres.....							
51 Average cost per acre.....dollars.....							
52 By enterprises not operating pumping plants.....dollars.....		(²)	13,680	77,258	11,670	9,331	
53 Enterprises reporting.....number.....		1	3	10	4	5	
54 Land in these enterprises.....acres.....		(²)	113,500	340,720	376,438	137,500	
55 Average cost per acre.....dollars.....		(²)	0.12	0.23	0.03	0.07	
Federal aid in maintenance:							
56 Enterprises reporting.....number.....				11		1	
57 Land in these enterprises.....acres.....				344,920		(³)	
FINANCIAL CONDITION							
58 Drainage taxes collected in 1939.....dollars.....	5,898	(³)	13,666	149,087	(³)	35,425	8,007
59 Enterprises reporting.....number.....	3	2	3	11	1	6	3
60 Land in these enterprises.....acres.....	17,744	(³)	113,500	344,920	(³)	170,500	14,631
61 Average amount collected per acre.....dollars.....	0.33	(³)	0.12	0.43	(³)	0.21	0.55
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	4,120		3,900	39,003	(³)	14,000	1,972
63 Enterprises reporting.....number.....	3		3	10	1	6	3
64 Land in these enterprises.....acres.....	17,744		113,500	340,720	(³)	170,500	14,631
65 Portion delinquent in these enterprises.....percent.....	23.2		3.4	11.4	(³)	8.2	13.5
66 Total indebtedness, Dec. 31, 1939.....dollars.....	97,700	222,551		349,500	(²)	135,572	128,040
67 Enterprises reporting.....number.....	3	3		7	1	5	3
68 Land in these enterprises.....acres.....	17,744	44,513		127,420	(²)	137,500	14,631
69 Average indebtedness per acre.....dollars.....	5.51	5.00		2.74	(²)	0.98	8.75
70 Indebtedness in arrears, Dec. 31, 1939.....dollars.....							
71 Enterprises reporting.....number.....							
72 Land in these enterprises.....acres.....							
73 Average arrearage per acre.....dollars.....							
74 Reduction of debt by refinancing, prior to 1940.....dollars.....	208,485				(³)		161,710
75 Enterprises reporting.....number.....	3				1		3
76 Land in these enterprises.....acres.....	17,744				(³)		14,631
77 Average reduction per acre.....dollars.....	11.75				(³)		11.05

¹Included in "Other counties."

²Included with "Other counties" to avoid disclosure of an individual enterprise.

³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 2.

CENSUS OF DRAINAGE - TEXAS

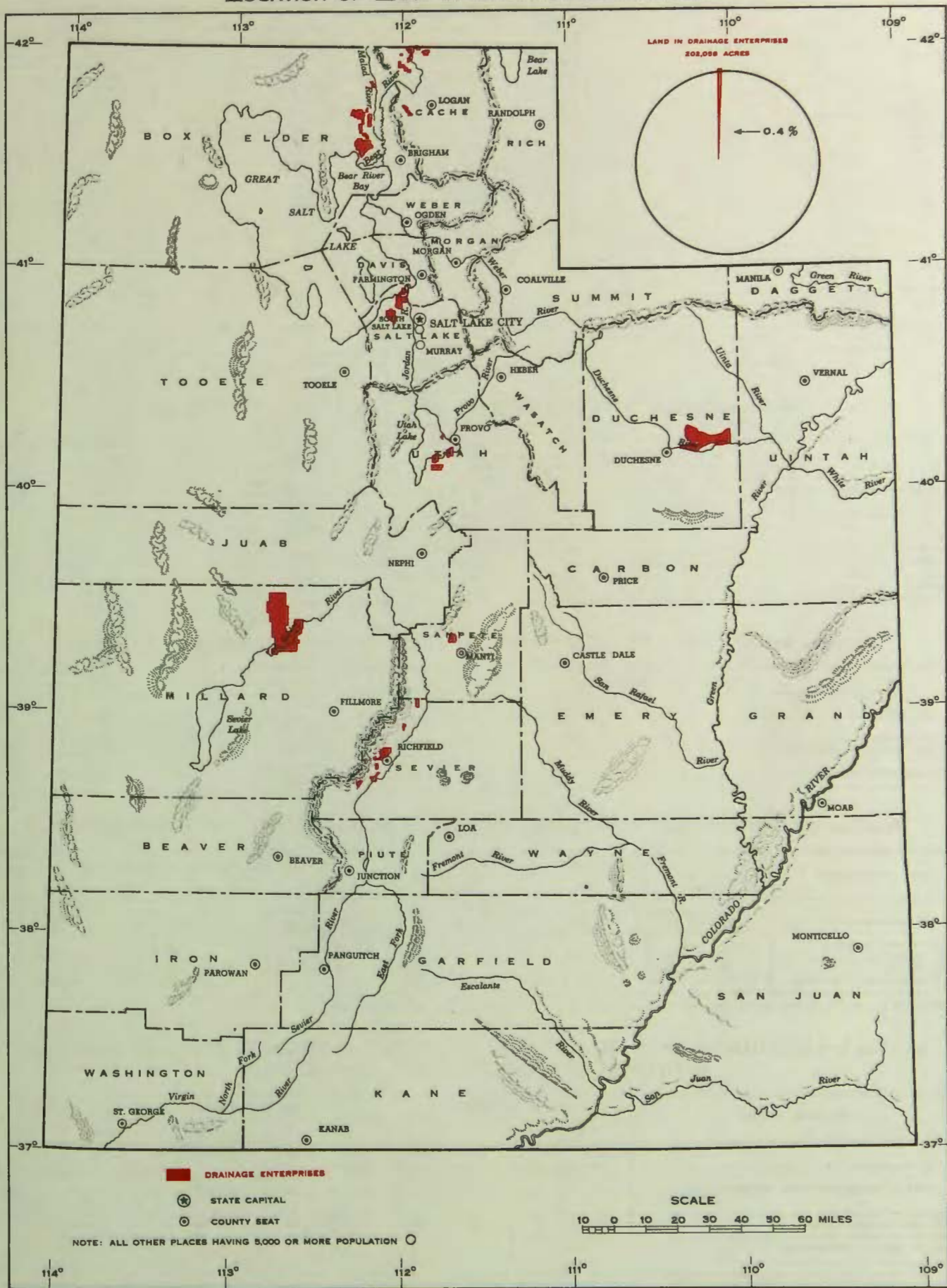
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Matagorda	Orange ¹	San Patricio	Victoria	Wichita ¹	Willacy ¹	Other counties ²
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	4	1	3	4	1	1	15
2 Open ditches:							
3 Completed.....miles.....1940..	249.0	85.0	108.0	213.0	7.0	28.3	843.5
4	1930..	241.0	42.5	222.0	5.5	.....	756.5
5	1920..	210.4	30.0	195.0	.....	.....	300.4
6 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	60.0	50.0
7 Tile drains:							
8 Completed.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
9	1930..	.....	.....	.....	.....	.....	8.4
10	1920..	.....	.....	.....	.....	.....	.....
11 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
12 Levees and dikes:							
13 Completed.....miles.....1940..	26.0	.....	.....	12.0	.....	.....	.....
14	1930..	26.0	.....	.....	.....	.....	70.6
15	1920..	26.0	1.0	.....	.....	.....	1.8
16 Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....
17 Pumping plants:							
18 Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	30
19	1930..	.....	.....	.....	.....	.....	450
20	1920..	.....	.....	.....	.....	.....	.....
21 Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	6,732
22	1930..	.....	.....	.....	.....	.....	13,930
23	1920..	.....	.....	.....	.....	.....	.....
24 Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	3,500
25	1930..	.....	.....	.....	.....	.....	20,279
26	1920..	.....	.....	.....	.....	.....	.....
27 Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	2
28	1930..	.....	.....	.....	.....	.....	44
CAPITAL INVESTED							
29 Capital invested to January 1.....dollars.....1940..	513,853	611,000	183,000	271,488	27,500	176,150	2,499,893
30	1930..	946,609	139,500	263,352	27,500	.....	2,895,795
31	1920..	675,824	24,600	215,880	.....	.....	655,929
32 Estimated cost when completed.....dollars.....1940..	513,853	611,000	183,000	271,488	27,500	290,800	2,600,890
33	1930..	946,609	139,500	263,352	27,500	.....	2,895,795
34	1920..	675,824	24,600	215,880	.....	.....	755,929
35 Average cost per acre when completed.....dollars.....1940..	2.42	2.94	3.13	2.00	8.25	7.92	2.08
36	1930..	4.40	4.48	2.08	8.25	.....	2.74
37	1920..	3.03	1.12	1.62	.....	.....	2.66
38 Invested in and required for completion, 1940:							
39 Enterprises having open ditches only.....dollars.....	366,940	611,000	183,000	255,461	27,500	290,800	2,100,890
40 Average amount per acre.....dollars.....	2.68	2.94	3.13	2.46	8.25	7.92	1.71
41 Enterprises having open ditches and levees.....dollars.....	146,913	.....	.....	16,027	.....	.....	.....
42 Average amount per acre.....dollars.....	1.95	.....	.....	0.50	.....	.....	.....
43 Enterprises having tile only.....dollars.....	.....	.....	.....	.....	.....	.....	.....
44 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
45 Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....
46 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
47 Enterprises having open ditches and tile.....dollars.....	.....	.....	.....	.....	.....	.....	.....
48 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
49 Enterprises having ditches, tile, and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....
50 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
51 Enterprises operating pumping plants ³.....dollars.....	.....	.....	.....	.....	.....	.....	500,000
52 Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	25.00
MAINTENANCE AND OPERATION							
53 Cost of maintenance and operation in 1939:							
54 By enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....	.....
55 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....
56 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....
57 Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....
58 By enterprises not operating pumping plants.....dollars.....	10,938	1,150	8,450	30,625	316	.....	⁴ 116,344
59 Enterprises reporting.....number.....	4	1	3	3	1	.....	⁴ 13
60 Land in these enterprises.....acres.....	212,380	208,000	58,407	130,844	3,332	.....	⁴ 1,238,777
61 Average cost per acre.....dollars.....	0.05	0.01	0.14	0.23	0.09	.....	⁴ 0.10
62 Federal aid in maintenance:							
63 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	2
64 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	(⁵)
FINANCIAL CONDITION							
65 Drainage taxes collected in 1939.....dollars.....	15,483	83,322	26,580	48,033	3,147	.....	309,544
66 Enterprises reporting.....number.....	4	1	3	3	1	.....	12
67 Land in these enterprises.....acres.....	212,380	208,000	58,407	103,813	3,332	.....	1,198,564
68 Average amount collected per acre.....dollars.....	0.07	0.40	0.46	0.46	0.94	.....	0.26
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	31,011	40,000	4,300	7,600	1,717	.....	56,620
70 Enterprises reporting.....number.....	4	1	3	3	1	.....	11
71 Land in these enterprises.....acres.....	212,380	208,000	58,407	103,813	3,332	.....	1,166,086
72 Portion delinquent in these enterprises.....percent.....	14.6	19.2	7.4	7.3	51.5	.....	4.8
73 Total indebtedness, Dec. 31, 1939.....dollars.....	(⁶)	300,225	152,000	104,781	20,560	.....	⁷ 1,605,277
74 Enterprises reporting.....number.....	1	1	3	3	1	.....	12
75 Land in these enterprises.....acres.....	(⁶)	208,000	58,407	103,813	3,332	.....	⁷ 1,605,277
76 Average indebtedness per acre.....dollars.....	(⁶)	1.44	2.60	1.01	6.17	.....	⁷ 1.00
77 Indebtedness in arrears, Dec. 31, 1939.....dollars.....	.....	.....	.....	.....	2,560	.....	(⁵)
78 Enterprises reporting.....number.....	.....	.....	.....	.....	1	.....	1
79 Land in these enterprises.....acres.....	.....	.....	.....	.....	3,332	.....	(⁵)
80 Average arrearage per acre.....dollars.....	.....	.....	.....	.....	0.77	.....	(⁵)
81 Reduction of debt by refinancing, prior to 1940.....dollars.....	.....	.....	.....	.....	.....	.....	(⁵)
82 Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	1
83 Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	(⁵)
84 Average reduction per acre.....dollars.....	.....	.....	.....	.....	.....	.....	(⁵)

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ² Includes Austin, Colorado, Hudspeth, Jefferson, Lampasas, Liberty, Maverick, Nueces, Refugio, Ward, and Wharton Counties in 1940; Bowie, Chambers, Colorado, De Witt, Henderson, Hidalgo, Hudspeth, Jefferson, Liberty, Nueces, Red River, Refugio, Ward, and Wharton Counties in 1930; and Colorado, De Witt, Henderson, Jefferson, Liberty, Nueces, Ward, and Wharton Counties in 1920. ³ Data in lines 46 and 47 are not included in lines 34 to 45. ⁴ Includes enterprises in Chambers and Fort Bend Counties to avoid disclosures with respect to individual enterprises; also includes 1 enterprise operating pumping plant reporting cost of operation and maintenance. ⁵ Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnotes 1, 4, and 6. ⁶ Included with "Other counties." ⁷ Includes data for enterprises in Hidalgo and Matagorda Counties to avoid disclosures of individual enterprises.

UTAH

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE—UTAH

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres....	52,701,440	52,597,760	52,597,760	.....	.....	.....	.....
Land in drainage enterprises.....acres....	202,058	156,052	113,823	46,006	29.5	42,229	37.1
Improved.....acres....	135,666	137,962	97,314	-2,296	-1.7	40,648	41.8
Unimproved:							
Timber and cut-over.....acres....	300	4,759	.....	-4,459	-93.7	.....	.....
Other.....acres....	66,092	13,331	16,509	52,761	395.6	-3,178	-19.2
Drainage sufficient for normal crop.....acres....	123,237	142,941	(¹)	-19,704	-13.8	.....	.....
Partly drained, for partial crop.....acres....	37,659	7,511	(¹)	30,148	401.4	.....	.....
Unfit to raise any crop for lack of drainage.....acres....	41,162	5,600	² 88,181	35,562	635.0	-82,581	-93.6
In occupied farms.....acres....	140,148	109,518	(¹)	30,630	28.0	.....	.....
In planted crops.....acres....	95,451	90,368	(¹)	5,083	5.6	.....	.....
Idle.....acres....	35,768	60,946	(¹)	-25,178	-41.3	.....	.....
Available for settlement.....acres....	7,259	20,951	(¹)	-13,392	-64.8	.....	.....
Open ditches, completed.....miles....	267.8	304.3	120.3	-36.5	-12.0	184.0	153.0
Tile drains, completed.....miles....	1,618.6	1,944.5	599.1	-325.9	-16.8	1,345.4	224.6
Capital invested in enterprises.....dollars..	4,869,273	4,772,000	1,005,473	97,273	2.0	3,766,527	374.6
Average per acre.....dollars..	24.10	30.58	8.83	-6.48	-21.2	21.75	246.3

¹ Not available.

² Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1930	1920	
All enterprises.....	Acres 204,150	Acres 156,052	Acres 113,823	Acres 202,058	1,000 to 1,999 acres.....	Acres 12,884	Acres 53,081	Acres 29,104	Acres 12,884
100 to 199 acres.....	125	190	.....	125	2,000 to 4,999 acres.....	46,831	.....	.....	46,831
200 to 499 acres.....	378	.....	.....	378	5,000 to 9,999 acres.....	11,282	15,545	5,280	9,200
500 to 999 acres.....	3,020	1,831	1,749	3,020	10,000 to 19,999 acres.....	22,259	.....	.....	22,259
					20,000 to 49,999 acres.....	107,361	85,405	77,690	107,361

¹ The sum of the areas in the individual enterprises, without deducting for overlapping.

² Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	202,058	100.0	4,869,273	100.0
Drainage districts.....	148,677	73.6	4,617,869	94.8
Irrigation enterprises—Federal.....	41,361	20.5	57,304	1.2
Individually owned projects.....	12,020	5.9	194,100	4.0

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	202,058	100.0	156,052	100.0	113,823	100.0	4,869,273	100.0	4,772,000	100.0	1,005,473	100.0
Gravity drainage only by—												
Open ditches.....	62,797	31.1	19,324	12.4	1,050	0.9	350,934	7.2	254,900	5.3	10,000	1.0
Tile drains.....	25,350	12.5	12,210	7.8	4,321	3.8	670,325	13.8	305,000	6.4	113,550	11.3
Open ditches and tile drains..	113,911	56.4	124,518	79.8	108,452	95.3	3,848,014	79.0	4,212,100	88.3	881,923	87.7

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	202,058	100.0	156,052	100.0	4,869,273	100.0	4,772,000	100.0	49,767	95,949
Enterprises in arrears—with some delinquent land.....	74,501	36.9	102,651	65.8	2,777,414	57.0	3,799,100	79.6	46,550	90,325
Enterprises not in arrears.....	127,557	63.1	53,401	34.2	2,091,859	43.0	972,900	20.4	3,217	5,224
With some delinquent land.....	26,866	13.3	30,991	19.8	554,155	11.4	615,000	12.9	3,217	5,224
With no delinquent land.....	98,101	48.5	18,110	11.6	1,472,704	30.3	327,900	6.9	.....	.....
With no report on delinquency.....	2,600	1.3	4,300	2.8	65,000	1.3	30,000	0.6	.....	.....

¹ If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

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STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	202,058	4,869,273	2,769,190	2,317,670	33,500	49,767	34,540
Enterprises in debt.....	107,119	3,516,539	2,769,190	2,317,670	31,500	49,078	32,910
In arrears, amount of arrearage stated.....	74,501	2,777,414	2,547,690	2,317,670	.....	46,550	14,903
Collecting drainage taxes in 1939.....	61,668	2,342,314	2,210,690	2,190,690	.....	33,717	14,903
No collections reported.....	12,833	435,100	337,000	126,980	.....	12,833	.....
Not in arrears.....	32,618	739,125	221,500	.....	31,500	2,528	18,007
Collecting drainage taxes in 1939.....	25,050	503,000	164,500	.....	26,500	1,666	18,007
No collections reported.....	7,568	236,125	57,000	.....	5,000	862	.....
Enterprises not in debt.....	91,152	1,283,734	.....	.....	.....	689	1,280
Collecting drainage taxes in 1939.....	17,066	229,530	.....	.....	.....	689	1,280
No collections reported.....	74,086	1,054,204	.....	.....	.....	.....	.....
Enterprises not reporting as to debt.....	3,787	69,000	.....	.....	2,000	.....	350
Collecting drainage taxes in 1939.....	1,187	4,000	.....	.....	2,000	.....	350
No collections reported.....	2,600	65,000	.....	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	202,058	100.0	4,869,273	100.0	Protection against overflow.....	6,281	3.1	76,775	1.6
Improvement of land already in farms... Reclamation of swamp land not previously in farms.....	75,517 2,050	37.4 1.0	2,501,394 60,000	51.4 1.2	Removal of alkali or seepage from irrigation.....	118,210	58.5	2,231,104	45.8

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	202,058	100.0	204,150	2,092	4,869,273	100.0
1900-1904.....	3,500	1.7	3,500	.....	50,000	1.0
1905-1909.....	41,361	20.5	41,361	.....	57,304	1.2
1910-1914.....	9,200	4.6	11,292	2,092	405,000	8.3
1915-1919.....	95,166	47.1	95,166	.....	3,114,639	64.0
1920-1924.....	27,928	13.8	27,928	.....	486,630	10.0
1925-1929.....	22,600	11.2	22,600	.....	728,100	14.9
1930-1934.....	1,925	0.9	1,925	.....	22,600	0.5
1935-1939.....	378	0.2	378	.....	5,000	0.1

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement	
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Acres	
All enterprises..	202,058	123,237	61.0	37,659	41,162	135,666	67.1	300	66,092	140,148	69.4	95,451	35,768	7,259
1900-1904.....	3,500	3,500	100.0	.....	.....	3,500	100.0	.....	.....	3,500	100.0	3,500	.....	.....
1905-1909.....	41,361	5,245	12.7	10,815	25,301	10,490	25.4	.....	30,871	10,490	25.4	10,490	.....	.....
1910-1914.....	9,200	6,267	68.1	2,231	702	9,200	100.0	.....	.....	8,800	95.6	7,837	884	.....
1915-1919.....	95,166	66,333	69.7	24,413	4,420	63,384	66.6	300	31,482	64,627	67.9	40,804	33,062	7,259
1920-1924.....	27,928	23,989	85.9	200	3,739	24,189	86.6	.....	3,739	27,928	99.6	21,917	1,822	.....
1925-1929.....	22,600	15,600	69.0	.....	7,000	22,600	100.0	.....	.....	22,600	100.0	8,600	.....	.....
1930-1934.....	1,925	1,925	100.0	.....	.....	1,925	100.0	.....	.....	1,925	100.0	1,925	.....	.....
1935-1939.....	378	378	100.0	.....	.....	378	100.0	.....	.....	378	100.0	378	.....	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

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STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	202,058	100.0	4,869,273	100.0
Method:				
By district forces.....	187,002	92.5	4,382,973	90.2
Work apportioned to landowners.....	9,075	4.5	232,525	4.8
"None," or not reporting.....	5,981	3.0	243,775	5.0
Whether systematic:				
Reporting "yes".....	165,475	81.9	3,474,173	71.3
Reporting "no".....	36,583	18.1	1,395,100	28.7

STATE TABLE 11.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 202,058	Acres 198,258	Acres 121,372	Acres 76,886	Dollars 22,100	Dollars 0.11	Dollars 0.18
Gravity drainage only.....	202,058	198,258	121,372	76,886	22,100	0.11	0.18
Open ditches only.....	62,797	62,797	17,536	45,261	3,064	0.05	0.17
Tile drains only.....	25,350	21,550	16,650	4,900	1,400	0.06	0.08
Open ditches and tile drains.....	101,911	101,911	75,186	26,725	16,636	0.16	0.22
Open ditches, tile drains, and levees.....	12,000	12,000	12,000	.....	1,000	0.08	0.08

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	202,058	119,361	59.1
Capital invested.....dollars..	4,869,273	2,534,618	52.1
Drainage works:			
Open ditches.....miles....	267.8	127.5	47.6
Tile drains.....miles....	1,618.6	1,022.0	63.1
Levees.....miles....	5.0	5.0	100.0

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	Acres 21,890	Dollars 474,000	Miles 22.2	Miles 294.9	Miles 5.0
Work Projects Administration.....	21,890	474,000	22.2	294.9	5.0

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Box Elder	Cache	Davis	Duchesne ¹	Willard	Sevier	Utah	Other counties ²	
LAND AREA										
1	Approximate land area.....acres.....1940..	52,701,440	3,580,160	752,000	171,520	2,086,400	4,254,720	1,236,460	1,278,720	1,511,040
2	Drainage enterprises.....number.....1940..	3 37	6	7	3	1	5	7	5	3
3	Land in enterprises.....acres.....1940..	202,058	26,220	12,324	4,156	41,361	80,059	13,337	11,590	13,011
4	.....1930..	156,052	16,900	9,420	(*)	.....	83,697	13,810	11,961	20,244
5	.....1920..	113,623	12,690	(*)	.....	.....	76,634	11,647	(*)	12,852
6	Area of all enterprises, overlapping included.....acres.....1940..	204,150	26,220	12,324	4,156	41,361	82,151	13,337	11,590	13,011
7	Amount of overlapping.....acres.....1940..	2,092	.....	.....	.....	.....	2,092	.....	.....	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	123,237	21,220	11,244	4,156	5,245	52,126	10,577	9,697	8,872
9	.....1930..	142,941	14,900	8,820	(*)	.....	81,697	10,550	10,000	16,874
10	Increase or decrease (-), 1930-1940.....acres.....	-19,704	6,320	2,424	.....	5,245	-29,571	27	-303	-8,002
11	.....percent.....	-13.8	42.4	27.5	.....	.....	-36.2	0.2	-3.0	-47.4
12	Land undrained, unfit for any crop.....acres.....1940..	41,162	1,400	.....	.....	25,301	9,302	1,420	100	3,639
13	.....1930..	5,600	.....	200	(*)	.....	2,000	760	420	2,220
14	Increase or decrease (-), 1930-1940.....acres.....	35,562	1,400	-200	.....	25,301	7,302	660	-320	1,419
15	.....percent.....	635.0	.....	-100.0	.....	.....	365.1	66.8	-76.2	63.9
16	Land partly drained, for partial crop.....acres.....1940..	37,659	3,600	1,080	.....	10,815	18,631	1,240	1,793	500
17	.....1930..	7,511	2,000	400	(*)	.....	2,400	1,561	1,561	1,150
18	Increase or decrease (-), 1930-1940.....acres.....	30,148	1,600	680	.....	10,815	16,631	-1,160	232	-650
19	.....percent.....	401.4	80.0	170.0	.....	.....	.....	-48.3	14.9	-56.5
20	Improved land.....acres.....1940..	135,666	26,220	12,144	4,156	10,490	54,300	12,737	10,247	5,372
21	.....1930..	137,962	12,900	9,420	(*)	.....	77,438	12,910	10,550	14,744
22	.....1920..	97,314	7,245	(*)	.....	.....	76,634	6,485	(*)	6,950
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	300	.....	.....	.....	.....	.....	300	.....	.....
24	.....1930..	4,759	.....	.....	.....	.....	4,259	.....	500	.....
25	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	Other unimproved land.....acres.....1940..	66,092	.....	180	.....	30,871	25,759	300	1,343	7,639
27	.....1930..	13,331	4,000	.....	.....	.....	2,000	900	931	5,500
28	.....1920..	16,509	5,445	(*)	.....	.....	.....	5,162	(*)	5,902
29	Land in occupied farms.....acres.....1940..	140,148	21,620	12,324	4,156	10,490	54,300	12,557	11,490	13,011
30	.....1930..	109,518	12,900	9,220	(*)	.....	49,374	12,730	10,550	14,744
31	Increase or decrease (-), 1930-1940.....acres.....	30,630	8,920	3,104	.....	10,490	4,926	-173	940	-1,733
32	.....percent.....	28.0	69.1	33.7	.....	.....	9.8	-1.4	8.9	-11.8
33	Land in planted crops.....acres.....1940..	95,451	21,770	12,044	3,336	10,490	21,837	11,407	9,997	4,570
34	.....1930..	90,368	11,800	8,298	(*)	.....	44,670	9,950	9,800	5,850
35	Increase or decrease (-), 1930-1940.....acres.....	5,083	9,970	3,746	.....	10,490	-22,833	1,457	197	-1,280
36	.....percent.....	5.6	84.5	45.1	.....	.....	-51.1	14.6	2.0	-21.9
37	Land idle.....acres.....1940..	35,768	3,400	180	820	.....	24,243	880	1,443	4,802
38	.....1930..	60,946	5,000	200	(*)	.....	38,552	2,300	1,400	13,494
39	Increase or decrease (-), 1930-1940.....acres.....	-25,178	-1,600	-20	.....	.....	-14,309	-1,420	43	-8,692
40	.....percent.....	-41.3	-32.0	-10.0	.....	.....	-37.1	-61.7	3.1	-64.4
41	Land available for settlement.....acres.....1940..	7,259	1,000	.....	.....	.....	3,759	.....	.....	2,500
42	.....1930..	20,651	3,000	.....	.....	.....	12,551	.....	1,000	4,100
43	Increase or decrease (-), 1930-1940.....acres.....	-13,392	-2,000	.....	.....	.....	-8,792	.....	-1,000	-1,600
44	.....percent.....	-64.8	-66.7	.....	.....	.....	-70.0	.....	-100.0	-39.0
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	62,797	.....	9,844	1,981	41,361	.....	.....	600	9,011
46	Length of these ditches.....miles.....	78.0	.....	39.0	8.5	8.5	.....	.....	2.0	20.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	25,350	10,720	2,480	.....	.....	.....	12,150	.....	.....
53	Length of these tile.....miles.....	236.5	66.5	35.0	.....	.....	.....	135.0	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	101,911	3,500	.....	2,175	.....	80,059	1,187	10,990	4,000
60	Length of these open ditches.....miles.....	184.8	10.0	.....	1.6	.....	142.0	1.0	20.2	10.0
61	Length of these tile.....miles.....	1,170.1	13.0	.....	27.0	.....	989.0	15.2	75.9	50.0
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	12,000	12,000	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	5.0	5.0	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	212.0	212.0	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	5.0	5.0	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

¹ For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected.
² Includes Salt Lake and Sanpete Counties in 1940; Davis, Salt Lake, and Sanpete Counties in 1930; and Cache, Salt Lake, and Utah Counties in 1920.
³ An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 36.
⁴ Included in "Other counties."

CENSUS OF DRAINAGE - UTAH

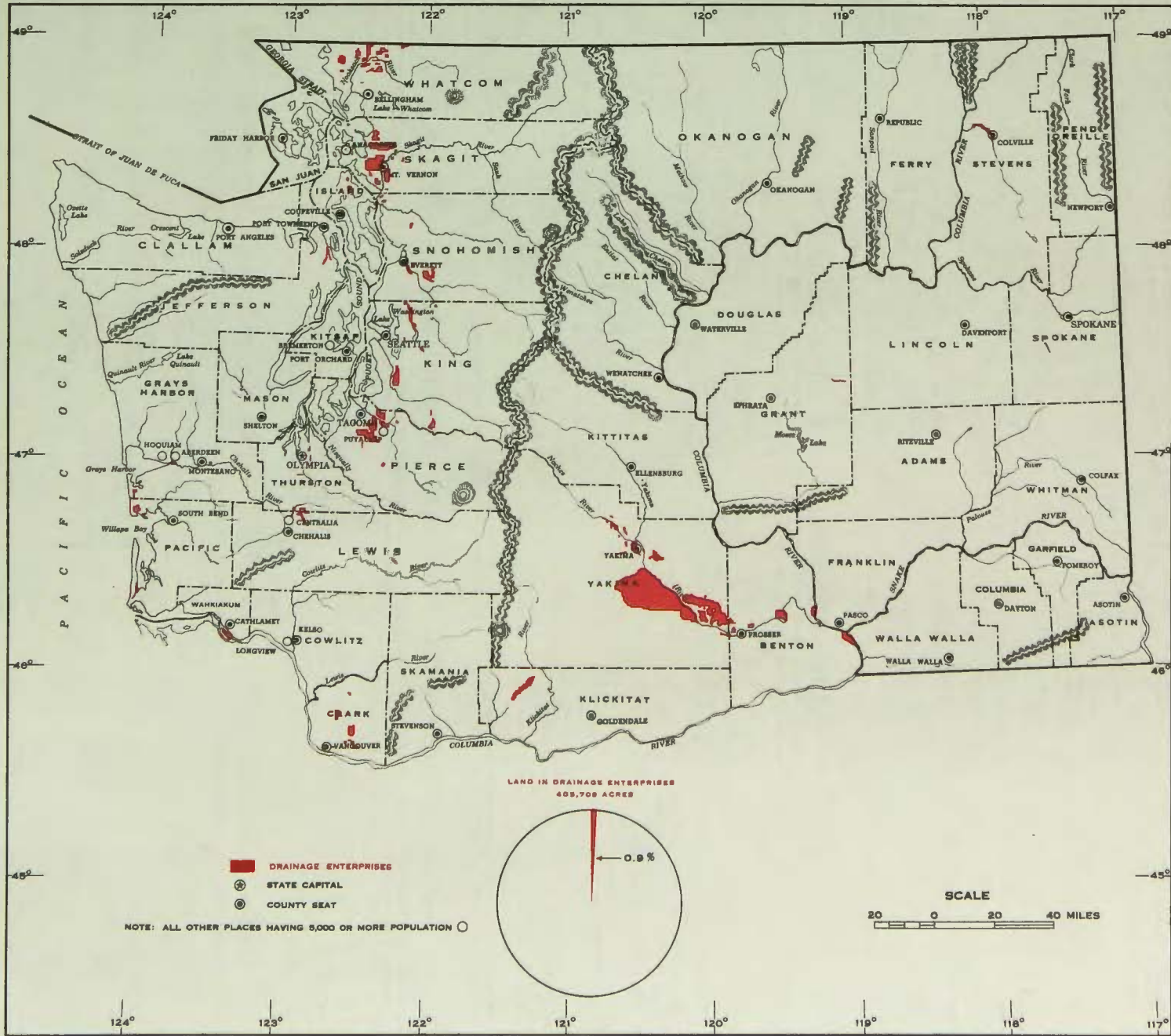
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)		THE STATE	Box Elder	Cache	Davis	Duchesne ¹	Millard	Sevier	Utah	Other counties ²
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	37	6	7	3	1	5	7	5	3
Open ditches:										
2	Completed.....miles.....1940..	267.8	15.0	39.0	10.1	8.5	142.0	1.0	22.2	30.0
3	.....1930..	304.3	10.0	16.2	(⁴)	.....	226.0	4.0	15.0	33.1
4	.....1920..	120.3	15.0	(⁴)	.....	.....	89.6	1.2	(⁴)	14.5
5	Additional length authorized.....miles.....1940..	24.0	.....	.....	.....	.....	24.0	.....	.....	.....
Tile drains:										
6	Completed.....miles.....1940..	1,618.6	291.5	35.0	27.0	.....	989.0	150.2	75.9	50.0
7	.....1930..	1,944.5	250.0	54.0	(⁴)	.....	1,225.0	89.5	233.0	93.0
8	.....1920..	599.1	206.6	(⁴)	.....	.....	237.0	81.5	(⁴)	74.0
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:										
10	Completed.....miles.....1940..	5.0	5.0	.....	.....	.....	.....	.....	.....	.....
11	.....1930..	2.0	.....	.....	.....	.....	.....	.....	2.0	.....
12	.....1920..	2.0	.....	(⁴)	.....	.....	.....	.....	(⁴)	2.0
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:										
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED										
25	Capital invested to January 1.....dollars.....1940..	4,869,273	456,000	167,730	108,375	57,304	3,040,414	369,125	309,000	361,325
26	.....1930..	4,772,000	281,000	171,800	(⁴)	.....	3,163,000	322,500	310,000	523,700
27	.....1920..	1,005,473	188,500	(⁴)	.....	.....	428,157	213,816	(⁴)	175,000
28	Estimated cost when completed.....dollars.....1940..	4,941,273	456,000	167,730	108,375	57,304	3,110,414	371,125	309,000	361,325
29	.....1930..	4,804,000	281,000	160,800	(⁴)	.....	3,163,000	322,500	310,000	546,700
30	.....1920..	2,870,773	188,500	(⁴)	.....	.....	2,028,957	333,316	(⁴)	320,000
31	Average cost per acre when completed.....dollars.....1940..	24.45	17.39	13.61	26.08	1.39	38.85	27.83	26.66	27.77
32	.....1930..	30.78	16.63	19.19	(⁴)	.....	37.79	23.35	25.87	27.01
33	.....1920..	25.22	14.85	(⁴)	.....	.....	26.48	28.62	(⁴)	24.90
Invested in and required for completion, 1940:										
34	Enterprises having open ditches only.....dollars.....	350,934	.....	68,530	43,775	57,304	.....	.....	20,000	161,325
35	Average amount per acre.....dollars.....	5.59	.....	6.96	22.10	1.39	.....	.....	33.33	17.90
36	Enterprises having open ditches and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Enterprises having tile only.....dollars.....	670,325	206,000	99,200	.....	.....	.....	365,125	.....	.....
39	Average amount per acre.....dollars.....	26.44	19.22	40.00	.....	.....	.....	30.05	.....	.....
40	Enterprises having tile and levees.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars.....	3,720,014	50,000	.....	64,600	.....	3,110,414	6,000	289,000	200,000
43	Average amount per acre.....dollars.....	36.50	14.28	.....	29.70	.....	38.85	5.05	26.30	50.00
44	Enterprises having ditches, tile, and levees.....dollars.....	200,000	200,000	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars.....	16.67	16.67	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION										
Cost of maintenance and operation in 1939:										
48	By enterprises operating pumping plants.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars.....	22,100	1,500	867	(⁵)	.....	10,992	1,250	5,278	(⁵)
53	Enterprises reporting.....number.....	25	5	5	2	.....	3	4	4	2
54	Land in these enterprises.....acres.....	121,372	25,700	6,544	(⁵)	.....	57,459	7,637	10,990	(⁵)
55	Average cost per acre.....dollars.....	0.18	0.06	0.13	(⁵)	.....	0.19	0.16	0.48	(⁵)
Federal aid in maintenance:										
56	Enterprises reporting.....number.....	5	1	.....	.....	.....	.....	.....	1	3
57	Land in these enterprises.....acres.....	21,890	(⁵)	.....	.....	.....	.....	(⁵)	7,990	.....
FINANCIAL CONDITION										
58	Drainage taxes collected in 1939.....dollars.....	34,540	6,307	980	.....	.....	12,001	(⁵)	(⁵)	(⁵)
59	Enterprises reporting.....number.....	17	5	4	.....	.....	3	2	2	1
60	Land in these enterprises.....acres.....	104,971	25,700	6,166	.....	.....	57,459	(⁵)	(⁵)	(⁵)
61	Average amount collected per acre.....dollars.....	0.33	0.24	0.16	.....	.....	0.21	(⁵)	(⁵)	(⁵)
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres.....	49,767	(⁵)	689	(⁵)	.....	30,492	(⁵)	(⁵)	12,027
63	Enterprises reporting.....number.....	16	2	3	2	.....	3	1	2	3
64	Land in these enterprises.....acres.....	101,357	(⁵)	3,666	(⁵)	.....	57,459	(⁵)	(⁵)	13,011
65	Portion delinquent in these enterprises.....percent.....	49.1	(⁵)	18.8	(⁵)	.....	53.1	(⁵)	(⁵)	92.4
66	Total indebtedness, Dec. 31, 1939.....dollars.....	2,769,190	(⁵)	(⁵)	(⁵)	.....	2,188,500	45,500	101,500	259,227
67	Enterprises reporting.....number.....	18	2	1	2	.....	3	3	4	3
68	Land in these enterprises.....acres.....	107,119	(⁵)	(⁵)	(⁵)	.....	57,459	6,450	10,990	13,011
69	Average indebtedness per acre.....dollars.....	25.85	(⁵)	(⁵)	(⁵)	.....	38.09	7.05	9.24	19.92
70	Indebtedness in arrears, Dec. 31, 1939.....dollars.....	2,317,670	.....	.....	(⁴)	.....	2,178,500	.....	.....	139,170
71	Enterprises reporting.....number.....	8	.....	.....	2	.....	3	.....	.....	3
72	Land in these enterprises.....acres.....	74,501	.....	.....	(⁴)	.....	57,459	.....	.....	17,042
73	Average arrearage per acre.....dollars.....	31.11	.....	.....	(⁴)	.....	37.91	.....	.....	8.17
74	Reduction of debt by refinancing, prior to 1940.....dollars.....	33,500	(⁵)	.....	.....	.....	.....	(⁵)	(⁵)	.....
75	Enterprises reporting.....number.....	4	1	.....	.....	.....	.....	2	1	.....
76	Land in these enterprises.....acres.....	12,337	(⁵)	.....	.....	.....	.....	(⁵)	(⁵)	.....
77	Average reduction per acre.....dollars.....	2.71	(⁵)	.....	.....	.....	.....	(⁵)	(⁵)	.....

¹For counties having less than 3 enterprises reporting, statistics are shown only by written permission of each enterprise affected. ²Includes Salt Lake and Sanpete Counties in 1940; Davis, Salt Lake, and Sanpete Counties in 1930; and Cache, Salt Lake, and Utah Counties in 1920. ³An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 36. ⁴Included in "Other counties." ⁵Where there are less than 3 enterprises reporting, data are included only in the State totals. ⁶Includes data for Davis County in addition to the counties given in footnote 2.

WASHINGTON

LOCATION OF LAND IN DRAINAGE ENTERPRISES



CENSUS OF DRAINAGE — WASHINGTON

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	42,865,280	42,775,040	42,775,040	.....	.....	.....	.....
Land in drainage enterprises.....acres.....	405,709	367,242	94,924	38,467	10.5	272,318	286.9
Improved.....acres.....	349,576	332,265	81,886	17,311	5.2	250,379	305.8
Unimproved:							
Timber and cut-over.....acres.....	39,715	18,531	850	21,184	114.3	17,681	(¹)
Other.....acres.....	16,418	16,446	12,188	-28	-0.2	4,258	34.9
Drainage sufficient for normal.....acres.....	368,293	329,166	(²)	39,127	11.9	.....	.....
Partly drained, for partial crop.....acres.....	31,513	28,197	(²)	3,316	11.8	.....	.....
Unfit to raise any crop for lack of drainage.....acres.....	5,903	9,879	³ 10,873	-3,976	-40.2	-994	-9.1
In occupied farms.....acres.....	380,964	351,898	(²)	29,066	8.2	.....	.....
In planted crops.....acres.....	332,672	309,818	(²)	22,854	7.4	.....	.....
Idle.....acres.....	13,197	33,764	(²)	-20,567	-60.9	.....	.....
Available for settlement.....acres.....	1,790	4,653	(²)	-2,863	-61.5	.....	.....
Open ditches, completed.....miles.....	885.0	746.7	162.4	138.3	18.5	584.3	359.8
Tile drains, completed.....miles.....	179.0	199.2	83.0	-20.2	-10.1	116.2	140.0
Drainage pumping plants, capacity.....horsepower.....	1,305	982	.....	323	32.9	982	.....
.....gal. per min..	240,760	184,500	.....	56,250	30.5	184,500	.....
Capital invested in enterprises.....dollars.....	5,332,842	4,637,576	1,397,419	695,266	15.0	3,240,157	231.9
Average per acre.....dollars.....	13.14	12.63	14.72	0.51	4.0	-2.09	-14.2

¹Percent not shown when more than 1,000.

²Not available.

³Reported as "Swampy, subject to overflow, seeped, or alkali."

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920	
	Acres	Acres	Acres	
All enterprises.....	433,340	394,851	105,477	405,709
Less than 100 acres.....	285	156	322	285
100 to 199 acres.....	1,765	1,756	.....	1,266
200 to 499 acres.....	11,062	9,314	1,625	10,739
500 to 999 acres.....	36,322	32,331	9,161	34,571
1,000 to 1,999 acres.....	63,978	.....	.....	55,545
2,000 to 4,999 acres.....	66,828	139,169	52,820	62,531
5,000 to 9,999 acres.....	85,877	74,317	19,649	73,549
10,000 to 19,999 acres.....	10,392	.....	.....	10,392
20,000 to 49,999 acres.....	24,831	47,808	21,900	24,831
50,000 to 99,999 acres.....	.....	90,000	.....	.....
100,000 to 199,999 acres.....	132,000	.....	.....	132,000

¹The sum of the areas in the individual enterprises, without deduction for overlapping.

²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested		CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	405,709	100.0	5,332,842	100.0	Irrigation enterprises:				
Drainage districts.....	256,410	63.2	4,416,541	82.8	Federal.....	132,000	32.5	794,480	14.9
Township drains.....	7,629	1.9	69,221	1.3	Other.....	8,390	2.1	32,600	0.6
					Individually owned projects.....	1,280	0.3	20,000	0.4

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	405,709	100.0	367,242	100.0	94,924	100.0	5,332,842	100.0	4,637,576	100.0	1,397,419	100.0
Gravity drainage only by—												
Open ditches.....	296,405	73.0	252,338	68.7	.....	.....	2,569,717	48.2	2,223,066	47.9	.....	.....
Tile drains.....	14,868	3.7	26,414	7.2	94,924	100.0	433,676	8.1	585,223	12.8	1,397,419	100.0
Open ditches and tile drains...	59,326	14.8	61,178	16.7	.....	.....	1,227,759	23.0	1,341,953	29.0	.....	.....
All drained by pumping by—												
Open ditches.....	8,945	2.2	.....	.....	.....	.....	364,894	6.8	.....	.....	.....	.....
Tile drains.....	2,020	0.5	9,420	2.5	.....	.....	144,203	2.7	182,479	4.2	.....	.....
Open ditches and tile drains...	7,955	2.0	.....	.....	.....	.....	127,779	2.4	.....	.....	.....	.....
Part only by pumping by—												
Open ditches.....	6,018	1.5	.....	.....	.....	.....	142,314	2.7	.....	.....	.....	.....
Tile drains.....	.....	.....	17,892	4.8	.....	.....	.....	.....	284,855	6.1	.....	.....
Open ditches and tile drains...	9,572	2.3	.....	.....	.....	.....	322,500	6.1	.....	.....	.....	.....
Total area served by pumps.....	26,745	6.6	19,857	5.4	.....	.....	.....	.....	.....	.....	.....	.....

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.

CENSUS OF DRAINAGE — WASHINGTON

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STATE TABLE 5.—PUMPING PLANTS AND LAND SERVED, BY KIND OF POWER: JAN. 1, 1940 AND 1930

KIND OF POWER	Enter-prises	CAPACITY				Land served	KIND OF POWER	Enter-prises	CAPACITY				Land served
		Engine or motor		Pump	G. p. m.				Engine or motor		Pump	G. p. m.	
		Number	Hp.						Percent	Number				Hp.	Percent
All pumping enterprises.....1940..	16	1,305	100.0	240,750	26,745	Internal combustion.....1940..	4	220	16.8	47,500	4,965		
.....1930..	11	882	100.0	184,500	19,857		.....1930..	2	57	5.8	10,000	1,621
Electric.....1940..	11	655	50.2	113,250	19,180	Steam and internal combustion..1940..	1	430	33.0	80,000	2,600		
.....1930..	9	825	94.2	174,500	18,236		.....1930..	.....	.....	.....	.....	.....

STATE TABLE 6.—PUMPING PLANTS AND LAND SERVED, BY KIND OF PUMP: JAN. 1, 1940 AND 1930

KIND OF PUMP		PUMPS			Engine or motor capacity	Land served
		Number	Capacity			
			G. p. m.	Percent			Hp.	Acres
All pumping enterprises.....1940..	24	240,750	100.0	1,305	26,745	
.....1930..	18	184,500	100.0	882	19,857	
Centrifugal.....1940..	12	75,750	31.5	465	15,858	
.....1930..	18	184,500	100.0	982	19,857	
Rotary.....1940..	3	16,000	6.7	75	2,590	
.....1930..	.....	.....	.....	.....	.....
Turbine.....1940..	1	28,000	11.6	100	2,000	
.....1930..	.....	.....	.....	.....	.....
Centrifugal and—						
Rotary.....1940..	3	80,000	33.2	430	2,600	
.....1930..	.....	.....	.....	.....	.....
Turbine.....1940..	5	41,000	17.0	235	3,697	
.....1930..	.....	.....	.....	.....	.....

STATE TABLE 7.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	405,709	100.0	367,242	100.0	5,332,842	100.0	4,637,576	100.0	16,763	16,280
Enterprises in arrears.....	32,214	7.9	59,616	16.2	1,173,048	22.0	1,358,221	29.3	3,890	7,673
With some delinquent land.....	16,099	3.9	46,426	12.6	700,949	13.1	1,185,448	25.6	3,890	7,673
With no delinquent land.....	16,115	4.0	9,390	2.6	472,099	8.9	153,617	3.3	.....	.....
With no report on delinquency.....	.....	.....	3,800	1.0	.....	.....	19,156	0.4	.....	.....
Enterprises not in arrears.....	373,025	91.9	307,626	83.8	4,154,294	77.9	3,279,355	70.7	12,873	8,607
With some delinquent land.....	51,039	12.6	55,845	15.2	1,199,254	22.5	1,138,264	24.6	12,873	8,607
With no delinquent land.....	317,333	78.2	222,448	60.6	2,868,040	54.2	1,632,197	35.6	.....	.....
With no report on delinquency.....	4,653	1.1	29,333	8.0	67,000	1.2	488,894	10.5	.....	.....
Enterprises not reporting on arrearage.....	470	0.2	.....	.....	5,500	0.1	.....	.....	.....	.....
With some delinquent land.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
With no delinquent land.....	210	0.1	.....	.....	1,500	(²)	.....	.....	.....	.....
With no report on delinquency.....	260	0.1	.....	.....	4,000	0.1	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.
²Less than one-tenth of 1 percent.

STATE TABLE 8.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	405,709	5,332,842	490,034	30,852	251,253	16,763	119,351
Enterprises in debt.....	² 89,169	2,480,265	490,034	30,852	248,190	10,322	87,133
In arrears, amount of arrearage stated.....	21,992	823,866	121,109	30,852	20,187	3,750	9,883
Collecting drainage taxes in 1939.....	19,995	746,262	77,336	24,398	20,187	3,250	9,883
No collections reported.....	1,997	75,604	43,773	6,454	.....	500	.....
In arrears, amount not stated.....	² 10,222	349,182	52,500	.....	.....	140	7,500
Collecting drainage taxes in 1939.....	9,572	322,500	52,500	.....	.....	.....	7,500
No collections reported.....	² 650	26,682	.....	.....	.....	140	.....
Not in arrears.....	56,485	1,301,717	312,225	.....	228,003	6,432	68,900
Collecting drainage taxes in 1939.....	56,421	1,299,795	311,112	.....	228,003	6,432	68,900
No collections reported.....	64	1,922	1,113	.....	.....	.....	.....
Not reporting as to arrears.....	470	5,500	4,200	.....	.....	.....	850
Collecting drainage taxes in 1939.....	470	5,500	4,200	.....	.....	.....	850
No collections reported.....	.....	.....	.....	.....	.....	.....	.....
Enterprises not in debt.....	305,468	2,692,693	.....	.....	2,293	3,746	27,485
Collecting drainage taxes in 1939.....	89,940	678,671	.....	.....	2,293	1,558	27,485
No collections reported.....	215,528	2,014,022	.....	.....	.....	2,188	.....
Enterprises not reporting as to debt.....	11,072	159,884	.....	.....	10,780	2,695	4,743
Collecting drainage taxes in 1939.....	9,772	153,884	.....	.....	10,780	2,695	4,743
No collections reported.....	1,300	6,000	.....	.....	.....	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.
²Includes 650 acres for which amount of indebtedness was not reported.

CENSUS OF DRAINAGE - WASHINGTON

STATE TABLE 9.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	405,709	100.0	5,332,842	100.0
Improvement of land already in farms.....	245,405	60.5	3,796,150	71.2
Reclamation of swamp land not previously in farms.....	15,469	3.8	484,674	9.1
Protection against overflow.....	7,995	2.0	248,707	4.6
Removal of alkali or seepage from irrigation.....	136,840	33.7	803,311	15.1

STATE TABLE 10.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	405,709	100.0	433,340	27,631	5,332,842	100.0
1890-1899.....	16,833	4.1	16,833	.....	142,824	2.7
1900-1904.....	30,272	7.5	30,272	.....	82,407	1.5
1905-1909.....	24,781	6.1	33,657	8,876	636,144	11.9
1910-1914.....	207,225	51.1	220,427	13,202	2,120,077	39.8
1915-1919.....	35,414	8.7	37,644	2,230	884,421	16.6
1920-1924.....	59,687	14.7	63,010	3,323	1,239,874	23.2
1925-1929.....	16,671	4.1	16,671	.....	190,279	3.6
1930-1934.....	311	0.1	311	.....	4,556	0.1
1935-1939.....	14,515	3.6	14,515	.....	33,260	0.6

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

STATE TABLE 11.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and out-over land	Other un-improved land	In occupied farms	In planted crops	Idle	Land available for settlement			
	Acres	Acres	Per-cent	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	
All enterprises..	405,709	368,293	90.8	31,513	5,903	349,576	86.2	39,715	16,418	380,964	93.9	332,672	13,197	1,790
1890-1899.....	16,833	16,533	98.2	200	100	14,311	85.0	2,222	300	14,537	86.4	13,263	1,226	1,100
1900-1904.....	30,272	29,641	97.9	.....	631	28,975	95.7	292	1,005	29,053	96.0	28,451	832	.....
1905-1909.....	24,781	24,541	99.0	50	190	24,188	97.6	289	304	23,898	96.4	23,258	344	.....
1910-1914.....	207,225	178,490	86.1	25,830	2,905	170,069	82.1	30,229	6,927	196,524	94.8	165,148	1,608	600
1915-1919.....	35,414	32,013	90.4	2,263	1,138	30,471	86.0	871	4,072	31,857	90.0	29,377	1,901	.....
1920-1924.....	59,687	57,858	96.9	1,267	562	52,606	88.1	4,172	2,909	55,800	93.5	47,934	6,374	90
1925-1929.....	16,671	14,845	89.0	1,676	150	14,428	86.5	1,362	881	14,689	88.1	13,692	1,299	.....
1930-1934.....	311	261	83.9	30	20	281	90.4	20	10	280	90.0	279	.....	.....
1935-1939.....	14,515	14,111	97.2	197	207	14,247	98.2	258	10	14,326	98.7	11,290	213	.....

¹Land included in more than 1 enterprise is tabulated only in the last organized.

STATE TABLE 12.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	405,709	405,492	215,242	190,250	68,904	0.17	0.32
Gravity drainage only.....	371,189	370,982	181,889	189,093	43,966	0.12	0.24
Open ditches only.....	282,095	282,095	106,202	175,893	18,223	0.06	0.17
Open ditches and levees.....	14,310	14,310	12,550	1,760	7,231	0.50	0.58
Tile drains only.....	14,868	14,651	12,134	2,517	2,321	0.16	0.19
Open ditches and tile drains.....	50,475	50,475	41,552	8,923	11,991	0.24	0.29
Open ditches, tile drains, and levees.....	9,451	9,451	.....	.....	4,200	0.44	0.44
Pumping for all or part of drainage.....	34,510	34,510	33,353	1,157	24,938	0.72	0.75
All drainage by pumping.....	18,920	18,920	17,763	1,157	14,991	0.79	0.84
Part pumping and part gravity.....	15,590	15,590	15,590	9,947	0.64	0.64

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STATE TABLE 13.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	405,709	100.0	5,332,842	100.0
Method:				
By district forces.....	336,428	82.9	4,452,359	83.5
By contract.....	10,279	2.5	105,208	2.0
Work apportioned to landowners.....	46,421	11.5	617,337	11.6
"None," or not reporting.....	12,581	3.1	157,938	2.9
Whether systematic:				
Reporting "yes".....	238,774	58.9	4,172,178	78.2
Reporting "no".....	166,935	41.1	1,160,664	21.8

STATE TABLE 14.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	405,709	9,244	2.3
Capital invested.....dollars..	5,332,842	163,684	3.1
Drainage works:			
Open ditches.....miles....	885.0	26.1	2.9
Tile drains.....miles....	179.0	2.6	1.4
Levees.....miles....	72.4	11.1	15.3

STATE TABLE 15.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	Acres 119,678	Dollars 1,971,101	Miles 312.2	Miles 57.7	Miles 67.4
Work Projects Administration.....	113,541	1,662,148	277.0	57.7	29.7
Corps of Engineers, U. S. A.....	3,337	283,953	29.7	.....	44.7
Other.....	2,800	25,000	5.5	.....	.....

STATE TABLE 16.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	405,709	138,327	9.4
Capital invested.....dollars..	5,332,842	737,099	13.8
Drainage works:			
Open ditches.....miles....	885.0	159.0	18.0
Tile drains.....miles....	179.0	18.2	10.2
Levees.....miles....	72.4	10.6	14.6

¹The land actually dependent upon outside agencies for protection is 29,240 acres, which is 76.3 percent of all land in these protected enterprises.

CENSUS OF DRAINAGE - WASHINGTON

COUNTY TABLE I.-LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)		THE STATE	Benton	Clark	Grant ¹	Grays Harbor	Island	Jefferson ¹	King
LAND AREA									
1	Approximate land area.....acres.....1940..	42,865,280	1,112,320	405,120	1,777,280	1,219,200	131,840	1,159,680	1,367,040
2	Drainage enterprises.....number.....1940..	² 169	¹²	⁷	¹	³	⁴	¹	¹¹
3	Land in enterprises.....acres.....1940..	405,709	22,849	11,662	1,280	3,123	3,342 ¹	2,330	35,249
4	.....1930..	367,242	17,832	10,559	(³)	(³)	(³)	(³)	34,494
5	.....1920..	94,924	10,340						
6	Area of all enterprises, overlapping included.....acres.....1940..	433,340	23,256	11,662	1,280	3,123	3,342	2,330	35,543
7	Amount of overlapping.....acres.....1940..	27,631	407						294
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres.....1940..	368,293	15,141	10,757	1,280	3,123	3,292	2,180	34,055
9	.....1930..	329,166	17,736	10,359	(³)	(³)	(³)	(³)	32,201
10	Increase or decrease (-), 1930-1940.....acres.....	39,127	-2,595	398					1,854
11	.....percent.....	11.9	-14.6	3.8					5.8
12	Land undrained, unfit for any crop.....acres.....1940..	5,903	2,643	158			20	150	725
13	.....1930..	9,879	156	200			(³)		395
14	Increase or decrease (-), 1930-1940.....acres.....	-3,976	2,487	-42					330
15	.....percent.....	-40.2	(⁴)	-21.0					83.5
16	Land partly drained, for partial crop.....acres.....1940..	31,513	5,065	747			30		469
17	.....1930..	28,197					(³)		1,898
18	Increase or decrease (-), 1930-1940.....acres.....	3,316	5,065	747					-1,429
19	.....percent.....	11.8							-75.3
20	Improved land.....acres.....1940..	349,576	16,825	9,440	1,280	2,170	2,292	2,180	33,627
21	.....1930..	332,265	17,736	8,129	(³)	(³)	(³)	(³)	31,133
22	.....1920..	81,886	9,715						
Unimproved land:									
23	Woodland and cut-over land.....acres.....1940..	39,715	5	2,026			1,040	150	282
24	.....1930..	18,531		2,430			(³)	(³)	1,118
25	.....1920..	850							
26	Other unimproved land.....acres.....1940..	16,418	6,019	196		953	10		1,340
27	.....1930..	16,446	156			(³)	(³)		2,243
28	.....1920..	12,188	625						
29	Land in occupied farms.....acres.....1940..	380,964	19,411	11,465	1,200	2,610	2,272	2,180	34,207
30	.....1930..	351,898	17,777	10,559	(³)	(³)	(³)	(³)	32,396
31	Increase or decrease (-), 1930-1940.....acres.....	29,066	1,634	906					1,811
32	.....percent.....	8.2	8.2	8.6					5.6
33	Land in planted crops.....acres.....1940..	332,672	16,327	8,869	1,160	1,930	2,160	2,070	33,192
34	.....1930..	309,818	17,014	7,774	(³)	(³)	(³)	(³)	30,215
35	Increase or decrease (-), 1930-1940.....acres.....	22,854	-687	1,095					2,977
36	.....percent.....	7.4	-4.0	14.1					9.8
37	Land idle.....acres.....1940..	13,197	300	2,497		1,080			1,771
38	.....1930..	33,764	177	920		(³)	(³)	(³)	2,647
39	Increase or decrease (-), 1930-1940.....acres.....	-20,567	123	1,577					-876
40	.....percent.....	-60.9	69.5	171.4					-33.1
41	Land available for settlement.....acres.....1940..	1,790				90			
42	.....1930..	4,653				(³)			1,759
43	Increase or decrease (-), 1930-1940.....acres.....	-2,863							-1,759
44	.....percent.....	-61.5							-100.0
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	282,095	18,836	10,542	1,280	2,483	3,132	2,330	32,645
46	Length of these ditches.....miles.....	501.4	21.9	20.0	10.0	6.5	10.0	16.0	42.5
47	Part protected by levees of an outside agency.....acres.....	1,600							
48	Land drained by open ditches and own levees.....acres.....	14,310		1,120		640			
49	Length of these ditches.....miles.....	70.9		2.0		19.8			
50	Length of these levees.....miles.....	20.5		0.2		2.9			
51	Part protected by levees of an outside agency.....acres.....	7,543							
52	Land drained by tile only.....acres.....	14,868	1,327						
53	Length of these tile.....miles.....	61.1	2.9						
54	Part protected by levees of an outside agency.....acres.....								
55	Land drained by tile and own levees.....acres.....								
56	Length of these tile.....miles.....								
57	Length of these levees.....miles.....								
58	Part protected by levees of an outside agency.....acres.....								
59	Land drained by open ditches and tile.....acres.....	50,475	2,530						1,601
60	Length of these open ditches.....miles.....	126.6	12.8						8.3
61	Length of these tile.....miles.....	94.5	1.9						0.8
62	Part protected by levees of an outside agency.....acres.....	1,800							
63	Land drained by open ditches, tile, and levees.....acres.....	9,451							
64	Length of these open ditches.....miles.....	46.0							
65	Length of these tile.....miles.....	10.0							
66	Length of these levees.....miles.....	1.0							
67	Part protected by levees of an outside agency.....acres.....	1,560							
68	Land in enterprises operating pumping plants ⁵.....acres.....	34,510	156				210		1,003
69	Length of open ditches owned by these enterprises.....miles.....	140.1					2.0		4.6
70	Length of tile owned by these enterprises.....miles.....	13.4	0.5				0.2		
71	Length of levees owned by these enterprises.....miles.....	50.9							
72	Part protected by levees of an outside agency.....acres.....	16,737					210		

¹ For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
² An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 165.
³ Included in "Other counties."
⁴ Percent not shown when more than 1,000.
⁵ Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — WASHINGTON

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Lewis	Pierce	Skagit	Snohomish	Stevens ¹	Thurston	Whatcom	Yakima	Other counties ²	
LAND AREA										
1	Approximate land area.....acres.....1940..	1,566,080	1,075,200	1,110,400	1,344,000	1,613,440	460,160	1,376,640	2,734,720	3,226,240
2	Drainage enterprises.....number.....1940..	3	9	12	8	1	8	23	59	7
3	Land in enterprises.....acres.....1940..	4,692	25,081	39,705	13,032	4,000	3,874	22,496	196,310	16,684
4	.....1930..	4,075	4,282	38,191	37,501	(³)	5,925	25,228	155,695	33,400
5	.....1920..	.....	.....	.....	.....	15,000	.....	.....	55,919	13,665
6	Area of all enterprises, overlapping included.....acres.....1940..	4,692	25,081	39,705	13,822	4,000	3,874	23,541	221,405	16,684
7	Amount of overlapping.....acres.....1940..	.....	.....	.....	790	.....	.....	1,045	25,095	.....
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	4,692	24,493	39,500	11,985	4,000	3,874	22,428	172,609	14,884
9	.....1930..	4,075	4,006	37,875	34,261	(³)	5,925	19,345	131,383	32,000
10	Increase or decrease (-), 1930-1940.....acres.....	617	20,487	1,625	-22,276	.....	-2,051	3,083	41,226	-17,116
11	.....percent.....	15.1	511.4	4.3	-65.0	.....	-34.6	15.9	31.4	-53.5
12	Land undrained, unfit for any crop.....acres.....1940..	.....	404	40	150	.....	.....	.....	788	825
13	.....1930..	.....	65	6	2,225	.....	.....	.....	6,763	69
14	Increase or decrease (-), 1930-1940.....acres.....	.....	339	34	-2,075	.....	.....	.....	-5,975	756
15	.....percent.....	.....	521.5	566.7	-93.2	.....	.....	.....	-88.3	(⁴)
16	Land partly drained, for partial crop.....acres.....1940..	.....	184	165	897	.....	.....	68	22,913	975
17	.....1930..	.....	211	310	1,015	(³)	.....	5,883	17,549	1,331
18	Increase or decrease (-), 1930-1940.....acres.....	.....	-27	-145	-118	.....	.....	-5,815	5,364	-356
19	.....percent.....	.....	-12.8	-46.8	-11.6	.....	.....	-98.8	30.6	-26.7
20	Improved land.....acres.....1940..	3,486	24,107	38,874	11,226	4,000	3,640	18,156	165,233	13,040
21	.....1930..	2,975	3,863	37,241	31,470	(³)	5,597	17,016	145,895	31,210
22	.....1920..	.....	.....	.....	.....	13,750	.....	.....	47,593	10,828
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	650	500	641	1,656	.....	117	4,141	26,010	2,497
24	.....1930..	580	9	850	3,370	.....	177	8,010	756	1,231
25	.....1920..	.....	.....	.....	.....	250	.....	.....	.....	600
26	Other unimproved land.....acres.....1940..	556	474	190	150	.....	117	199	5,067	1,147
27	.....1930..	520	410	100	2,661	.....	151	202	9,044	959
28	.....1920..	.....	.....	.....	.....	1,000	.....	.....	8,326	2,237
29	Land in occupied farms.....acres.....1940..	4,692	24,781	38,700	9,955	3,900	3,770	18,577	190,294	12,950
30	.....1930..	4,075	4,232	37,025	35,766	(³)	5,748	25,228	147,642	31,450
31	Increase or decrease (-), 1930-1940.....acres.....	617	20,549	1,675	-25,811	.....	-1,978	-6,651	42,652	-18,500
32	.....percent.....	15.1	485.6	4.5	-72.2	.....	-34.4	-26.4	28.9	-58.8
33	Land in planted crops.....acres.....1940..	2,060	21,244	36,700	8,385	3,700	3,580	16,391	163,049	11,855
34	.....1930..	1,540	3,721	31,672	28,040	(³)	3,233	16,659	143,308	26,642
35	Increase or decrease (-), 1930-1940.....acres.....	520	17,523	5,028	-19,655	.....	347	-268	19,741	-14,787
36	.....percent.....	33.8	470.9	15.9	-70.1	.....	10.7	-1.6	13.8	-55.5
37	Land idle.....acres.....1940..	2,632	540	476	400	.....	234	1,133	1,040	1,094
38	.....1930..	2,535	261	820	5,373	.....	968	8,212	8,930	2,921
39	Increase or decrease (-), 1930-1940.....acres.....	97	279	-344	-4,973	.....	-734	-7,079	-7,890	-1,827
40	.....percent.....	3.8	106.9	-42.0	-92.6	.....	-75.8	-86.2	-88.4	-62.5
41	Land available for settlement.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....	1,700
42	.....1930..	.....	.....	.....	682	.....	.....	.....	302	1,910
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	-682	.....	.....	.....	-302	-210
44	.....percent.....	.....	.....	.....	-100.0	.....	.....	.....	-100.0	-11.0
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	4,692	17,843	1,600	1,260	4,000	3,810	15,117	150,386	12,139
46	Length of these ditches.....miles.....	16.7	20.0	8.0	4.5	10.0	13.5	53.3	221.3	27.2
47	Part protected by levees of an outside agency.....acres.....	.....	.....	1,600	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	2,500	7,043	3,007	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	2.1	31.0	16.0	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	2.1	3.8	11.5	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	7,043	500	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	.....	280	.....	.....	.....	.....	.....	13,261	.....
53	Length of these tile.....miles.....	.....	1.2	.....	.....	.....	.....	.....	57.0	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	4,458	3,644	.....	.....	.....	.....	.....	.....
60	Length of these open ditches.....miles.....	.....	11.8	15.7	.....	.....	0.8	21.7	55.5	.....
61	Length of these tile.....miles.....	.....	1.7	1.6	.....	.....	0.1	3.6	84.8	.....
62	Part protected by levees of an outside agency.....acres.....	.....	.....	1,800	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	9,451	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	46.0	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	10.0	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	1.0	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	1,560	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants ⁵.....acres.....	.....	.....	17,967	8,765	.....	.....	.....	1,864	4,545
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	64.0	27.0	.....	.....	.....	.....	42.5
70	Length of tile owned by these enterprises.....miles.....	.....	.....	7.5	0.2	.....	.....	.....	5.0	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	6.0	.....	.....	.....	.....	.....	44.9
72	Part protected by levees of an outside agency.....acres.....	.....	.....	16,527	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Includes Klickitat, Pacific, San Juan, Spokane, and Wahkiakum Counties in 1940; Cowlitz, Grant, Grays Harbor, Island, Jefferson, Klickitat, Pacific, San Juan, Spokane, and Stevens Counties in 1930; and Adams, Klickitat, Pacific, and Spokane Counties in 1920.

³Included in "Other counties."

⁴Percent not shown when more than 1,000.

⁵Data in lines 68 to 72 are not included in lines 45 to 67.

CENSUS OF DRAINAGE — WASHINGTON

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)		THE STATE	Benton	Clark	Grant ¹	Grays Harbor	Island	Jefferson ¹	King
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	2 169	12	7	1	3	4	1	11
2	Open ditches:								
3	Completed.....miles.....1940..	865.0	34.7	22.0	10.0	26.3	12.0	16.0	55.4
4	1930..	746.7	13.7	21.3	(³)	(³)	(³)	(³)	58.3
5	1920..	162.4	7.9						
6	Additional length authorized.....miles.....1940..	8.6					0.5		
7	Tile drains:								
8	Completed.....miles.....1940..	179.0	5.3				0.2		0.8
9	1930..	199.2	7.0						1.7
10	1920..	83.0							
11	Additional length authorized.....miles.....1940..								
12	Levees and dikes:								
13	Completed.....miles.....1940..	72.4		0.2		2.9			
14	1930..	78.8							42.0
15	1920..								
16	Additional length authorized.....miles.....1940..								
17	Pumping plants:								
18	Engine capacity.....horsepower.....1940..	1,305	(⁴)				5		45
19	1930..	982	15						97
20	1920..								
21	Pump capacity.....gal. per min.....1940..	240,750	(⁴)				1,500		6,750
22	1930..	184,500	1,000						25,000
23	1920..								
24	Land served by pumps.....acres.....1940..	26,745	156				210		575
25	1930..	19,857	198						1,036
26	1920..								
27	Wells pumped for drainage.....number.....1940..	3							
28	1930..								
CAPITAL INVESTED									
29	Capital invested to January 1.....dollars.....1940..	5,332,842	167,970	63,493	20,000	166,311	53,500	85,000	305,076
30	1930..	4,637,576	236,814	42,703	(³)	(³)	(³)	(³)	287,398
31	1920..	1,397,419	50,200						
32	Estimated cost when completed.....dollars.....1940..	5,367,442	167,970	63,493	20,000	166,311	53,600	85,000	305,576
33	1930..	4,655,076	236,814	49,703	(³)	(³)	(³)	(³)	287,398
34	1920..	1,436,419	79,200						
35	Average cost per acre when completed.....dollars.....1940..	13.23	7.35	5.44	15.62	53.25	16.04	36.48	8.67
36	1930..	12.68	13.24	4.71	(³)	(³)	(³)	(³)	8.33
37	1920..	15.13	7.66						
38	Invested in and required for completion, 1940:								
39	Enterprises having open ditches only.....dollars..	2,272,258	83,348	58,703	20,000	41,361	52,000	85,000	209,804
40	Average amount per acre.....dollars..	8.05	4.42	5.57	15.62	16.66	16.60	36.48	6.43
41	Enterprises having open ditches and levees.....dollars..	313,959		4,790		124,950			
42	Average amount per acre.....dollars..	21.94				195.23			
43	Enterprises having tile only.....dollars..	433,676	31,009						
44	Average amount per acre.....dollars..	29.17							
45	Enterprises having tile and levees.....dollars..								
46	Average amount per acre.....dollars..								
47	Enterprises having open ditches and tile.....dollars..	1,127,759	50,729						31,500
48	Average amount per acre.....dollars..	22.34	20.05						19.68
49	Enterprises having ditches, tile, and levees.....dollars..	100,000							
50	Average amount per acre.....dollars..	10.58							
51	Enterprises operating pumping plants.....dollars..	1,119,790	2,884				1,600		64,272
52	Average amount per acre.....dollars..	32.45	18.49				7.62		64.08
MAINTENANCE AND OPERATION									
Cost of maintenance and operation in 1939:									
53	By enterprises operating pumping plants.....dollars..	24,938	(⁶)				(⁶)		(⁶)
54	Enterprises reporting.....number...	14	1				1		2
55	Land in these enterprises.....acres....	33,353	(⁶)				(⁶)		(⁶)
56	Average cost per acre.....dollars..	0.75	(⁶)				(⁶)		(⁶)
57	By enterprises not operating pumping plants.....dollars..	43,966	1,355	627	100	(⁶)	(⁶)	6	6,439
58	Enterprises reporting.....number...	103	10	4	1		2	1	4
59	Land in these enterprises.....acres....	181,889	18,063	5,998	1,280	(⁶)	(⁶)	2,330	27,749
60	Average cost per acre.....dollars..	0.24	0.08	0.10	0.08	(⁶)	(⁶)	(⁷)	0.23
61	Federal aid in maintenance:								
62	Enterprises reporting.....number...	45	5	4		2			3
63	Land in these enterprises.....acres....	119,678	5,442	8,143		(⁶)			26,430
FINANCIAL CONDITION									
64	Drainage taxes collected in 1939.....dollars..	119,361	2,095	592		(³)	3,094	2,380	9,799
65	Enterprises reporting.....number...	91	9	4		1	4	1	8
66	Land in these enterprises.....acres....	186,170	12,938	5,998		(³)	3,342	2,330	33,218
67	Average amount collected per acre.....dollars..	0.64	0.16	0.10		(³)	0.92	1.02	0.29
68	Area delinquent in drainage taxes, Dec. 31, 1939.....acres....	16,763	2,333			(⁶)	(⁶)	1,066	(⁶)
69	Enterprises reporting.....number...	40	4			2	2	1	2
70	Land in these enterprises.....acres....	67,138	5,026			(⁶)	(⁶)	2,330	(⁶)
71	Portion delinquent in these enterprises.....percent.	25.0	46.4			(⁶)	(⁶)	45.8	(⁶)
72	Total indebtedness, Dec. 31, 1939.....dollars..	490,034	22,101	(⁶)		(⁶)	3,100	7,600	43,726
73	Enterprises reporting.....number...	54	5	1		1	3	1	3
74	Land in these enterprises.....acres....	88,519	3,596	(⁶)		(⁶)	2,982	2,330	1,089
75	Average indebtedness per acre.....dollars..	5.54	6.14	(⁶)		(⁶)	1.04	3.26	40.15
76	Indebtedness in arrears, Dec. 31, 1939.....dollars..	30,852	(⁶)			(⁶)	(⁶)		(⁶)
77	Enterprises reporting.....number...	14	2			1	1		1
78	Land in these enterprises.....acres....	32,214	(⁶)			(⁶)	(⁶)		(⁶)
79	Average arrearage per acre.....dollars..	0.96	(⁶)			(⁶)	(⁶)		(⁶)
80	Reduction of debt by refinancing, prior to 1940.....dollars..	261,263	25,580			(⁶)		66,693	
81	Enterprises reporting.....number...	21	4			1		1	
82	Land in these enterprises.....acres....	28,927	4,365			(⁶)		2,330	
83	Average reduction per acre.....dollars..	9.03	5.86			(⁶)		28.62	

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 165. ³Included in "Other counties." ⁴Pumps in Yakima County serve land in Benton County. ⁵Data in lines 46 and 47 are not included in lines 34 to 45. ⁶Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1. ⁷Less than one-half of 1 cent per acre.

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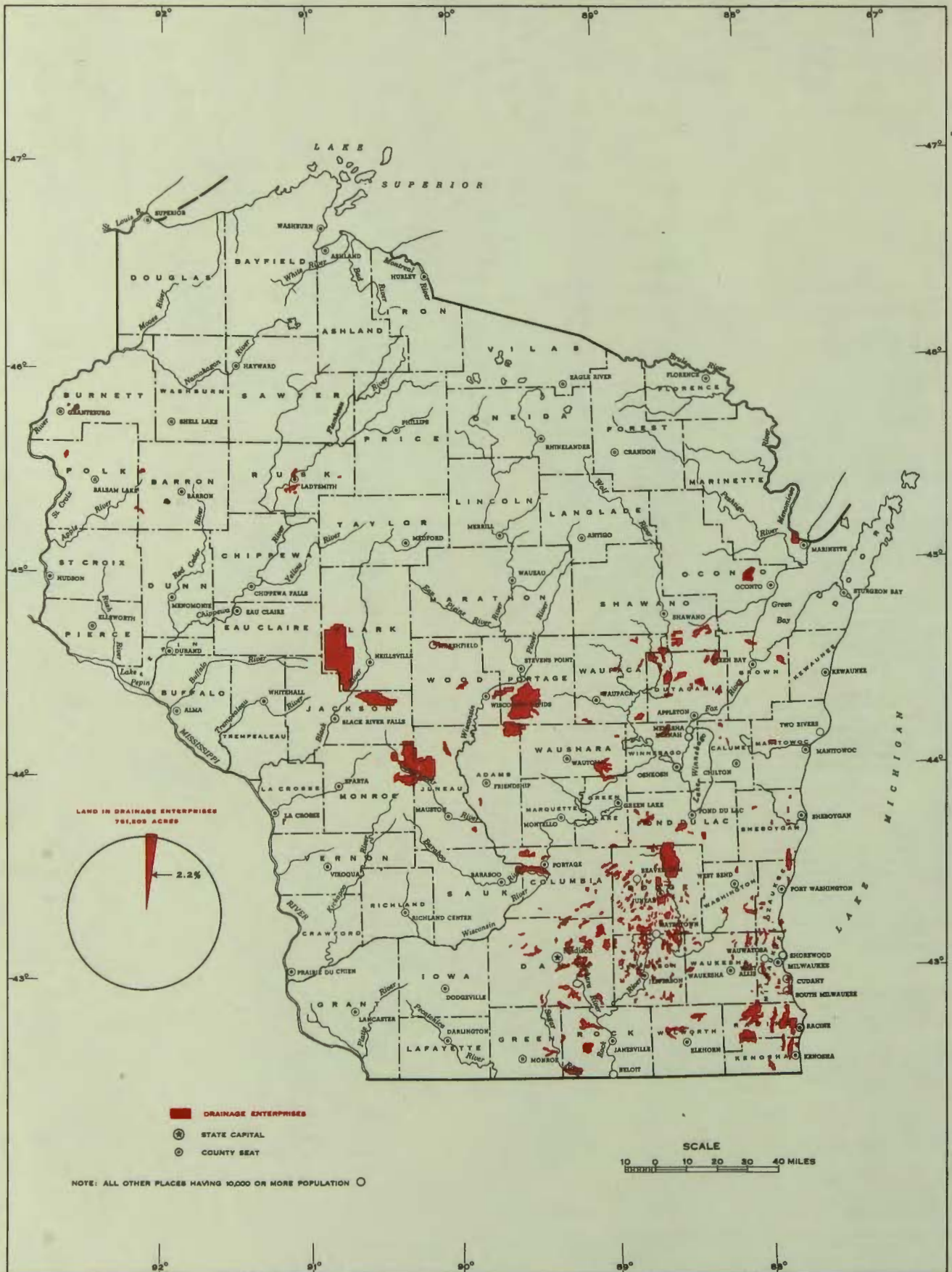
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Lewis	Pierce	Skagit	Snohomish	Stevens ¹	Thurston	Whatcom	Yakima	Other counties ²
DRAINAGE WORKS									
1 Drainage enterprises.....number.....1940..	3	9	12	8	1	8	23	59	7
Open ditches:									
2 Completed.....miles.....1940..	16.7	33.9	164.7	47.5	10.0	14.3	75.0	276.8	69.7
3	13.3	16.0	103.0	48.8	(3)	27.3	76.5	223.3	145.2
4					26.0			86.5	42.0
5 Additional length authorized.....miles.....1940..		2.6		0.5				5.0	
Tile drains:									
6 Completed.....miles.....1940..		2.9	19.1	0.2		0.1	3.6	146.8	
7		4.1	37.1	3.2		2.6		143.5	
8								82.0	1.0
9 Additional length authorized.....miles.....1940..									
Levees and dikes:									
10 Completed.....miles.....1940..		2.1	10.8	11.5					44.9
11			14.8	21.0	(3)				1.0
12									
13 Additional length authorized.....miles.....1940..									
Pumping plants:									
14 Engine capacity.....horsepower.....1940..			435	275				15	530
15			395	400					75
16									
17 Pump capacity.....gal. per min.....1940..			87,000	69,500				1,500	94,500
18			92,000	55,000					11,500
19									
20 Land served by pumps.....acres.....1940..			13,645	5,750				1,864	4,545
21			13,167	5,187					269
22									
23 Wells pumped for drainage.....number.....1940..				3					
24									
CAPITAL INVESTED									
25 Capital invested to January 1.....dollars.....1940..	88,581	169,933	765,976	188,524	50,000	71,584	164,862	2,484,779	487,253
26	72,892	149,491	386,932	268,581	(3)	158,176	217,810	2,198,268	618,411
27					118,500			1,013,675	215,044
28 Estimated cost when completed.....dollars.....1940..	88,581	175,933	765,976	206,524	50,000	71,584	164,862	2,494,779	487,253
29	72,892	149,491	387,432	268,581	(3)	158,176	217,810	2,208,268	618,411
30					118,500			1,013,675	225,044
31 Average cost per acre when completed.....dollars.....1940..	18.88	7.01	19.29	15.85	12.50	18.48	7.33	12.71	29.20
32	17.89	34.91	10.14	7.16	(3)	26.70	8.63	14.18	18.52
33					7.90			18.13	16.47
Invested in and required for completion, 1940:									
34 Enterprises having open ditches only.....dollars..	88,581	70,545	8,043	14,000	50,000	69,662	128,470	1,119,441	173,300
35 Average amount per acre.....dollars..	18.88	3.95	5.03	11.11	12.50	18.28	8.50	7.44	14.28
36 Enterprises having open ditches and levees.....dollars..	1,460	124,577	58,182						
37 Average amount per acre.....dollars..	0.58	17.69	19.35						
38 Enterprises having tile only.....dollars..	18,772							353,895	
39 Average amount per acre.....dollars..	67.04							28.95	
40 Enterprises having tile and levees.....dollars..									
41 Average amount per acre.....dollars..									
42 Enterprises having open ditches and tile.....dollars..	85,156	71,936				1,922	36,392	850,124	
43 Average amount per acre.....dollars..	19.10	19.74				30.03	4.93	27.60	
44 Enterprises having ditches, tile, and levees.....dollars..			100,000						
45 Average amount per acre.....dollars..			10.58						
46 Enterprises operating pumping plants.....dollars..			461,420	134,342				141,319	313,953
47 Average amount per acre.....dollars..			25.68	15.33				75.81	69.08
MAINTENANCE AND OPERATION									
Cost of maintenance and operation in 1939:									
48 By enterprises operating pumping plants.....dollars..			10,940	2,560				(6)	(6)
49 Enterprises reporting.....number..			4	3				1	2
50 Land in these enterprises.....acres..			17,547	8,765				(6)	(6)
51 Average cost per acre.....dollars..			0.62	0.29				(6)	(6)
52 By enterprises not operating pumping plants.....dollars..	(6)	2,778	9,088	3,879		381	4,195	13,391	(6)
53 Enterprises reporting.....number..	1	5	7	5		5	12	43	2
54 Land in these enterprises.....acres..	(6)	21,454	21,738	4,267		2,605	14,223	50,493	(6)
55 Average cost per acre.....dollars..	(6)	0.13	0.42	0.91		0.15	0.29	0.26	(6)
Federal aid in maintenance:									
56 Enterprises reporting.....number..		2	6	6		1		12	4
57 Land in these enterprises.....acres..		(6)	27,737	10,982		(6)		18,170	7,345
FINANCIAL CONDITION									
58 Drainage taxes collected in 1939.....dollars..	(3)	8,159	34,873	15,869		630	4,405	31,242	6,223
59 Enterprises reporting.....number..	1	7	10	7		3	9	24	3
60 Land in these enterprises.....acres..	(3)	24,127	38,984	11,772		2,103	10,866	30,148	10,324
61 Average amount collected per acre.....dollars..	(3)	0.34	0.89	1.35		0.30	0.40	1.04	0.60
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..		(6)	4,952	580				5,530	(6)
63 Enterprises reporting.....number..		1	3	3				21	1
64 Land in these enterprises.....acres..		(6)	18,882	2,434				28,166	(6)
65 Portion delinquent in these enterprises.....percent..		(6)	26.2	23.8				19.6	(6)
66 Total indebtedness, Dec. 31, 1939.....dollars..	(6)	(6)	120,389	27,621		6,147		194,502	(6)
67 Enterprises reporting.....number..	2	1	3	6		3		23	2
68 Land in these enterprises.....acres..	(6)	(6)	17,650	11,325		1,256		29,028	(6)
69 Average indebtedness per acre.....dollars..	(6)	(6)	6.82	2.44		4.89		6.70	(6)
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(6)		(6)			(6)		2,429	(6)
71 Enterprises reporting.....number..	2		1			1		4	1
72 Land in these enterprises.....acres..	(6)		(6)			(6)		7,979	(6)
73 Average arrearage per acre.....dollars..	(6)		(6)			(6)		0.30	(6)
74 Reduction of debt by refinancing, prior to 1940.....dollars..		(6)	(6)					146,510	
75 Enterprises reporting.....number..		1	2					12	
76 Land in these enterprises.....acres..		(6)	(6)					16,009	
77 Average reduction per acre.....dollars..		(6)	(6)					9.15	

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²Includes Klickitat, Pacific, San Juan, Spokane, and Wahkiakum Counties in 1940; Cowlitz, Grant, Grays Harbor, Island, Jefferson, Klickitat, Pacific, San Juan, Spokane, and Stevens Counties in 1930; and Adams, Klickitat, Pacific, and Spokane Counties in 1920. ³Included in "Other counties." ⁴Pumps in Yakima County serve land in Benton County. ⁵Data in lines 46 and 47 are not included in lines 34 to 45. ⁶Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

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LOCATION OF LAND IN DRAINAGE ENTERPRISES



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STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	35,017,600	35,363,840	35,363,840				
Land in drainage enterprises.....acres.....	761,203	892,713	794,569	-131,510	-14.7	98,144	12.4
Improved.....acres.....	460,122	531,969	254,504	-71,847	-13.5	277,465	109.0
Unimproved:							
Timber and cut-over.....acres.....	220,537	114,273	177,744	106,264	93.0	-63,471	-35.7
Other.....acres.....	80,544	246,471	362,321	-165,927	-67.3	-115,650	-32.0
Drainage sufficient for normal crop.....acres.....	595,291	548,545	(1)	46,746	8.5		
Partly drained, for partial crop.....acres.....	61,507	187,075	(1)	-125,568	-67.1		
Unfit to raise any crop for lack of drainage.....acres.....	104,405	157,093	2 130,111	-52,688	-33.5	26,982	20.7
In occupied farms.....acres.....	561,723	574,892	(1)	-13,169	-2.3		
In planted crops.....acres.....	384,336	350,522	(1)	33,814	9.6		
Idle.....acres.....	333,214	378,406	(1)	-45,192	-11.9		
Available for settlement.....acres.....	2,800	187,791	(1)	-184,991	-98.5		
Open ditches, completed.....miles.....	1,580.7	1,989.4	1,691.3	-408.7	-20.5	298.1	17.6
Tile drains, completed.....miles.....	282.5	303.4	211.3	-20.9	-6.9	92.1	43.6
Drainage pumping plants, capacity.....horsepower.....	(3)	40	150	(3)	(3)	-110	-73.3
gal. per min.....	(3)	5,000		(3)	(3)	5,000	
Capital invested in enterprises.....dollars.....	4,254,586	6,207,278	4,163,055	-1,952,692	-31.4	2,044,223	49.1
Average per acre.....dollars.....	5.59	6.95	5.24	-1.36	-19.6	1.71	32.6

¹Not available. ²Reported as "Swampy, subject to overflow, seeped, or alkali." ³Where there are less than 3 enterprises reporting, data are not shown.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

[For intercounty enterprises the portion in each county is tabulated as a separate enterprise]

SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940	SIZE	AREA OF ENTERPRISES ¹			Land in enterprises ² 1940
	1940	1930	1920			1940	1940	1930		1920
All enterprises.....	772,993	895,698	794,569	761,203	1,000 to 1,999 acres.....	95,697	225,528	168,051	93,857
Less than 100 acres.....	1,517	1,231	5,800	1,387	2,000 to 4,999 acres.....	151,449	124,722	75,427	148,849
100 to 199 acres.....	6,126	4,116	5,916	5,916	5,000 to 9,999 acres.....	84,102	306,177	228,426	83,422
200 to 499 acres.....	46,404	27,591	44,294	44,294	10,000 to 19,999 acres.....	60,630	114,445	60,630	114,445
500 to 999 acres.....	73,423	53,853	27,975	69,203	20,000 to 49,999 acres.....	114,445	152,480	262,880	139,200
					50,000 to 99,999 acres.....	139,200			

¹The sum of the areas in the individual enterprises, without deduction for overlapping.
²Overlapping eliminated by tabulating each enterprise according to its acreage not included in later enterprises.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	761,203	100.0	4,254,586	100.0
Drainage districts.....	467,904	61.4	2,641,974	62.1
County drains.....	106,356	14.0	1,088,770	25.6
Township drains.....	147,343	19.4	399,742	9.4
Individually owned projects.....	3,600	0.5	21,500	0.5
Other, or not reported.....	36,000	4.7	102,600	2.4

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	761,203	100.0	892,713	100.0	794,569	100.0	4,254,586	100.0	6,207,278	100.0	4,163,055	100.0
Gravity drainage only by—												
Open ditches.....	553,135	72.7	578,982	64.9	787,972	99.2	2,514,090	59.1	3,377,161	54.4	(2)	
Tile drains.....	19,155	2.5	17,608	2.0			284,327	6.7	295,999	4.7		
Open ditches and tile drains..	³ 188,913	24.8	294,123	32.9			³ 1,456,169	34.2	2,530,618	40.8		
Part only by pumping.....	(3)	(3)	2,000	0.2	6,597	0.8	(3)	(3)	3,500	0.1	(2)	(2)
Total area served by pumps.....	(3)	(3)	50	.....	6,597	0.8						

¹Each item includes those enterprises that have provided levees in addition to the kind of drains specified.
²Break-down in cost not available.
³Data for the only pumping enterprise in the State are included with those for gravity enterprises.

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT ¹	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	761,203	100.0	892,713	100.0	4,254,586	100.0	6,207,278	100.0	128,428	225,893
Enterprises in arrears.....	162,093	21.3	327,416	36.7	708,947	16.7	2,143,452	34.5	125,953	217,395
With some delinquent land.....	151,660	19.9	284,997	31.9	583,605	13.7	1,362,546	22.0	125,953	217,395
With no delinquent land.....	4,633	0.6	12,969	1.5	86,784	1.6	145,555	2.3	.....	.....
With no report on delinquency.....	5,800	0.8	29,450	3.3	58,558	1.4	635,351	10.2	.....	.....
Enterprises not in arrears.....	599,110	78.7	565,297	63.3	3,545,639	83.3	4,063,826	65.5	2,475	8,498
With some delinquent land.....	36,770	4.8	54,411	6.1	290,211	6.8	593,216	9.6	2,475	8,498
With no delinquent land.....	535,490	70.4	481,925	54.0	2,936,266	69.1	3,289,994	53.0	.....	.....
With no report on delinquency.....	26,850	3.5	28,961	3.2	317,162	7.4	180,616	2.9	.....	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes ¹	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	761,203	4,254,586	392,143	327,556	102,275	128,428	20,960
Enterprises in debt.....	200,464	1,035,996	392,143	327,556	31,025	126,413	11,618
In arrears, amount of arrearage stated.....	161,013	701,436	328,556	327,556	31,025	125,873	3,750
Collecting drainage taxes in 1939.....	14,660	130,090	23,800	22,800	20,900	3,320	3,750
No collections reported.....	146,353	571,346	304,756	304,756	10,125	122,553	.....
In arrears, amount not stated.....	21,080	7,511	.....	.....	.....	80	.....
No collections reported.....	21,080	7,511	.....	.....	.....	80	.....
Not in arrears.....	38,371	327,049	63,587	.....	.....	460	7,868
Collecting drainage taxes in 1939.....	28,835	215,661	40,818	.....	.....	460	7,868
No collections reported.....	9,536	111,388	22,769	.....	.....	.....	.....
Enterprises not in debt.....	560,739	3,218,590	.....	.....	71,250	2,015	9,342
Collecting drainage taxes in 1939.....	47,574	295,153	.....	.....	.....	1,450	9,342
No collections reported.....	513,165	2,923,437	.....	.....	71,250	565	.....

¹If any land is delinquent in 2 or more overlapping enterprises, the acreage delinquent is too large by the amount of such duplication.

²Includes 1,080 acres for which amount of indebtedness was not reported.

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested		PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent		Acres	Percent	Dollars	Percent
All enterprises.....	761,203	100.0	4,254,586	100.0	Reclamation of swamp land not previously in farms.....	406,042	53.3	2,096,266	49.3
Improvement of land already in farms...	340,881	44.8	2,086,631	49.0	Protection against overflow.....	14,280	1.9	71,689	1.7

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land ¹		Area of enterprises		Capital invested	
	Acres	Percent	Total acres ²	Overlapped acres	Dollars	Percent
All enterprises.....	761,203	100.0	772,993	11,790	4,254,586	100.0
1870-1879.....	5,920	0.8	7,100	1,180	6,855	0.2
1880-1889.....	29,611	3.9	31,841	2,230	37,426	0.9
1890-1899.....	13,729	1.8	14,779	1,050	21,391	0.5
1900-1904.....	128,728	16.9	128,728	40	583,785	13.7
1905-1909.....	120,701	15.9	122,391	1,690	453,709	10.7
1910-1914.....	125,804	16.5	127,364	1,560	782,540	18.4
1915-1919.....	229,166	30.1	231,806	2,640	1,227,563	28.8
1920-1924.....	86,726	11.4	87,646	920	874,374	20.6
1925-1929.....	14,008	1.8	14,008	.....	217,371	5.1
1930-1934.....	510	0.1	510	.....	1,172	(³)
1935-1939.....	6,300	0.8	6,780	480	48,400	1.1

¹Land included in more than 1 enterprise is tabulated only in the last organized.

²The sum of the areas of the individual enterprises.

³Less than one-tenth of 1 percent.

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STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises ¹	DRAINAGE CONDITION				DEVELOPMENT				USE OF LAND				
		Drained		Partly drained	Undrained	Improved land		Timber and cut-over land	Other un-improved land	In occupied farms		In planted crops	Idle	Land available for settlement
		Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	761,203	595,291	78.2	61,507	104,405	140,122	60.4	220,537	80,544	561,723	73.8	384,336	333,214	2,800
1870-1879.....	5,920	3,725	62.9	1,015	1,180	4,035	68.2	45	1,840	5,920	100.0	3,768	2,145	.....
1880-1889.....	29,611	19,110	64.5	5,906	4,595	20,082	67.8	530	8,999	27,836	94.0	18,385	10,306	30
1890-1899.....	13,729	10,434	76.0	1,295	2,000	9,839	71.7	1,125	2,765	12,694	92.5	9,559	3,360	.....
1900-1904.....	128,728	92,518	71.9	5,420	30,790	75,898	59.0	48,050	4,790	107,598	83.6	67,223	58,785	240
1905-1909.....	120,701	86,866	72.0	15,185	18,650	70,326	58.3	14,593	35,782	92,131	76.3	53,928	45,380	680
1910-1914.....	125,804	102,552	81.5	2,036	21,216	86,521	68.8	31,782	7,501	104,359	83.0	79,570	40,486	550
1915-1919.....	229,186	187,752	81.9	28,618	12,796	102,511	44.7	116,618	10,037	107,926	47.1	82,890	143,311	1,300
1920-1924.....	86,726	74,191	85.5	1,722	10,813	73,737	85.0	6,297	6,692	84,425	97.3	55,335	23,641	.....
1925-1929.....	14,008	12,863	91.8	.....	1,145	13,142	93.8	796	70	12,475	89.0	11,113	2,785	.....
1930-1934.....	510	470	92.2	.....	40	470	92.2	.....	40	510	100.0	.....	.....	.....
1935-1939.....	6,300	4,810	76.3	310	1,180	3,571	56.7	701	2,028	5,849	92.8	2,565	3,015	.....

¹Land included in more than 1 enterprise, is tabulated only in the last organized.

STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
All enterprises.....	Acres 761,203	Acres 755,163	Acres 296,359	Acres 458,804	Dollars 19,440	Dollars 0.02	Dollars 0.06
Gravity drainage only.....	757,403	751,363	296,359	455,004	19,440	0.02	0.06
Open ditches only.....	548,195	542,155	189,576	352,579	7,996	0.01	0.04
Open ditches and levees.....	4,940	4,940	4,940	.....	300	0.06	0.06
Tile drains only.....	19,155	19,155	8,387	10,768	1,327	0.07	0.15
Open ditches and tile drains.....	185,113	185,113	93,456	91,657	9,817	0.05	0.10
Pumping for all or part of drainage.....	3,800	3,800	.....	3,800	.....	.....	.....
Part pumping and part gravity.....	3,800	3,800	.....	3,800	.....	.....	.....

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	761,203	100.0	4,254,586	100.0
Method:				
By district forces.....	294,298	38.7	2,100,631	49.4
By contract.....	43,432	5.7	558,076	13.1
Work apportioned to landowners.....	138,368	18.2	405,568	9.5
"None," or not reporting.....	285,105	37.4	1,190,311	28.0
Whether systematic:				
Reporting "yes".....	319,262	41.9	2,295,267	53.9
Reporting "no".....	438,851	57.7	1,939,978	45.6
Not reporting.....	3,090	0.4	19,341	0.5

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
All enterprises reporting Federal aid received.....	Acres 284,977	Dollars 1,747,025	Miles 434.1	Miles 74.5	Miles 3.5
Work Projects Administration.....	284,837	1,746,975	433.5	74.5	3.5
Other kind or combination.....	140	50	0.6

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STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FLOOD PROTECTION FROM LEVEES OF AN OUTSIDE AGENCY, 1940

ITEM	All enterprises	ENTERPRISES PROTECTED BY OUTSIDE AGENCY	
		Amount	Percent
Land in enterprises.....acres....	761,203	¹ 4,740	0.6
Capital invested.....dollars..	4,254,586	44,156	1.0
Drainage works:			
Open ditches.....miles....	1,580.7	13.5	0.8
Tile drains.....miles....	282.5	5.0	1.8
Levees.....miles....	8.0	.....	.....

¹All land in these enterprises, 4,740 acres, is dependent for protection on the levees of the outside agencies.

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Brown	Burnett ¹	Calumet	Columbia	Dane	Iodice	Fond du Lac	
LAND AREA									
1	Approximate land area.....acres....1940..	35,017,600	336,000	537,600	201,000	497,920	766,080	570,880	463,360
2	Drainage enterprises.....number...1940..	2,430	3	2	3	21	29	120	12
3	Land in enterprises.....acres....1940..	761,203	5,360	2,160	1,610	23,650	54,653	85,762	12,389
4	1930..	892,713	(³)	(³)	(³)	20,779	61,247	28,116	8,957
5	1920..	794,569	(³)	(³)	(³)	4,668	39,239	21,597	5,935
6	Area of all enterprises, overlapping included.....acres....1940..	772,993	5,360	2,160	1,610	24,250	56,093	86,682	12,389
7	Amount of overlapping.....acres....1940..	11,790	.....	.....	.....	600	1,440	920	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	595,291	5,360	1,960	1,540	20,981	39,941	43,514	11,049
9	1930..	548,545	(³)	(³)	(³)	15,772	46,313	15,954	5,755
10	Increase or decrease (-), 1930-1940.....acres.....	46,746	.....	.....	.....	5,209	-6,372	27,560	5,294
11	percent.....	8.5	.....	.....	.....	33.0	-13.8	172.7	92.0
12	Land undrained, unfit for any crop.....acres....1940..	104,405	.....	200	70	420	12,842	16,987	1,280
13	1930..	157,093	.....	(³)	(³)	2,027	2,360	9,615	1,852
14	Increase or decrease (-), 1930-1940.....acres.....	-52,688	.....	.....	.....	-1,607	10,482	7,372	-572
15	percent.....	-33.5	.....	.....	.....	-79.3	444.2	76.7	-30.9
16	Land partly drained, for partial crop.....acres....1940..	61,507	.....	.....	.....	2,249	1,870	25,261	60
17	1930..	187,075	(³)	(³)	(³)	2,980	12,574	2,547	1,350
18	Increase or decrease (-), 1930-1940.....acres.....	-125,568	.....	.....	.....	-731	-10,704	22,714	-1,290
19	percent.....	-67.1	.....	.....	.....	-24.5	-85.1	891.8	-95.6
20	Improved land.....acres....1940..	460,122	4,360	960	1,570	18,610	50,575	42,986	10,512
21	1930..	531,969	(³)	(³)	(³)	16,929	56,303	17,854	7,045
22	1920..	254,504	(³)	(³)	(³)	2,204	6,535	4,482	1,778
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	220,537	1,000	1,000	40	1,540	420	440	35
24	1930..	114,273	(³)	(³)	(³)	900	.....	200	415
25	1920..	177,744	(³)	(³)	(³)	.....	.....	108	389
26	Other unimproved land.....acres....1940..	80,544	.....	200	.....	3,500	3,658	42,336	1,842
27	1930..	246,471	(³)	(³)	(³)	2,950	4,944	10,062	1,497
28	1920..	362,321	(³)	(³)	(³)	2,464	32,704	17,007	3,768
29	Land in occupied farms.....acres....1940..	561,723	5,360	2,160	1,610	23,530	54,653	57,742	12,389
30	1930..	574,892	(³)	(³)	(³)	20,579	59,197	28,116	8,357
31	Increase or decrease (-), 1930-1940.....acres.....	-13,169	.....	.....	.....	2,951	-4,544	29,626	4,032
32	percent.....	-2.3	.....	.....	.....	14.3	-7.7	105.4	48.2
33	Land in planted crops.....acres....1940..	384,336	3,620	600	1,500	11,810	39,479	37,057	10,512
34	1930..	350,522	(³)	(³)	(³)	12,794	47,151	12,585	6,725
35	Increase or decrease (-), 1930-1940.....acres.....	33,814	.....	.....	.....	-984	-7,672	24,472	3,787
36	percent.....	9.6	.....	.....	.....	-7.7	-16.3	194.5	56.3
37	Land idle.....acres....1940..	333,214	1,740	900	40	1,800	14,446	33,763	1,877
38	1930..	378,406	(³)	(³)	(³)	4,560	4,092	10,782	2,002
39	Increase or decrease (-), 1930-1940.....acres.....	-45,192	.....	.....	.....	-2,760	10,354	22,981	-125
40	percent.....	-11.9	.....	.....	.....	-60.5	253.0	213.1	-6.2
41	Land available for settlement.....acres....1940..	2,800	.....	.....	.....	.....	.....	150	.....
42	1930..	187,791	.....	.....	.....	80	30	.....	.....
43	Increase or decrease (-), 1930-1940.....acres.....	-184,991	.....	.....	.....	-80	-30	150	.....
44	percent.....	-98.5	.....	.....	.....	-100.0	-100.0	.....	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	548,195	1,900	2,160	1,290	15,550	30,463	83,733	9,269
46	Length of these ditches.....miles.....	1,200.7	3.5	3.7	5.5	39.7	98.0	271.8	24.2
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	4,940	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	6.9	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	4.5	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	19,155	.....	.....	320	2,000	4,590	380	.....
53	Length of these tile.....miles.....	72.1	.....	.....	0.5	6.3	17.5	1.8	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	185,113	3,460	.....	.....	6,100	19,600	1,649	3,120
60	Length of these open ditches.....miles.....	353.1	6.8	.....	.....	17.9	52.5	0.4	4.0
61	Length of these tile.....miles.....	208.4	6.0	.....	.....	7.6	25.9	5.8	13.4
62	Part protected by levees of an outside agency.....acres.....	4,740	.....	.....	.....	4,740	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	(⁴)	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	(⁴)	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	(⁴)	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	(⁴)	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 396.

³Included in "Other counties."

⁴Where there are less than 3 enterprises reporting in the State, data are not shown, except as stated in footnote 1.

CENSUS OF DRAINAGE - WISCONSIN

COUNTY TABLE I--LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940--Continued

ITEM (See definitions in Introduction)		Green	Green Lake	Jefferson	Juneau	Kenosha	Manito- woc ¹	Marin- ette ¹	Milwaukee	Outagamie
LAND AREA										
1	Approximate land area.....acres.....1940..	375,040	227,300	360,960	508,800	174,720	376,960	888,320	152,900	405,760
2	Drainage enterprises.....number.....1940..	6	4	68	5	8	1	1	22	14
3	Land in enterprises.....acres.....1940..	6,300	4,400	39,673	29,325	15,050	1,910	4,680	11,380	36,217
4	.....1930..	5,094	(²)	38,652	139,539	14,996	(²)	6,000	6,644	24,880
5	.....1920..	(²)	(²)	17,461	133,297	11,803	(²)	(²)	8,392	18,305
6	Area of all enterprises, overlapping included.....acres.....1940..	6,420	4,400	44,683	29,325	15,050	1,910	4,680	11,380	36,297
7	Amount of overlapping.....acres.....1940..	120	.....	5,010	.....	.....	.....	.....	.....	60
CONDITION AND USE OF LAND										
8	Land with drainage sufficient for normal crop.....acres.....1940..	6,300	2,440	26,023	16,120	14,890	1,910	4,680	11,302	31,350
9	.....1930..	3,612	(²)	25,023	76,381	14,196	(²)	6,000	6,248	22,710
10	Increase or decrease (-), 1930-1940.....acres.....	2,688	.....	1,000	-60,261	694	.....	-1,320	5,054	8,640
11	.....percent.....	74.4	.....	4.0	-78.9	4.9	.....	-22.0	80.9	38.0
12	Land undrained, unfit for any crop.....acres.....1940..	.....	1,960	9,300	12,935	160	.....	.....	22	2,163
13	.....1930..	300	(²)	7,109	13,811	.....	.....	.....	295	550
14	Increase or decrease (-), 1930-1940.....acres.....	-300	.....	2,191	-876	160	.....	.....	-273	1,613
15	.....percent.....	-100.0	.....	30.8	-6.3	.....	.....	.....	-92.5	293.3
16	Land partly drained, for partial crop.....acres.....1940..	.....	(²)	4,350	270	.....	.....	.....	56	2,704
17	.....1930..	1,182	(²)	6,520	49,347	800	(²)	.....	101	1,620
18	Increase or decrease (-), 1930-1940.....acres.....	-1,182	.....	-2,170	-49,077	-800	.....	.....	-45	1,084
19	.....percent.....	-100.0	.....	-33.3	-99.5	-100.0	.....	.....	-44.6	66.9
20	Improved land.....acres.....1940..	6,300	2,220	26,735	7,060	13,330	1,710	4,000	11,190	27,027
21	.....1930..	3,894	(²)	31,793	48,776	14,496	(²)	6,000	6,360	20,870
22	.....1920..	(²)	(²)	5,630	27,904	10,277	(²)	(²)	7,355	5,468
Unimproved land:										
23	Woodland and cut-over land.....acres.....1940..	.....	220	1,490	22,265	1,560	200	.....	180	9,140
24	.....1930..	.....	(²)	.....	20,209	200	(²)	.....	151	2,490
25	.....1920..	(²)	(²)	18	38,069	.....	(²)	(²)	.....	649
26	Other unimproved land.....acres.....1940..	.....	1,960	11,448	.....	160	.....	680	10	50
27	.....1930..	1,200	(²)	6,859	70,554	300	(²)	.....	133	1,520
28	.....1920..	(²)	(²)	11,813	67,324	1,526	(²)	(²)	1,037	12,188
29	Land in occupied farms.....acres.....1940..	6,300	4,400	38,883	8,680	15,050	1,910	4,000	7,065	32,677
30	.....1930..	4,194	(²)	38,522	48,056	14,990	(²)	6,000	6,539	23,560
31	Increase or decrease (-), 1930-1940.....acres.....	2,106	.....	361	-39,376	60	.....	-2,000	526	9,117
32	.....percent.....	50.2	.....	0.9	-81.9	0.4	.....	-33.3	8.0	38.7
33	Land in planted crops.....acres.....1940..	5,560	2,025	19,045	5,450	13,330	1,710	4,000	6,067	25,807
34	.....1930..	2,487	(²)	25,050	24,500	13,986	(²)	3,000	5,955	20,370
35	Increase or decrease (-), 1930-1940.....acres.....	3,073	.....	-6,005	-19,150	-656	.....	1,000	112	5,437
36	.....percent.....	123.6	.....	-24.0	-77.8	-4.7	.....	33.3	1.9	26.7
37	Land idle.....acres.....1940..	.....	2,375	20,108	23,715	1,720	200	680	3,263	9,550
38	.....1930..	1,200	(²)	7,369	96,916	506	(²)	3,000	607	1,050
39	Increase or decrease (-), 1930-1940.....acres.....	-1,200	.....	12,739	-73,201	1,214	.....	-2,320	2,656	8,500
40	.....percent.....	-100.0	.....	172.9	-75.5	239.9	.....	-77.3	437.6	809.5
41	Land available for settlement.....acres.....1940..	.....	.....	30	.....	.....	.....	680	.....	.....
42	.....1930..	900	.....	120	79,563	.....	.....	.....	105	250
43	Increase or decrease (-), 1930-1940.....acres.....	-900	.....	-90	-79,563	.....	.....	680	-105	-250
44	.....percent.....	-100.0	.....	-75.0	-100.0	.....	.....	.....	-100.0	-100.0
LAND CLASSIFIED BY WORKS, 1940										
45	Land drained by open ditches only.....acres.....	6,040	4,400	23,313	25,045	2,430	1,910	4,680	6,262	28,297
46	Length of these ditches.....miles.....	16.0	8.7	99.4	57.5	8.7	4.3	13.5	30.5	56.4
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	260	.....	1,240	960	640	.....	.....	.....	.....
53	Length of these tile.....miles.....	1.0	.....	5.7	4.5	1.0	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	.....	.....	15,120	3,320	11,980	.....	.....	5,118	4,120
60	Length of these open ditches.....miles.....	.....	.....	46.1	5.5	21.2	.....	.....	18.1	9.0
61	Length of these tile.....miles.....	.....	.....	46.7	2.1	11.0	.....	.....	8.6	0.1
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	(³)
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	(³)
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	(³)
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....	(³)
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....	(³)

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Where there are less than 3 enterprises reporting in the State, data are not shown, except as stated in footnote 1.

CENSUS OF DRAINAGE — WISCONSIN

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)	Ozaukee	Polk	Racine	Rock	Rusk	Sauk ¹	Shawano	Sheboygan	
LAND AREA									
1	Approximate land area.....acres....1940..	150,400	597,760	215,680	461,440	582,400	537,600	752,640	323,840
2	Drainage enterprises.....number...1940..	12	3	8	6	5	1	7	9
3	Land in enterprises.....acres....1940..	8,239	2,700	49,020	18,422	5,370	4,400	13,640	5,366
4	.....1930..	6,533	(²)	54,710	11,757	6,385	2,000	23,200	10,588
5	.....1920..	5,960	(²)	61,847	15,792	5,174	.....	4,600	7,106
6	Area of all enterprises, overlapping included.....acres....1940..	8,239	2,700	49,020	18,422	6,530	4,400	14,340	5,366
7	Amount of overlapping.....acres....1940..	.....	.....	.....	.....	1,160	.....	700	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	8,239	2,600	42,700	18,422	2,810	4,400	9,620	5,038
9	.....1930..	6,388	(²)	51,380	5,660	3,233	2,000	12,350	3,966
10	Increase or decrease (-), 1930-1940.....acres.....	1,851	.....	-8,680	12,762	-423	2,400	-2,730	1,072
11	.....percent.....	29.0	.....	-16.9	225.5	-13.1	120.0	-22.1	27.0
12	Land undrained, unfit for any crop.....acres....1940..	.....	100	6,320	.....	2,560	.....	3,330	328
13	.....1930..	.....	.....	800	.....	1,212	.....	5,600	.....
14	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	6,320	-800	1,348	.....	-2,270	328
15	.....percent.....	.....	.....	-100.0	.....	111.2	.....	-40.5	.....
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	.....	.....	.....	.....	690	.....
17	.....1930..	245	(²)	3,330	5,297	1,940	.....	5,250	6,622
18	Increase or decrease (-), 1930-1940.....acres.....	-245	.....	-3,330	-5,297	-1,940	.....	-4,560	-6,622
19	.....percent.....	-100.0	.....	-100.0	-100.0	-100.0	.....	-86.9	-100.0
20	Improved land.....acres....1940..	7,719	2,100	40,740	18,392	2,610	4,400	6,540	4,723
21	.....1930..	6,088	(²)	52,380	10,407	3,233	2,000	12,650	3,721
22	.....1920..	4,462	(²)	47,265	5,372	1,104	.....	2,970	561
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	520	600	2,480	.....	.....	.....	5,990	623
24	.....1930..	485	(²)	100	.....	1,259	.....	.....	6,767
25	.....1920..	928	(²)	2,920	.....	174	.....	.....	3,206
26	Other unimproved land.....acres....1940..	.....	.....	5,800	30	2,760	.....	1,110	20
27	.....1930..	60	(²)	2,230	1,350	1,893	.....	10,550	100
28	.....1920..	570	(²)	11,662	10,420	3,896	.....	1,630	3,339
29	Land in occupied farms.....acres....1940..	8,239	2,700	48,780	18,422	2,810	4,400	11,840	5,366
30	.....1930..	6,593	(²)	51,380	11,757	6,385	2,000	12,600	4,376
31	Increase or decrease (-), 1930-1940.....acres.....	1,646	.....	-2,600	6,665	-3,575	2,400	-760	990
32	.....percent.....	25.0	.....	-5.1	56.7	-56.0	120.0	-6.0	22.6
33	Land in planted crops.....acres....1940..	7,719	2,100	39,828	9,957	1,560	4,400	6,530	4,528
34	.....1930..	5,638	(²)	36,280	6,707	2,451	2,000	9,550	2,651
35	Increase or decrease (-), 1930-1940.....acres.....	2,081	.....	3,548	3,250	-891	2,400	-3,020	1,877
36	.....percent.....	36.9	.....	9.8	48.5	-36.4	120.0	-31.6	70.8
37	Land idle.....acres....1940..	520	480	8,744	.....	3,810	.....	4,440	838
38	.....1930..	545	(²)	2,530	1,350	1,802	.....	11,000	6,767
39	Increase or decrease (-), 1930-1940.....acres.....	-25	.....	6,214	-1,350	2,008	.....	-6,560	-5,929
40	.....percent.....	-4.6	.....	245.6	-100.0	111.4	.....	-59.6	-87.6
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	240	.....
42	.....1930..	.....	.....	3,280	.....	.....	.....	5,650	.....
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	-3,280	.....	.....	.....	-5,410	.....
44	.....percent.....	.....	.....	-100.0	.....	.....	.....	-95.8	.....
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	1,971	2,700	.....	18,422	440	.....	13,640	1,380
46	Length of these ditches.....miles.....	5.3	9.5	.....	32.7	1.5	.....	32.3	3.2
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	4,400	.....	.....	.....
49	Length of these ditches.....miles.....	.....	.....	.....	.....	4.4	.....	.....	.....
50	Length of these levees.....miles.....	.....	.....	.....	.....	4.0	.....	.....	.....
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	2,058	.....	1,700	.....	3,680	.....	.....	960
53	Length of these tile.....miles.....	6.9	.....	10.0	.....	10.5	.....	.....	5.0
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	4,210	.....	47,320	.....	1,250	.....	.....	3,006
60	Length of these open ditches.....miles.....	7.7	.....	81.7	.....	3.5	.....	.....	4.4
61	Length of these tile.....miles.....	6.9	.....	29.1	.....	0.5	.....	.....	8.5
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

CENSUS OF DRAINAGE — WISCONSIN

COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940—Continued

ITEM (See definitions in Introduction)		Walworth	Washington	Waukesha	Waupaca	Waushara	Winnebago ¹	Wood	Other counties ²
LAND AREA									
1	Approximate land area.....acres....1940..	358,400	273,920	355,840	480,640	401,920	290,560	519,680	4,521,600
2	Drainage enterprises.....number...1940..	4	4	17	8	9	2	3	13
3	Land in enterprises.....acres....1940..	10,280	7,060	11,687	9,550	12,540	4,660	10,560	253,190
4	.....1930..	7,340	(³)	6,139	7,190	13,939	6,180	64,973	316,775
5	.....1920..	8,910	4,500	7,848	(³)	7,240	6,246	64,343	334,306
6	Area of all enterprises, overlapping included.....acres....1940..	10,280	7,060	11,887	9,550	14,100	4,660	10,560	253,190
7	Amount of overlapping.....acres....1940..	.....	.....	200	.....	1,560	.....	.....	.....
CONDITION AND USE OF LAND									
8	Land with drainage sufficient for normal crop.....acres....1940..	10,080	6,480	10,842	6,870	9,980	4,660	10,560	202,630
9	.....1930..	6,790	(³)	4,014	5,960	7,077	4,450	36,361	160,932
10	Increase or decrease (-), 1930-1940.....acres.....	3,290	.....	6,828	910	2,903	210	-25,821	41,698
11	.....percent.....	48.5	.....	170.1	15.3	41.0	4.7	-71.0	25.9
12	Land undrained, unfit for any crop.....acres....1940..	200	580	768	2,420	2,300	.....	.....	27,160
13	.....1930..	310	(³)	1,218	350	4,005	500	21,750	83,429
14	Increase or decrease (-), 1930-1940.....acres.....	-110	.....	-450	2,070	-1,705	-500	-21,750	-56,269
15	.....percent.....	-35.5	.....	-36.9	591.4	-42.6	-100.0	-100.0	-67.4
16	Land partly drained, for partial crop.....acres....1940..	.....	.....	77	260	260	.....	.....	23,400
17	.....1930..	240	(³)	907	880	2,857	1,230	6,842	72,414
18	Increase or decrease (-), 1930-1940.....acres.....	-240	.....	-830	-620	-2,597	-1,230	-6,842	-49,014
19	.....percent.....	-100.0	.....	-91.5	-70.4	-90.9	-100.0	-100.0	-67.7
20	Improved land.....acres....1940..	9,580	3,360	9,793	4,980	8,950	4,560	7,260	95,270
21	.....1930..	6,900	(³)	4,042	6,650	5,370	4,700	22,443	161,065
22	.....1920..	4,048	300	4,757	(³)	456	3,710	18,911	88,925
Unimproved land:									
23	Woodland and cut-over land.....acres....1940..	.....	3,360	314	3,430	2,370	100	3,300	157,920
24	.....1930..	.....	(³)	439	190	3,645	.....	16,000	60,823
25	.....1920..	.....	2,825	419	(³)	190	.....	4,536	123,313
26	Other unimproved land.....acres....1940..	700	340	1,580	1,140	1,220	.....	.....	.....
27	.....1930..	440	(³)	1,658	350	4,924	1,480	26,530	94,887
28	.....1920..	4,862	1,345	2,672	(³)	6,594	2,536	40,896	122,068
29	Land in occupied farms.....acres....1940..	10,070	7,060	11,687	8,890	11,940	4,660	10,560	117,890
30	.....1930..	7,340	(³)	6,119	7,070	11,869	4,950	27,108	157,235
31	Increase or decrease (-), 1930-1940.....acres.....	2,730	.....	5,568	1,820	71	-290	-16,548	-39,345
32	.....percent.....	37.2	.....	91.0	25.7	0.6	-5.8	-61.0	-25.0
33	Land in planted crops.....acres....1940..	6,280	3,360	9,582	4,800	8,020	4,460	5,000	78,640
34	.....1930..	6,340	(³)	3,458	4,300	3,590	2,950	14,094	75,810
35	Increase or decrease (-), 1930-1940.....acres.....	-60	.....	6,124	500	4,430	1,510	-9,094	2,830
36	.....percent.....	-0.9	.....	177.1	11.6	123.4	51.2	-64.5	3.7
37	Land idle.....acres....1940..	3,380	3,700	2,075	4,520	4,520	200	5,560	174,250
38	.....1930..	460	(³)	2,481	1,320	9,359	1,480	40,585	166,643
39	Increase or decrease (-), 1930-1940.....acres.....	2,920	.....	-406	3,200	-4,839	-1,280	-35,025	7,607
40	.....percent.....	634.8	.....	-16.4	242.4	-51.7	-86.5	-86.3	4.6
41	Land available for settlement.....acres....1940..	.....	.....	.....	.....	.....	.....	.....	1,700
42	.....1930..	.....	.....	.....	110	.....	.....	17,575	80,128
43	Increase or decrease (-), 1930-1940.....acres.....	.....	.....	.....	-110	.....	.....	-17,575	-78,428
44	.....percent.....	.....	.....	.....	-100.0	.....	.....	-100.0	-97.9
LAND CLASSIFIED BY WORKS, 1940									
45	Land drained by open ditches only.....acres.....	3,600	2,360	7,760	5,610	12,540	4,660	7,720	218,650
46	Length of these ditches.....miles.....	9.0	7.0	33.5	13.0	32.3	7.5	12.5	280.0
47	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
48	Land drained by open ditches and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	540
49	Length of these ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	2.5
50	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	0.5
51	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
52	Land drained by tile only.....acres.....	100	.....	247	.....	.....	.....	.....	.....
53	Length of these tile.....miles.....	1.2	.....	0.2	.....	.....	.....	.....	.....
54	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
55	Land drained by tile and own levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
56	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
57	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
58	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
59	Land drained by open ditches and tile.....acres.....	6,580	4,700	3,680	3,940	.....	.....	2,840	34,000
60	Length of these open ditches.....miles.....	19.2	7.4	5.0	4.7	.....	.....	5.5	32.5
61	Length of these tile.....miles.....	16.7	1.7	1.0	4.8	.....	.....	2.0	10.0
62	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
63	Land drained by open ditches, tile, and levees.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
64	Length of these open ditches.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
65	Length of these tile.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
66	Length of these levees.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
67	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
68	Land in enterprises operating pumping plants.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....
69	Length of open ditches owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
70	Length of tile owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
71	Length of levees owned by these enterprises.....miles.....	.....	.....	.....	.....	.....	.....	.....	.....
72	Part protected by levees of an outside agency.....acres.....	.....	.....	.....	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Includes Adams, Barron, Clark, Jackson, La Crosse, Monroe, Oconto, and Portage Counties in 1940; Adams, Barron, Brown, Buffalo, Burnett, Calumet, Clark, Green Lake, Jackson, Manitowoc, Marathon, Monroe, Oconto, Polk, Portage, Price, Trempealeau, and Washington Counties in 1930; and Adams, Barron, Brown, Buffalo, Burnett, Calumet, Clark, Door, Green, Green Lake, Jackson, Manitowoc, Marathon, Marinette, Monroe, Oconto, Polk, Portage, Trempealeau, and Waupaca Counties in 1920.

³Included in "Other counties."

CENSUS OF DRAINAGE—WISCONSIN

COUNTY TABLE II—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Brown	Burnett ¹	Calumet	Columbia	Dane	Dodge	Fond du Lac
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	2 430	3	2	3	21	29	120	12
2 Open ditches:								
3 Completed.....miles.....1940..	1,580.7	10.3	3.7	5.5	57.6	150.5	272.2	28.2
4 1930..	1,989.4	(²)	(²)	(²)	53.7	223.8	116.9	30.9
5 1920..	1,691.3	(²)	(²)	(²)	24.2	114.0	103.0	28.6
6 Additional length authorized.....miles.....1940..								
7 Tile drains:								
8 Completed.....miles.....1940..	282.5	6.0		0.5	13.9	43.4	7.6	13.4
9 1930..	303.4	(²)		(²)	46.1	39.6	4.6	21.5
10 1920..	211.3				97.0	97.0	3.7	0.3
11 Additional length authorized.....miles.....1940..	20.0							
12 Levees and dikes:								
13 Completed.....miles.....1940..	8.0							
14 1930..	9.0							
15 1920..	7.7							
16 Additional length authorized.....miles.....1940..								
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..	(⁴)							
19 1930..	40							
20 1920..	150							
21 Pump capacity.....gal. per min.....1940..	(⁴)							
22 1930..	5,000							
23 1920..								
24 Land served by pumps.....acres.....1940..	(⁴)							
25 1930..	50							
26 1920..	6,597							
27 Wells pumped for drainage.....number.....1940..								
28 1930..								
CAPITAL INVESTED								
25 Capital invested to January 1.....dollars.....1940..	4,254,586	35,000	1,845	9,049	164,048	664,324	249,967	72,544
26 1930..	6,207,278	(²)	(²)	(²)	220,730	793,598	80,183	68,126
27 1920..	4,163,055	(²)	(²)	(²)	41,352	326,313	95,545	72,066
28 Estimated cost when completed.....dollars.....1940..	4,279,586	35,000	1,845	9,049	164,048	664,324	249,967	72,544
29 1930..	6,220,398	(²)	(²)	(²)	220,730	793,598	80,183	68,846
30 1920..	4,564,625	(²)	(²)	(²)	41,352	346,313	95,545	72,066
31 Average cost per acre when completed.....dollars.....1940..	5.62	6.53	0.85	5.62	6.94	12.16	2.91	5.86
32 1930..	6.97	(²)	(²)	(²)	10.62	12.96	2.85	7.69
33 1920..	5.74	(²)	(²)	(²)	8.86	8.83	4.42	12.14
34 Invested in and required for completion, 1940:								
35 Enterprises having open ditches only.....dollars..	2,475,135	500	1,845	7,496	83,221	402,475	214,495	61,544
36 Average amount per acre.....dollars..	4.52	0.26	0.85	5.81	5.35	13.21	2.56	6.64
37 Enterprises having open ditches and levees.....dollars..	38,955							
38 Average amount per acre.....dollars..	7.88							
39 Enterprises having tile only.....dollars..	284,327			1,553	19,769	65,934	7,072	
40 Average amount per acre.....dollars..	14.84			4.85	9.88	14.36	18.61	
41 Enterprises having tile and levees.....dollars..								
42 Average amount per acre.....dollars..								
43 Enterprises having open ditches and tile.....dollars..	⁵ 1,481,169	34,500			61,058	195,915	28,400	11,000
44 Average amount per acre.....dollars..	7.84	9.97			10.01	10.00	17.22	3.52
45 Enterprises having ditches, tile, and levees.....dollars..								
46 Average amount per acre.....dollars..								
47 Enterprises operating pumping plants.....dollars..	(⁴)							
48 Average amount per acre.....dollars..	(⁴)							
MAINTENANCE AND OPERATION								
48 Cost of maintenance and operation in 1939:								
49 By enterprises operating pumping plants.....dollars..								
50 Enterprises reporting.....number.....								
51 Land in these enterprises.....acres.....								
52 Average cost per acre.....dollars.....								
53 By enterprises not operating pumping plants.....dollars..	19,440			(⁶)	829	2,688	2,769	
54 Enterprises reporting.....number.....	88			1	6	17	10	
55 Land in these enterprises.....acres.....	296,359			(⁶)	13,340	35,433	3,263	
56 Average cost per acre.....dollars.....	0.06			(⁶)	0.06	0.08	0.85	
57 Federal aid in maintenance:								
58 Enterprises reporting.....number.....	74	3			10	6	1	
59 Land in these enterprises.....acres.....	284,977	5,360			15,490	8,230	(⁶)	
FINANCIAL CONDITION								
58 Drainage taxes collected in 1939.....dollars..	20,960				3,618	1,195	(⁶)	
59 Enterprises reporting.....number.....	33				5	4	1	
60 Land in these enterprises.....acres.....	91,069				11,780	6,080	(⁶)	
61 Average amount collected per acre.....dollars..	0.23				0.31	0.20	(⁶)	
62 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	128,428				640	940		
63 Enterprises reporting.....number.....	30				4	6		
64 Land in these enterprises.....acres.....	188,430				9,000	20,800		
65 Portion delinquent in these enterprises.....percent..	68.2				7.1	4.5		
66 Total indebtedness, Dec. 31, 1939.....dollars..	392,143				4,520	16,005	(⁶)	
67 Enterprises reporting.....number.....	39				4	9	1	
68 Land in these enterprises.....acres.....	199,384				11,340	16,613	(⁶)	
69 Average indebtedness per acre.....dollars..	1.97				0.40	0.96	(⁶)	
70 Indebtedness in arrears, Dec. 31, 1939.....dollars..	327,556				(⁶)	9,300		
71 Enterprises reporting.....number.....	20				1	3		
72 Land in these enterprises.....acres.....	162,093				(⁶)	5,573		
73 Average arrearage per acre.....dollars..	2.02				(⁶)	1.67		
74 Reduction of debt by refinancing, prior to 1940.....dollars..	102,275					(⁶)		
75 Enterprises reporting.....number.....	4					1		
76 Land in these enterprises.....acres.....	13,940					(⁶)		
77 Average reduction per acre.....dollars..	7.34					(⁶)		

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 396.
³Included in "Other counties."
⁴Where there are less than 3 enterprises reporting in the State, data are not shown, except as stated in footnote 1.
⁵Investment in 1 pumping enterprise included with gravity enterprises having open ditches and tiles.
⁶Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE - WISCONSIN

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)		Green	Green Lake	Jefferson	Juneau	Kenosha	Manitowoc ¹	Marinette ¹	Milwaukee	Outagamie
DRAINAGE WORKS										
1	Drainage enterprises.....number.....1940..	6	4	68	5	8	1	1	22	14
2	Open ditches:									
3	Completed.....miles.....1940..	16.0	8.7	145.5	63.0	29.9	4.3	13.5	46.6	85.4
4	.....1930..	15.7	(²)	117.3	251.0	32.0	(²)	14.0	31.8	73.3
5	.....1920..	(²)	(²)	93.4	289.3	14.5	(²)	(²)	49.2	68.4
6	Additional length authorized.....miles.....1940..									
7	Tile drains:									
8	Completed.....miles.....1940..	1.0		52.4	6.6	12.0			8.6	2.1
9	.....1930..	16.6		8.7	19.7	5.6			6.6	0.1
10	.....1920..			8.2		10.0			4.8	
11	Additional length authorized.....miles.....1940..									20.0
12	Levees and dikes:									
13	Completed.....miles.....1940..									3.5
14	.....1930..									
15	.....1920..				0.8					1.0
16	Additional length authorized.....miles.....1940..									
17	Pumping plants:									
18	Engine capacity.....horsepower.....1940..									(³)
19	.....1930..									
20	.....1920..									
21	Pump capacity.....gal. per min.....1940..									(³)
22	.....1930..									
23	.....1920..									
24	Land served by pumps.....acres.....1940..									(³)
25	.....1930..									
26	.....1920..									
27	Wells pumped for drainage.....number.....1940..									
28	.....1930..									
29	.....1920..									
CAPITAL INVESTED										
30	Capital invested to January 1.....dollars.....1940..	44,407	27,261	119,768	152,881	116,583	12,920	18,000	208,043	180,007
31	.....1930..	55,710	(²)	86,658	787,660	108,959	(²)	25,000	93,887	108,865
32	.....1920..	(²)	(²)	47,187	739,100	100,100	(²)	(²)	110,120	117,540
33	Estimated cost when completed.....dollars.....1940..	44,407	27,261	119,768	152,881	116,583	12,920	18,000	208,043	205,007
34	.....1930..	55,710	(²)	86,658	788,160	108,959	(²)	25,000	93,887	108,865
35	.....1920..	(²)	(²)	47,187	761,004	100,100	(²)	(²)	110,120	167,540
36	Average cost per acre when completed.....dollars.....1940..	7.05	6.20	3.02	5.21	7.75	6.76	3.85	18.28	5.66
37	.....1930..	10.94	(²)	2.24	5.65	7.26	(²)	4.17	14.13	4.38
38	.....1920..	(²)	(²)	2.70	5.71	8.48	(²)	(²)	13.12	9.15
39	Invested in and required for completion, 1940:									
40	Enterprises having open ditches only.....dollars..	41,854	27,261	60,974	117,897	14,469	12,920	18,000	75,103	76,559
41	Average amount per acre.....dollars..	6.93	6.20	2.62	4.71	5.95	6.76	3.85	11.99	2.70
42	Enterprises having open ditches and levees.....dollars..									
43	Average amount per acre.....dollars..									
44	Enterprises having tile only.....dollars..	2,553		12,898	11,810	338				
45	Average amount per acre.....dollars..	9.82		10.40	12.30	0.53				
46	Enterprises having tile and levees.....dollars..									
47	Average amount per acre.....dollars..									
48	Enterprises having open ditches and tile.....dollars..			45,896	23,174	101,776			132,940	128,648
49	Average amount per acre.....dollars..			3.04	6.98	8.50			25.97	16.24
50	Enterprises having ditches, tile, and levees.....dollars..									
51	Average amount per acre.....dollars..									
52	Enterprises operating pumping plants.....dollars..									(⁵)
53	Average amount per acre.....dollars..									(⁵)
MAINTENANCE AND OPERATION										
54	Cost of maintenance and operation in 1939:									
55	By enterprises operating pumping plants.....dollars..									
56	Enterprises reporting.....number..									
57	Land in these enterprises.....acres..									
58	Average cost per acre.....dollars..									
59	By enterprises not operating pumping plants.....dollars..	147		530	250	181			3,030	697
60	Enterprises reporting.....number..	3		3	3	6			5	5
61	Land in these enterprises.....acres..	2,420		2,280	25,025	14,020			2,801	17,844
62	Average cost per acre.....dollars..	0.06		0.23	0.01	0.01			1.08	0.04
63	Federal aid in maintenance:									
64	Enterprises reporting.....number..	2				4	1	1	10	1
65	Land in these enterprises.....acres..	(⁵)				3,730	1,910	4,680	7,580	(⁵)
FINANCIAL CONDITION										
66	Drainage taxes collected in 1939.....dollars..	(⁵)	(⁵)		(⁵)	(⁵)				(⁵)
67	Enterprises reporting.....number..	2	2		1	1				2
68	Land in these enterprises.....acres..	(⁵)	(⁵)		(⁵)	(⁵)				(⁵)
69	Average amount collected per acre.....dollars..	(⁵)	(⁵)		(⁵)	(⁵)				(⁵)
70	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..		(⁵)	(⁵)						
71	Enterprises reporting.....number..		1	1						
72	Land in these enterprises.....acres..		(⁵)	(⁵)						
73	Portion delinquent in these enterprises.....percent..		(⁵)	(⁵)						
74	Total indebtedness, Dec. 31, 1939.....dollars..		(⁵)	(⁵)	(⁵)				16,464	
75	Enterprises reporting.....number..		2	2	1				3	
76	Land in these enterprises.....acres..		(⁵)	(⁵)	(⁵)				1,736	
77	Average indebtedness per acre.....dollars..		(⁵)	(⁵)	(⁵)				9.48	
78	Indebtedness in arrears, Dec. 31, 1939.....dollars..			(⁵)	(⁵)					
79	Enterprises reporting.....number..			1	1					
80	Land in these enterprises.....acres..			(⁵)	(⁵)					
81	Average arrearage per acre.....dollars..			(⁵)	(⁵)					
82	Reduction of debt by refinancing, prior to 1940.....dollars..									(⁵)
83	Enterprises reporting.....number..									1
84	Land in these enterprises.....acres..									(⁵)
85	Average reduction per acre.....dollars..									(⁵)

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.
²Included in "Other counties."
³Where there are less than 3 enterprises reporting in the State, data are not shown, except as stated in footnote 1.
⁴Investment in 1 pumping enterprise included with gravity enterprises having open ditches and tile.
⁵Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE — WISCONSIN

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COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAIN—TENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Ozaukee	Polk	Racine	Rock	Rusk	Sauk ¹	Shawano	Sheboygan	
DRAINAGE WORKS									
1	Drainage enterprises.....number.....1940..	12	3	8	6	5	1	7	9
Open ditches:									
2	Completed.....miles.....1940..	13.0	9.5	81.7	32.7	5.0	4.4	32.3	7.6
3	.....1930..	8.6	(2)	90.4	37.0	24.8	(2)	22.8	43.4
4	.....1920..	23.7	(2)	95.3	30.5	17.6	.....	16.0	23.4
5	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Tile drains:									
6	Completed.....miles.....1940..	13.8	.....	39.1	.....	11.0	.....	.....	13.5
7	.....1930..	22.8	(2)	45.6	.....	15.3	.....	.....	5.9
8	.....1920..	2.1	.....	31.7	.....	36.1	.....	.....	4.4
9	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Levees and dikes:									
10	Completed.....miles.....1940..	.....	.....	.....	.....	4.0	.....	.....	.....
11	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
12	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
13	Additional length authorized.....miles.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
Pumping plants:									
14	Engine capacity.....horsepower.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
15	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
16	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
17	Pump capacity.....gal. per min.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
18	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
19	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
20	Land served by pumps.....acres.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
21	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
22	.....1920..	.....	.....	.....	.....	.....	.....	.....	.....
23	Wells pumped for drainage.....number.....1940..	.....	.....	.....	.....	.....	.....	.....	.....
24	.....1930..	.....	.....	.....	.....	.....	.....	.....	.....
CAPITAL INVESTED									
25	Capital invested to January 1.....dollars.....1940..	97,277	29,249	311,694	89,554	68,858	25,955	32,400	57,051
26	.....1930..	91,767	(2)	447,535	81,885	71,765	(2)	30,100	317,602
27	.....1920..	60,160	(2)	406,000	88,375	69,516	.....	9,740	135,033
28	Estimated cost when completed.....dollars.....1940..	97,277	29,249	311,694	89,554	68,858	25,955	32,400	57,051
29	.....1930..	91,767	(2)	447,535	81,885	71,765	(2)	31,000	317,602
30	.....1920..	63,160	(2)	406,000	88,375	82,516	.....	10,490	260,033
31	Average cost per acre when completed.....dollars.....1940..	11.81	11.83	6.36	4.86	12.82	5.90	2.38	10.63
32	.....1930..	13.83	(2)	8.18	6.98	11.24	(2)	1.34	30.00
33	.....1920..	10.60	(2)	6.56	5.60	15.95	.....	2.28	36.59
Invested in and required for completion, 1940:									
34	Enterprises having open ditches only.....dollars..	13,021	29,249	.....	89,554	1,905	.....	32,400	20,800
35	Average amount per acre.....dollars..	6.61	11.83	.....	4.86	4.33	.....	2.38	15.07
36	Enterprises having open ditches and levees.....dollars..	.....	.....	.....	.....	25,955	.....	.....	.....
37	Average amount per acre.....dollars..	.....	.....	.....	.....	5.90	.....	.....	.....
38	Enterprises having tile only.....dollars..	12,274	.....	67,633	.....	58,953	.....	.....	10,420
39	Average amount per acre.....dollars..	5.96	.....	39.78	.....	16.02	.....	.....	10.63
40	Enterprises having tile and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
41	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
42	Enterprises having open ditches and tile.....dollars..	71,982	.....	244,061	.....	8,000	.....	.....	25,831
43	Average amount per acre.....dollars..	17.10	.....	5.16	.....	6.40	.....	.....	8.59
44	Enterprises having ditches, tile, and levees.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
45	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
46	Enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
47	Average amount per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
MAINTENANCE AND OPERATION									
Cost of maintenance and operation in 1939:									
48	By enterprises operating pumping plants.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
49	Enterprises reporting.....number..	.....	.....	.....	.....	.....	.....	.....	.....
50	Land in these enterprises.....acres..	.....	.....	.....	.....	.....	.....	.....	.....
51	Average cost per acre.....dollars..	.....	.....	.....	.....	.....	.....	.....	.....
52	By enterprises not operating pumping plants.....dollars..	(3)	.....	4,216	(3)	100	(3)	(3)	(3)
53	Enterprises reporting.....number..	1	.....	7	1	1	1	1	1
54	Land in these enterprises.....acres..	(3)	.....	44,200	(3)	4,400	(3)	(3)	(3)
55	Average cost per acre.....dollars..	(3)	.....	0.10	(3)	0.02	(3)	(3)	(3)
Federal aid in maintenance:									
56	Enterprises reporting.....number..	2	.....	4	4	.....	.....	.....	4
57	Land in these enterprises.....acres..	(3)	.....	14,060	11,502	.....	.....	.....	2,866
FINANCIAL CONDITION									
58	Drainage taxes collected in 1939.....dollars..	(3)	.....	8,357	(3)	.....	1,000	.....	.....
59	Enterprises reporting.....number..	2	.....	4	1	.....	1	.....	.....
60	Land in these enterprises.....acres..	(3)	.....	32,260	(3)	.....	4,400	.....	.....
61	Average amount collected per acre.....dollars..	(3)	.....	0.26	(3)	.....	0.23	.....	.....
62	Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	.....	.....	920	(3)	3,700	500	.....	.....
63	Enterprises reporting.....number..	.....	.....	3	1	4	1	.....	.....
64	Land in these enterprises.....acres..	.....	.....	13,860	(3)	4,930	4,400	.....	.....
65	Portion delinquent in these enterprises.....percent..	.....	.....	6.6	(3)	75.0	11.4	.....	.....
66	Total indebtedness, Dec. 31, 1939.....dollars..	.....	.....	(3)	.....	23,114	400	.....	.....
67	Enterprises reporting.....number..	.....	.....	2	.....	3	1	.....	.....
68	Land in these enterprises.....acres..	.....	.....	(3)	.....	3,680	4,400	.....	.....
69	Average indebtedness per acre.....dollars..	.....	.....	(3)	.....	6.28	0.09	.....	.....
70	Indebtedness in arrears, Dec. 31, 1939.....dollars..	.....	.....	(3)	.....	23,114	400	.....	.....
71	Enterprises reporting.....number..	.....	.....	1	.....	3	1	.....	.....
72	Land in these enterprises.....acres..	.....	.....	(3)	.....	3,680	4,400	.....	.....
73	Average arrearage per acre.....dollars..	.....	.....	(3)	.....	6.28	0.09	.....	.....
74	Reduction of debt by refinancing, prior to 1940.....dollars..	.....	.....	(3)	.....	.....	.....	.....	.....
75	Enterprises reporting.....number..	.....	.....	1	.....	.....	.....	.....	.....
76	Land in these enterprises.....acres..	.....	.....	(3)	.....	.....	.....	.....	.....
77	Average reduction per acre.....dollars..	.....	.....	(3)	.....	.....	.....	.....	.....

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²Included in "Other counties."

³Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1.

CENSUS OF DRAINAGE — WISCONSIN

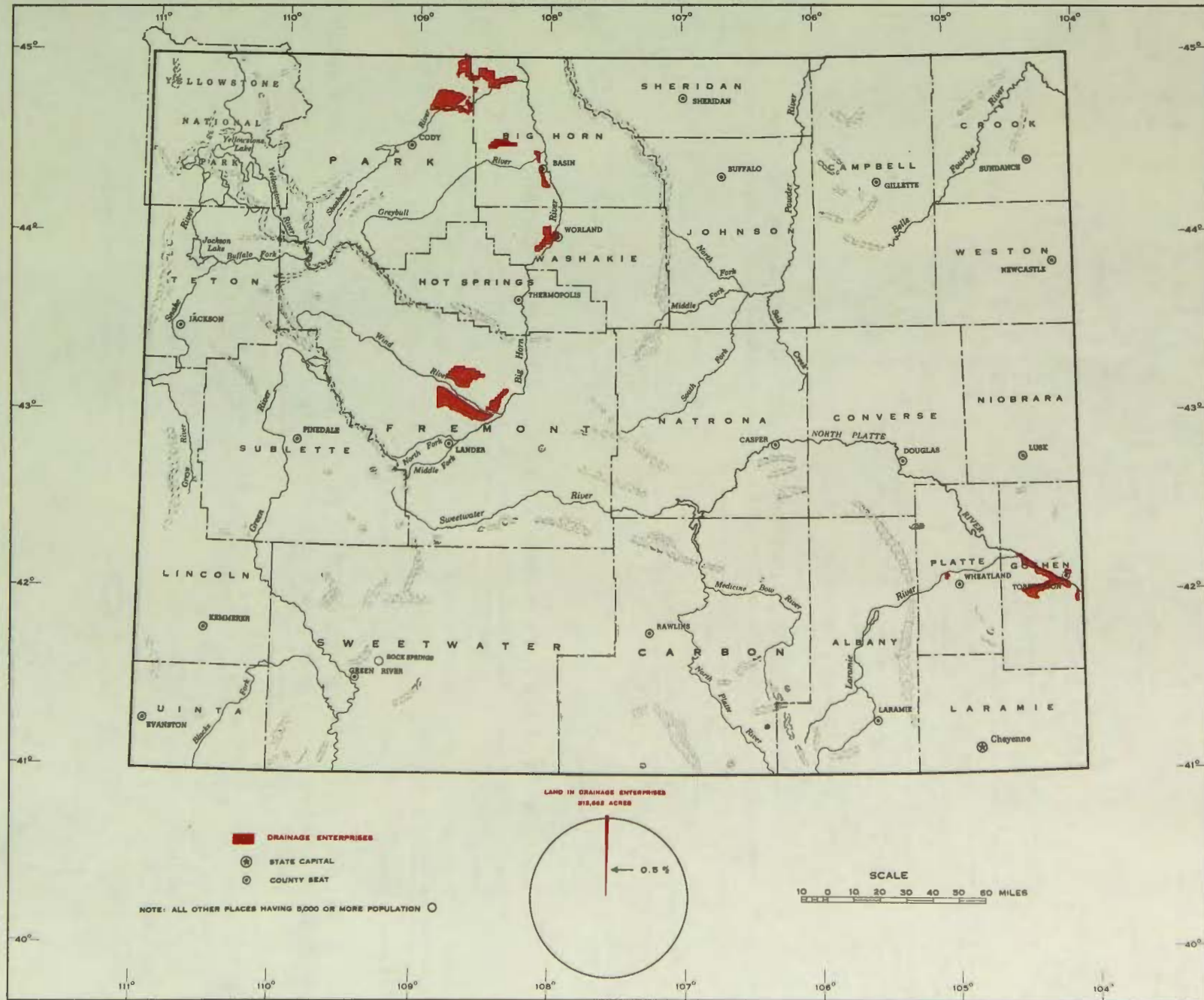
COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939—Continued

ITEM (See definitions in Introduction)	Walworth	Washington	Waukesha	Waupaca	Waushara	Winnebago ¹	Wood	Other counties ²
DRAINAGE WORKS								
1 Drainage enterprises.....number.....1940..	4	4	17	8	9	2	3	13
2 Open ditches:								
3 Completed.....miles.....1940..	28.2	14.4	38.5	17.7	32.3	7.5	18.0	295.0
4 1930..	25.3	(³)	46.7	5.5	28.4	10.5	250.0	435.6
5 1920..	23.3	20.5	35.1	(³)	16.9	10.0	137.0	457.4
6 Additional length authorized.....miles.....1940..								
7 Tile drains:								
8 Completed.....miles.....1940..	17.9	1.7	1.2	4.8			2.0	10.0
9 1930..	8.3	(³)	0.8	2.5		2.0	2.3	28.8
10 1920..	7.5	0.5	5.0					
11 Additional length authorized.....miles.....1940..								
12 Levees and dikes:								
13 Completed.....miles.....1940..								0.5
14 1930..							2.0	7.0
15 1920..							0.8	5.1
16 Additional length authorized.....miles.....1940..								
17 Pumping plants:								
18 Engine capacity.....horsepower.....1940..								
19 1930..								40
20 1920..								150
21 Pump capacity.....gal. per min. 1940..								
22 1930..								5,000
23 1920..								
24 Land served by pumps.....acres.....1940..								
25 1930..								50
26 1920..								6,597
27 Wells pumped for drainage.....number.....1940..								
28 1930..								
CAPITAL INVESTED								
29 Capital invested to January 1.....dollars.....1940..	123,264	47,706	75,742	75,401	60,122	19,560	48,810	1,015,296
30 1930..	152,555	(³)	80,941	61,124	75,734	45,400	602,915	1,718,579
31 1920..	63,465	64,500	44,835	(³)	27,000	20,400	394,200	1,130,508
32 Estimated cost when completed.....dollars.....1940..	123,264	47,706	75,742	75,401	60,122	19,560	48,810	1,015,296
33 1930..	152,555	(³)	80,941	71,124	75,734	45,400	602,915	1,718,579
34 1920..	63,465	64,500	44,835	(³)	27,000	20,400	394,200	1,298,424
35 Average cost per acre when completed.....dollars.....1940..	11.99	6.76	6.48	7.90	4.79	4.20	4.62	4.01
36 1930..	20.78	(³)	13.18	9.89	5.43	7.35	9.28	5.43
37 1920..	7.12	14.33	5.71	(³)	3.73	3.27	6.13	3.88
38 Invested in and required for completion, 1940:								
39 Enterprises having open ditches only.....dollars..	22,760	15,000	34,594	33,961	60,122	19,560	15,500	870,296
40 Average amount per acre.....dollars..	6.32	6.36	4.46	6.05	4.79	4.20	2.01	3.98
41 Enterprises having open ditches and levees.....dollars..								13,000
42 Average amount per acre.....dollars..								24.07
43 Enterprises having tile only.....dollars..	4,120		9,000					
44 Average amount per acre.....dollars..	41.20		36.44					
45 Enterprises having tile and levees.....dollars..								
46 Average amount per acre.....dollars..								
47 Enterprises having open ditches and tile.....dollars..	96,384	32,706	32,148	41,440			33,310	132,000
48 Average amount per acre.....dollars..	14.65	6.96	8.74	10.52			11.73	3.88
49 Enterprises having ditches, tile, and levees.....dollars..								
50 Average amount per acre.....dollars..								
51 Enterprises operating pumping plants.....dollars..								
52 Average amount per acre.....dollars..								
MAINTENANCE AND OPERATION								
53 Cost of maintenance and operation in 1939:								
54 By enterprises operating pumping plants.....dollars..								
55 Enterprises reporting.....number.....			1,348	426	90	15		1,403
56 Land in these enterprises.....acres.....			3	5	3	1		4
57 Average cost per acre.....dollars.....			1,387	5,770	1,900	4,340		104,670
58 By enterprises not operating pumping plants.....dollars..	(⁴)		0.97	0.07	0.05	(⁵)		0.01
59 Enterprises reporting.....number.....	1							
60 Land in these enterprises.....acres.....	(⁴)							
61 Average cost per acre.....dollars.....	(⁴)							
62 Federal aid in maintenance:								
63 Enterprises reporting.....number.....	2	1	4	1	7	1	1	4
64 Land in these enterprises.....acres.....	(⁴)	(⁴)	3,989	(⁴)	10,860	4,340	(⁴)	168,430
FINANCIAL CONDITION								
65 Drainage taxes collected in 1939.....dollars..			(⁴)	(⁴)	(⁴)		(⁴)	(⁴)
66 Enterprises reporting.....number.....			1	2	1		1	2
67 Land in these enterprises.....acres.....			(⁴)	(⁴)	(⁴)		(⁴)	(⁴)
68 Average amount collected per acre.....dollars..			(⁴)	(⁴)	(⁴)		(⁴)	(⁴)
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres...				(⁴)	(⁴)		(⁴)	116,120
70 Enterprises reporting.....number.....				2	2		1	4
71 Land in these enterprises.....acres.....				(⁴)	(⁴)		(⁴)	122,840
72 Portion delinquent in these enterprises.....percent..				(⁴)	(⁴)		(⁴)	94.5
73 Total indebtedness, Dec. 31, 1939.....dollars..	(⁴)			(⁴)	(⁴)		(⁴)	249,300
74 Enterprises reporting.....number.....	2			2	2		1	4
75 Land in these enterprises.....acres.....	(⁴)			(⁴)	(⁴)		(⁴)	122,540
76 Average indebtedness per acre.....dollars..	(⁴)			(⁴)	(⁴)		(⁴)	2.03
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	(⁴)			(⁴)	(⁴)		(⁴)	248,000
78 Enterprises reporting.....number.....	2			2	1		1	3
79 Land in these enterprises.....acres.....	(⁴)			(⁴)	(⁴)		(⁴)	122,000
80 Average arrearage per acre.....dollars..	(⁴)			(⁴)	(⁴)		(⁴)	2.03
81 Reduction of debt by refinancing, prior to 1940.....dollars..	(⁶)						(⁴)	
82 Enterprises reporting.....number.....	1						1	
83 Land in these enterprises.....acres.....	(⁴)						(⁴)	
84 Average reduction per acre.....dollars..	(⁴)						(⁴)	

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²Includes Adams, Barron, Clark, Jackson, La Crosse, Monroe, Oconto, and Portage Counties in 1940; Adams, Barron, Brown, Buffalo, Burnett, Calumet, Clark, Green Lake, Jackson, Manitowoc, Marathon, Monroe, Oconto, Polk, Portage, Price, Trempealeau, and Washington Counties in 1930; and Adams, Barron, Brown, Buffalo, Burnett, Calumet, Clark, Door, Green, Green Lake, Jackson, Manitowoc, Marathon, Marinette, Monroe, Oconto, Polk, Portage, Trempealeau, and Waupaca Counties in 1920. ³Included in "Other counties." ⁴Where there are less than 3 enterprises reporting, data are included only in State totals, except as stated in footnote 1. ⁵Less than 1 cent per acre. ⁶Not reported.

WYOMING

Location of Land in Drainage Enterprises



CENSUS OF DRAINAGE - WYOMING

STATE TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATE: JAN. 1, 1940, 1930, AND 1920

ITEM (See definitions in Introduction)	CENSUS OF—			INCREASE OR DECREASE (-)			
	1940	1930	1920	1930-1940		1920-1930	
				Amount	Percent	Amount	Percent
Approximate land area of State.....acres.....	62,403,840	62,430,720	62,430,720	.....	.....	.....	.....
Land in drainage enterprises.....acres.....	312,662	245,703	95,474	66,959	27.2	150,229	157.4
Improved.....acres.....	277,725	181,828	84,846	95,897	52.7	96,982	114.3
Unimproved:							
Timber and cut-over.....acres.....	1,002	1,100	.....	-98	-8.9	.....	.....
Other.....acres.....	33,935	62,775	10,628	-28,840	-45.9	52,147	490.6
Drainage sufficient for normal crop.....acres.....	287,833	219,762	(1)	68,071	31.0	.....	.....
Partly drained, for partial crop.....acres.....	11,555	16,920	(1)	-5,365	-31.7	.....	.....
Unfit to raise any crop for lack of drainage.....acres.....	13,274	9,021	(2) 20,785	4,253	47.1	-11,764	-56.6
In occupied farms.....acres.....	287,420	188,327	(1)	99,093	52.6	.....	.....
In planted crops.....acres.....	226,149	163,015	(1)	63,134	38.7	.....	.....
Idle.....acres.....	69,629	64,478	(1)	5,151	8.0	.....	.....
Available for settlement.....acres.....	10,535	39,505	(2)	-28,970	-73.3	.....	.....
Open ditches, completed.....miles.....	643.3	521.0	25.1	122.3	23.5	495.9	(3)
Tile drains, completed.....miles.....	262.1	237.6	114.2	24.5	10.3	123.4	108.0
Drainage pumping plants, capacity.....horsepower.....	(4)	.....	.....	(4)	.....	.....	.....
.....gal. per min..	(4)	.....	.....	(4)	.....	.....	.....
Capital invested in enterprises.....dollars.....	5,594,856	5,250,573	1,175,962	344,283	6.6	4,074,611	346.5
Average per acre.....dollars.....	17.89	22.79	12.32	-4.90	-21.5	10.47	85.0

¹ Not available.
² Reported as "Swampy, subject to overflow, seeped, or alkali."
³ Percent not shown when more than 1,000.
⁴ Where there are less than 3 enterprises reporting, data are not shown.

STATE TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940, 1930, AND 1920

SIZE	AREA OF ENTERPRISES ¹			SIZE	AREA OF ENTERPRISES ¹		
	1940	1930	1920		1940	1930	1920
	Acres	Acres	Acres		Acres	Acres	Acres
All enterprises.....	312,662	248,316	95,474	1,000 to 1,999 acres.....	6,587	33,438	21,514
Less than 100 acres.....	.....	.....	140	2,000 to 4,999 acres.....	18,795	63,067	27,400
100 to 199 acres.....	.....	.....	.....	5,000 to 9,999 acres.....	60,181	100,375	45,920
200 to 499 acres.....	225	.....	.....	10,000 to 19,999 acres.....	37,545	.....	.....
500 to 999 acres.....	.....	.....	500	20,000 to 49,999 acres.....	83,902	.....	.....
				50,000 to 99,999 acres.....	105,427	51,436	.....

¹ No overlapping of enterprises reported in Wyoming in 1940.

STATE TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	312,662	100.0	5,594,856	100.0
Drainage districts.....	88,803	28.4	2,315,973	41.4
Irrigation enterprises—Federal ¹	223,859	71.6	3,278,883	58.6

¹ Includes projects or divisions of projects of Bureau of Reclamation operated by water users.

STATE TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940, 1930, AND 1920

TYPE OF DRAINAGE ¹	LAND IN ENTERPRISES						CAPITAL INVESTED IN ENTERPRISES					
	1940		1930		1920		1940		1930		1920	
	Acres	Percent	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	312,662	100.0	245,703	100.0	95,474	100.0	5,594,856	100.0	5,250,573	100.0	1,175,962	100.0
Gravity drainage only by—												
Open ditches.....	² 179,131	57.3	125,043	50.9	3,404	3.6	² 1,401,517	25.0	1,407,828	26.8	25,127	2.1
Tile drains.....	2,165	0.7	14,740	6.0	54,650	57.2	125,673	2.2	320,000	6.1	590,039	50.2
Open ditches and tile drains..	131,366	42.0	105,920	43.1	37,420	39.2	4,067,666	72.7	3,522,745	67.1	560,796	47.7
Part only by pumping by—												
Open ditches.....	(²)	(²)	.....	.....	.....	.....	(²)	(²)	.....	.....	.....	.....

¹ Each item includes those enterprises that have provided levees in addition to the kind of drains specified.
² Data for 1 enterprise operating a pumping plant are included in those for enterprises not operating pumping plants, having open ditches only.

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STATE TABLE 5.—LAND, CAPITAL INVESTED, AND AREA DELINQUENT IN DRAINAGE TAXES, BY ARREARAGE IN PAYMENT OF OBLIGATIONS: JAN. 1, 1940 AND 1930

FINANCIAL STATUS	LAND IN ENTERPRISES				CAPITAL INVESTED				AREA DELINQUENT	
	1940		1930		1940		1930		1940	1930
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent	Acres	Acres
All enterprises.....	312,662	100.0	245,703	100.0	5,594,856	100.0	5,250,573	100.0	21,680	18,686
Enterprises in arrears.....	19,225	6.1	32,021	13.0	457,473	8.2	797,824	15.2	10,275	10,250
With some delinquent land.....	13,465	4.3	24,021	9.8	199,800	3.6	617,824	11.8	10,275	10,250
With no report on delinquency.....	5,760	1.8	8,000	3.2	257,673	4.6	180,000	3.4		
Enterprises not in arrears.....	288,437	92.3	213,682	87.0	4,987,383	89.1	4,452,749	84.8	11,405	8,436
With some delinquent land.....	26,755	8.6	101,407	41.3	755,000	13.5	3,296,828	62.8	11,405	8,436
With no delinquent land.....	242,824	77.7	92,115	37.5	3,788,883	67.7	831,121	15.8		
With no report on delinquency.....	18,858	6.0	20,160	8.2	443,500	7.9	324,800	6.2		
Enterprises not reporting on arrearage—with no report on delinquency.....	5,000	1.6			150,000	2.7				

STATE TABLE 6.—LAND, CAPITAL INVESTED, INDEBTEDNESS, ARREARAGE IN PAYMENT OF BONDS, REDUCTION OF DEBT BY REFINANCING, AND ACREAGE DELINQUENT, 1940; DRAINAGE TAXES COLLECTED IN 1939; BY INDEBTEDNESS AND ARREARAGE, JAN. 1, 1940

FINANCIAL STATUS	Land in enterprises	Capital invested	Indebtedness	Arrearage in payment of bonds	Reduction of debt by refinancing	Delinquent in drainage taxes	Drainage taxes collected in 1939
	Acres	Dollars	Dollars	Dollars	Dollars	Acres	Dollars
All enterprises.....	312,662	5,594,856	4,455,107	141,631	408,147	21,680	48,981
Enterprises in debt.....	307,856	5,542,963	4,455,107	141,631	408,147	21,680	47,882
In arrears, amount of arrearage stated.....	19,225	457,473	357,325	141,631	42,500	10,275	3,474
Collecting drainage taxes in 1939.....	5,060	151,800	158,325	14,631	12,500	275	3,474
No collections reported.....	14,165	305,673	199,000	130,000	30,000	10,000	
Not in arrears.....	283,631	4,935,490	3,978,282		365,647	11,405	44,408
Collecting drainage taxes in 1939.....	271,858	4,761,106	3,808,898		365,647	11,405	44,408
No collections reported.....	11,773	174,384	174,384				
Not reporting as to arrears.....	5,000	150,000	119,500				
No collections reported.....	5,000	150,000	119,500				
Enterprises not in debt.....	4,806	51,893					1,099
Collecting drainage taxes in 1939.....	2,000	35,000					1,099
No collections reported.....	2,806	16,893					

STATE TABLE 7.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	312,662	100.0	5,594,856	100.0
Improvement of land already in farms.....	104,358	33.4	3,322,778	59.4
Removal of alkali or seepage from irrigation.....	208,304	66.6	2,272,078	40.6

STATE TABLE 8.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land in enterprises		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	312,662	100.0	5,594,856	100.0
1910-1914.....	15,595	5.0	312,000	5.6
1915-1919.....	97,958	31.3	1,781,200	31.8
1920-1924.....	152,721	48.9	1,604,657	28.7
1925-1929.....	46,388	14.8	1,896,999	33.9

STATE TABLE 9.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained		Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms		In planted crops	Idle	Land available for settlement	
		Acres	Percent	Acres	Acres	Acres	Percent	Acres	Acres	Percent	Acres	Acres	Acres	
All enterprises..	312,662	287,833	92.0	11,555	13,274	277,725	88.8	1,002	33,935	287,420	91.9	226,149	69,629	10,535
1910-1914.....	15,595	10,300	66.0	2,295	3,000	12,300	78.9		3,295	15,595	100.0	11,300	295	
1915-1919.....	97,958	92,692	94.6	450	4,816	81,547	83.2	602	15,809	85,735	88.5	69,949	15,524	9,800
1920-1924.....	152,721	144,653	94.7	3,110	4,958	145,905	95.5	400	6,416	144,886	94.9	108,941	43,361	545
1925-1929.....	46,388	40,188	86.6	5,700	500	37,973	81.8		8,415	40,204	86.7	35,959	10,429	190

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STATE TABLE 10.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	312,662	312,662	299,694	12,968	36,137	0.12	0.12
Gravity drainage only ¹	312,662	312,662	299,694	12,968	36,137	0.12	0.12
Open ditches only ¹	173,018	173,018	173,018	.....	10,264	0.06	0.06
Open ditches and levees.....	6,113	6,113	6,113	.....	1,209	0.20	0.20
Tile drains only.....	2,165	2,165	2,165	.....	500	0.23	0.23
Open ditches and tile drains.....	131,366	131,366	118,398	12,968	24,164	0.18	0.20

¹Data for 1 enterprise operating a pumping plant are included in those for enterprises having gravity drainage only.

STATE TABLE 11.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	312,662	100.0	5,594,856	100.0
Method:				
By district forces.....	282,938	90.5	5,163,779	92.3
By contract.....	1,465	0.5	19,800	0.4
Work apportioned to landowners.....	1,680	0.5	40,000	0.7
"None," or not reporting.....	26,579	8.5	371,277	6.6
Whether systematic:				
Reporting "yes".....	221,085	70.7	2,700,185	48.3
Reporting "no".....	91,577	29.3	2,894,671	51.7

STATE TABLE 12.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY OWNERSHIP OF POWER EQUIPMENT FOR MAINTENANCE, 1940

ITEM	All enterprises	ENTERPRISES OWNING POWER EQUIPMENT	
		Amount	Percent
Land in enterprises.....acres....	312,662	268,097	85.7
Capital invested.....dollars..	5,594,856	4,674,999	83.6
Drainage works:			
Open ditches.....miles....	643.3	551.2	85.7
Tile drains.....miles....	262.1	196.9	75.1
Levees.....miles....	7.2	7.2	100.0

STATE TABLE 13.—LAND, CAPITAL INVESTED, AND DRAINAGE WORKS, BY FEDERAL AGENCY GIVING AID IN MAINTENANCE, 1940

AGENCY	Land in enterprises	Capital invested	DRAINAGE WORKS		
			Ditches	Tile	Levees
	Acres	Dollars	Miles	Miles	Miles
All enterprises reporting Federal aid received.....	61,853	2,463,594	291.6	134.2
Civilian Conservation Corps.....	61,853	2,463,594	291.6	134.2

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COUNTY TABLE I.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

ITEM (See definitions in Introduction)	THE STATE	Big Horn	Fremont	Goshen	Park	Platte ¹	Washakie	
LAND AREA								
1	Approximate land area.....acres....1940..	62,403,840	2,032,640	5,916,160	1,427,200	3,338,880	1,352,960	1,447,680
2	Drainage enterprises.....number...1940..	2 28	12	5	3	4	1	3
3	Land in enterprises.....acres....1940..	312,632	35,358	109,046	57,292	59,001	1,680	20,285
4	.....1930..	245,703	75,034	33,600	55,186	61,061	1,840	18,982
5	.....1920..	95,474	41,750	140	2,764	29,920	500	20,400
6	Area of all enterprises, overlapping included.....acres....1940..	312,662	65,358	109,046	57,292	59,001	1,680	20,285
7	Amount of overlapping.....acres....1940..							
CONDITION AND USE OF LAND								
8	Land with drainage sufficient for normal crop.....acres....1940..	287,833	52,900	107,346	55,252	50,370	1,680	20,285
9	.....1930..	219,762	57,114	32,980	53,337	55,999	1,800	18,532
10	Increase or decrease (-), 1930-1940.....acres.....	68,071	-4,214	74,366	1,915	-5,629	-120	1,753
11	.....percent.....	31.0	-7.4	225.5	3.6	-10.1	-6.7	9.5
12	Land undrained, unfit for any crop.....acres....1940..	13,274	8,686	1,400	2,040	1,148		
13	.....1930..	9,021	4,840	620	1,687			225
14	Increase or decrease (-), 1930-1940.....acres.....	4,253	3,846	780	391	-539		-225
15	.....percent.....	47.1	79.5	125.8	23.7	-32.0		-100.0
16	Land partly drained, for partial crop.....acres....1940..	11,555	3,772	300		7,483		
17	.....1930..	16,920	13,080		200	3,375		225
18	Increase or decrease (-), 1930-1940.....acres.....	-5,365	-9,308	300	-200	4,108		-225
19	.....percent.....	-31.7	-71.2		-100.0	121.7		-100.0
20	Improved land.....acres....1940..	277,725	55,935	96,727	53,201	49,897	1,680	20,285
21	.....1930..	181,828	54,555	13,400	51,897	44,636	1,840	15,500
22	.....1920..	84,846	33,922	140	2,764	29,920	500	17,600
Undrained land:								
23	Woodland and cut-over land.....acres....1940..	1,002	602	400				
24	.....1930..	1,100	1,100					
25	.....1920..							
26	Other unimproved land.....acres....1940..	33,935	8,821	11,919	4,091	9,104		
27	.....1930..	62,775	19,379	20,200	3,289	16,425		3,482
28	.....1920..	10,628	7,628					2,800
29	Land in occupied farms.....acres....1940..	287,420	62,025	99,246	52,520	52,447	1,680	19,502
30	.....1930..	188,327	59,757	11,350	53,446	44,434	1,840	17,500
31	Increase or decrease (-), 1930-1940.....acres.....	99,093	2,268	87,896	-926	8,013	-160	2,002
32	.....percent.....	52.6	3.8	774.4	-1.7	18.0	-8.7	11.4
33	Land in planted crops.....acres....1940..	226,149	44,317	65,781	48,289	47,279	1,680	18,803
34	.....1930..	163,015	51,835	9,673	43,480	40,727	1,800	15,500
35	Increase or decrease (-), 1930-1940.....acres.....	63,134	-7,518	56,108	4,809	6,552	-120	3,303
36	.....percent.....	38.7	-14.5	580.0	11.1	16.1	-6.7	21.3
37	Land idle.....acres....1940..	69,629	16,079	32,565	8,963	11,323		699
38	.....1930..	64,478	19,685	23,927	9,066	8,400		3,400
39	Increase or decrease (-), 1930-1940.....acres.....	5,151	-3,606	8,638	-103	2,923		-2,701
40	.....percent.....	8.0	-18.3	36.1	-1.1	34.8		-79.4
41	Land available for settlement.....acres....1940..	10,535	386	9,800		349		
42	.....1930..	39,505	9,331	22,050		6,724		1,400
43	Increase or decrease (-), 1930-1940.....acres.....	-28,970	-8,945	-12,250		-6,375		-1,400
44	.....percent.....	-73.3	-95.9	-55.6		-94.8		-100.0
LAND CLASSIFIED BY WORKS, 1940								
45	Land drained by open ditches only.....acres.....	³ 173,018	16,090	94,941	³ 54,486	7,501		
46	Length of these ditches.....miles.....	³ 318.2	84.8	47.0	³ 151.0	35.4		
47	Part protected by levees of an outside agency.....acres.....							
48	Land drained by open ditches and own levees.....acres.....	6,113		6,113				
49	Length of these ditches.....miles.....	7.2		7.2				
50	Length of these levees.....miles.....	7.2		7.2				
51	Part protected by levees of an outside agency.....acres.....							
52	Land drained by tile only.....acres.....	2,165	2,165					
53	Length of these tile.....miles.....	8.0	8.0					
54	Part protected by levees of an outside agency.....acres.....							
55	Land drained by tile and own levees.....acres.....							
56	Length of these tile.....miles.....							
57	Length of these levees.....miles.....							
58	Part protected by levees of an outside agency.....acres.....							
59	Land drained by open ditches and tile.....acres.....	131,366	47,103	7,992	2,806	51,500	1,680	20,285
60	Length of these open ditches.....miles.....	317.9	62.5	11.8	0.1	223.0	3.0	17.5
61	Length of these tile.....miles.....	254.1	72.9	7.7	0.1	142.7	8.0	22.7
62	Part protected by levees of an outside agency.....acres.....							
63	Land drained by open ditches, tile, and levees.....acres.....							
64	Length of these open ditches.....miles.....							
65	Length of these tile.....miles.....							
66	Length of these levees.....miles.....							
67	Part protected by levees of an outside agency.....acres.....							
68	Land in enterprises operating pumping plants.....acres.....	(³)			(³)			
69	Length of open ditches owned by these enterprises.....miles.....	(³)			(³)			
70	Length of tile owned by these enterprises.....miles.....							
71	Length of levees owned by these enterprises.....miles.....							
72	Part protected by levees of an outside agency.....acres.....							

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 25.

³Data for 1 enterprise operating pumping plant are included in those for enterprises drained by open ditches only.

CENSUS OF DRAINAGE - WYOMING

COUNTY TABLE II.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

ITEM (See definitions in Introduction)	THE STATE	Big Horn	Fremont	Goshen	Park	Platte ¹	Washakie
DRAINAGE WORKS							
1 Drainage enterprises.....number.....1940..	28	12	5	3	4	1	3
2 Open ditches:							
3 Completed.....miles.....1940..	643.3	147.3	66.0	151.1	258.4	3.0	17.5
4 1930..	521.0	198.3	22.7	108.0	178.0		14.0
5 1920..	25.1	2.5	(³)	(³)	17.6	(³)	
6 Additional length authorized.....miles.....1940..	47.5	19.5	6.0	7.0	15.0		
7 Tile drains:							
8 Completed.....miles.....1940..	262.1	80.9	7.7	0.1	142.7	8.0	22.7
9 1930..	237.6	68.2	13.0		135.7	3.7	17.0
10 1920..	114.2	43.9	(³)	(³)	47.1	(³)	23.2
11 Additional length authorized.....miles.....1940..	1.0				1.0		
12 Levees and dikes:							
13 Completed.....miles.....1940..	7.2		7.2				
14 1930..							
15 1920..							
16 Additional length authorized.....miles.....1940..							
17 Pumping plants:							
18 Engine capacity.....horsepower.....1940..	(⁴)			(⁴)			
19 1930..							
20 1920..							
21 Pump capacity.....gal. per min.....1940..	(⁴)			(⁴)			
22 1930..							
23 1920..							
24 Land served by pumps.....acres.....1940..	(⁴)			(⁴)			
25 1930..							
26 1920..							
27 Wells pumped for drainage.....number.....1940..	(⁴)			(⁴)			
28 1930..							
CAPITAL INVESTED							
29 Capital invested to January 1.....dollars.....1940..	5,594,856	1,819,256	457,027	498,878	2,194,695	40,000	585,000
30 1930..	5,250,573	1,818,624	309,419	473,369	2,075,161	20,000	554,000
31 1920..	1,175,962	550,027	6,231	16,896	442,808	2,000	158,000
32 Estimated cost when completed.....dollars.....1940..	5,728,123	1,875,183	477,027	504,878	2,246,035	40,000	585,000
33 1930..	5,599,032	1,849,624	309,419	498,369	2,349,120	37,000	555,500
34 1920..	1,667,367	727,433	6,231	21,120	632,583	2,000	278,000
35 Average cost per acre when completed.....dollars.....1940..	18.32	28.69	4.37	8.81	38.07	23.81	28.84
36 1930..	22.79	24.65	9.21	9.03	38.47	20.11	29.26
37 1920..	17.46	17.42	44.51	7.64	21.14	4.00	13.63
38 Invested in and required for completion, 1940:							
39 Enterprises having open ditches only.....dollars..	\$1,417,344	510,610	197,027	\$487,985	221,722		
40 Average amount per acre.....dollars..	\$8.19	31.73	2.08	\$8.96	29.56		
41 Enterprises having open ditches and levees.....dollars..	67,000		67,000				
42 Average amount per acre.....dollars..	10.96		10.96				
43 Enterprises having tile only.....dollars..	125,673	125,673					
44 Average amount per acre.....dollars..	58.05	58.05					
45 Enterprises having tile and levees.....dollars..							
46 Average amount per acre.....dollars..							
47 Enterprises having open ditches and tile.....dollars..	4,118,106	1,238,900	213,000	16,893	2,024,313	40,000	585,000
48 Average amount per acre.....dollars..	31.35	26.30	26.65	6.02	39.31	23.81	28.84
49 Enterprises having ditches, tile, and levees.....dollars..							
50 Average amount per acre.....dollars..							
51 Enterprises operating pumping plants.....dollars..	(⁵)			(⁵)			
52 Average amount per acre.....dollars..	(⁵)			(⁵)			
MAINTENANCE AND OPERATION							
53 Cost of maintenance and operation in 1939:							
54 By enterprises operating pumping plants.....dollars..	(⁵)			(⁵)			
55 Enterprises reporting.....number..	1			1			
56 Land in these enterprises.....acres..	(⁵)			(⁵)			
57 Average cost per acre.....dollars..	(⁵)			(⁵)			
58 By enterprises not operating pumping plants.....dollars..	\$36,137	6,336	5,255		8,979		(⁶)
59 Enterprises reporting.....number..	24	12	5	1	4		2
60 Land in these enterprises.....acres..	\$299,694	65,358	109,046	(⁶)	59,001		(⁶)
61 Average cost per acre.....dollars..	\$0.12	0.10	0.04	(⁶)	0.15		(⁶)
62 Federal aid in maintenance:							
63 Enterprises reporting.....number..	3	1			2		
64 Land in these enterprises.....acres..	61,853	(⁶)			(⁶)		
FINANCIAL CONDITION							
65 Drainage taxes collected in 1939.....dollars..	46,981	10,225	7,926	(⁶)	8,619	1,400	(⁶)
66 Enterprises reporting.....number..	22	9	5	2	3	1	2
67 Land in these enterprises.....acres..	278,918	49,018	109,046	(⁶)	49,403	1,680	(⁶)
68 Average amount collected per acre.....dollars..	0.18	0.21	0.07	(⁶)	0.17	0.83	(⁶)
69 Area delinquent in drainage taxes, Dec. 31, 1939.....acres..	21,680	719,680	2,000		(⁷)		
70 Enterprises reporting.....number..	9	5	3		1		
71 Land in these enterprises.....acres..	40,220	726,115	14,105		(⁷)		
72 Portion delinquent in these enterprises.....percent..	53.9	75.4	14.2		(⁷)		
73 Total indebtedness, Dec. 31, 1939.....dollars..	4,455,107	1,604,296	406,327	(⁸)	1,674,773	24,850	\$744,861
74 Enterprises reporting.....number..	26	12	5	1	4	1	3
75 Land in these enterprises.....acres..	307,856	65,358	109,046	(⁸)	59,001	1,680	\$72,771
76 Average indebtedness per acre.....dollars..	14.47	24.55	3.73	(⁸)	28.38	14.79	\$10.24
77 Indebtedness in arrears, Dec. 31, 1939.....dollars..	141,631	7141,631			(⁷)		
78 Enterprises reporting.....number..	5	4			1		
79 Land in these enterprises.....acres..	19,225	719,225			(⁷)		
80 Average arrearage per acre.....dollars..	7.37	7.37			(⁷)		
81 Reduction of debt by refinancing, prior to 1940.....dollars..	408,147	408,147					
82 Enterprises reporting.....number..	8	8					
83 Land in these enterprises.....acres..	37,268	37,268					
84 Average reduction per acre.....dollars..	10.95	10.95					

¹For counties having less than 3 enterprises, statistics are shown only by written permission of each enterprise affected. ²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in the State is 25. ³Not available. ⁴Where there are less than 3 enterprises reporting in the State, data are not shown. ⁵Data for 1 enterprise operating pumping plant are included in those for enterprises not operating pumping plants, having open ditches only. ⁶Where there are less than 3 enterprises reporting, data are shown only in the State totals, except as noted in footnotes 1 and 4. ⁷Data for 1 enterprise in Park County included in those for Big Horn County. ⁸Data for 1 enterprise in Goshen County included in those for Washakie County.

CENSUS OF DRAINAGE—ALABAMA AND VIRGINIA

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TABLE 1.—SUMMARY OF DRAINAGE FOR THE STATES: JAN. 1, 1940 AND 1930¹

ITEM (See definitions in Introduction)	CENSUS OF —		INCREASE OR DECREASE (—)	
	1940	1930	Amount	Percent
Approximate land area of State.....acres.....	56,225,280	25,767,680		
Land in drainage enterprises.....acres.....	43,759	15,042	28,717	190.9
Improved.....acres.....	21,299	6,042	15,257	252.5
Unimproved:				
Timber and cut-over.....acres.....	11,579	8,500	3,079	36.2
Other.....acres.....	10,881	500	10,381	(2)
Drainage sufficient for normal crop.....acres.....	15,714	13,138	2,576	19.6
Partly drained, for partial crop.....acres.....	17,534	1,904	15,630	820.9
Unfit to raise any crop for lack of drainage.....acres.....	10,511		10,511	
In occupied farms.....acres.....	43,759	5,704	38,055	667.2
In planted crops.....acres.....	18,681	4,748	13,933	293.4
Idle.....acres.....	25,078	9,500	15,578	164.0
Available for settlement.....acres.....		9,000	-9,000	-100.0
Open ditches, completed.....miles.....	89.0	40.0	49.0	122.5
Tile drains, completed.....miles.....				
Drainage pumping plants, capacity.....horsepower.....				
gal. per min.....				
Capital invested in enterprises.....dollars.....	611,300	241,608	369,692	153.0
Average per acre.....dollars.....	13.97	16.06	-2.09	-13.0

¹No drainage enterprises reported in Alabama in 1930.

²Percent not shown when more than 1,000.

TABLE 2.—AREA OF ENTERPRISES, BY SIZE: JAN. 1, 1940 AND 1930

SIZE	AREA OF ENTERPRISES ¹	
	1940	1930
	Acres	Acres
All enterprises.....	43,759	15,042
1,000 to 1,999 acres.....		
2,000 to 4,999 acres.....	2,146	5,504
5,000 to 9,999 acres.....		9,538
10,000 to 19,999 acres.....	41,613	

¹No overlapping of enterprises indicated in Alabama and Virginia in 1940.

TABLE 3.—LAND AND CAPITAL INVESTED, BY CHARACTER OF ENTERPRISE, JAN. 1, 1940

CHARACTER OF ENTERPRISE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	43,759	100.0	611,300	100.0
Drainage districts.....	43,759	100.0	611,300	100.0
Other, or not reported.....				

TABLE 4.—LAND AND CAPITAL INVESTED, BY TYPE OF DRAINAGE: JAN. 1, 1940 AND 1930

TYPE OF DRAINAGE	LAND IN ENTERPRISES				CAPITAL INVESTED IN ENTERPRISES			
	1940		1930		1940		1930	
	Acres	Percent	Acres	Percent	Dollars	Percent	Dollars	Percent
All enterprises.....	43,759	100.0	15,042	100.0	611,300	100.0	241,608	100.0
Gravity drainage only by—								
Open ditches.....	43,759	100.0	15,042	100.0	611,300	100.0	241,608	100.0
All or part by pumping.....								

TABLE 5.—LAND AND CAPITAL INVESTED, BY PRINCIPAL PURPOSE OF DRAINAGE, JAN. 1, 1940

PURPOSE OF DRAINAGE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	43,759	100.0	611,300	100.0
Improvement of land already in farms.....	28,045	64.1	410,000	67.1
Reclamation of swamp land not previously in farms.....	15,714	35.9	201,300	32.9

CENSUS OF DRAINAGE — ALABAMA AND VIRGINIA

TABLE 6.—LAND AND CAPITAL INVESTED, BY DATE OF ORGANIZATION, JAN. 1, 1940

DATE OF ORGANIZATION	Land in enterprises ¹		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	43,759	100.0	611,300	100.0
Before 1915.....	.....	.....	.....	.....
1915-1919.....	28,045	64.1	410,000	67.1
1920-1924.....	.....	.....	.....	.....
1925-1929.....	15,714	35.9	201,300	32.9
1930-1939.....	.....	.....	.....	.....

¹No overlapping of enterprises indicated in Alabama and Virginia in 1940.

TABLE 7.—DRAINAGE CONDITION, DEVELOPMENT, AND USE OF LAND IN ENTERPRISES, BY DATE OF ORGANIZATION, 1939

DATE OF ORGANIZATION	Land in all enterprises	DRAINAGE CONDITION			DEVELOPMENT			USE OF LAND						
		Drained	Partly drained	Undrained	Improved land	Timber and cut-over land	Other unimproved land	In occupied farms	In planted crops	Idle	Land available for settlement			
	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres	Per-cent	Acres	Acres	Acres
All enterprises..	43,759	15,714	35.9	17,534	10,511	21,299	48.7	11,579	10,881	43,759	100.0	18,681	25,078	.....
Before 1915.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1915-1919.....	28,045	.....	.....	17,534	10,511	10,523	37.5	7,011	10,511	28,045	100.0	9,822	18,223	.....
1920-1924.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1925-1929.....	15,714	15,714	100.0	.....	.....	10,776	68.5	4,568	370	15,714	100.0	8,859	6,855	.....
1930-1939.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

TABLE 8.—COST OF OPERATION AND MAINTENANCE, BY TYPE OF DRAINAGE, 1939

TYPE OF DRAINAGE	Land in all enterprises	LAND REPORTING ON COST OF MAINTENANCE AND OPERATION			COST REPORTED		
		Total	Some cost	No cost	Total amount	Per acre on—	
						Total reporting	Area incurring
	Acres	Acres	Acres	Acres	Dollars	Dollars	Dollars
All enterprises.....	43,759	43,759	15,714	28,045	(¹)	(¹)	(¹)
Gravity drainage only: Open ditches only.....	43,759	43,759	15,714	28,045	(¹)	(¹)	(¹)
Pumping for all or part of drainage.....	.....	.....	.....	.....	.....	.....	.....

¹Data not shown, to avoid disclosure of individual enterprises.

TABLE 9.—LAND AND CAPITAL INVESTED, BY METHOD OF MAINTENANCE AND BY WHETHER MAINTENANCE IS SYSTEMATIC, JAN. 1, 1940

MAINTENANCE	Land		Capital invested	
	Acres	Percent	Dollars	Percent
All enterprises.....	43,759	100.0	611,300	100.0
Method:				
By district forces.....	15,714	35.9	201,300	32.9
"None," or not reporting.....	28,045	64.1	410,000	67.1
Whether systematic:				
Reporting "yes".....	15,714	35.9	201,300	32.9
Reporting "no".....	28,045	64.1	410,000	67.1

CENSUS OF DRAINAGE — ALABAMA AND VIRGINIA

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TABLE 10.—LAND IN DRAINAGE ENTERPRISES CLASSIFIED BY CONDITION AND BY USE, 1940, 1930, AND 1920; AND BY KIND OF WORKS, 1940

	ITEM (See definitions in Introduction)	THE STATES ¹		ITEM (See definitions in Introduction)	THE STATES ¹
LAND AREA			CONDITION AND USE OF LAND—Continued		
1	Approximate land area.....acres....1940..	58,225,280	26	Unimproved land—Continued	
2	Drainage enterprises.....number....1940..	2 4	27	Other unimproved land.....acres....1940..	10,881
3	Land in enterprises.....acres....1940..	43,759	28	.....1930..	500
4	.....1930..	15,042		.....1920..	
5	.....1920..		29	Land in occupied farms.....acres....1940..	43,759
6	Area of all enterprises, overlapping included.....acres....1940..	43,759	30	.....1930..	5,704
7	Amount of overlapping.....acres....1940..		31	Increase or decrease (-), 1930-1940.....acres.....	38,055
			32	.....percent.....	667.2
CONDITION AND USE OF LAND					
8	Land with drainage sufficient for normal crop.....acres....1940..	15,714	33	Land in planted crops.....acres....1940..	18,681
9	.....1930..	13,138	34	.....1930..	4,748
10	Increase or decrease (-), 1930-1940.....acres.....	2,576	35	Increase or decrease (-), 1930-1940.....acres.....	13,933
11	.....percent.....	19.6	36	.....percent.....	293.4
12	Land undrained, unfit for any crop.....acres....1940..	10,511	37	Land idle.....acres....1940..	25,078
13	.....1930..		38	.....1930..	9,500
14	Increase or decrease (-), 1930-1940.....acres.....	10,511	39	Increase or decrease (-), 1930-1940.....acres.....	15,578
15	.....percent.....		40	.....percent.....	164.0
16	Land partly drained, for partial crop.....acres....1940..	17,534	41	Land available for settlement.....acres....1940..	
17	.....1930..	1,904	42	.....1930..	9,000
18	Increase or decrease (-), 1930-1940.....acres.....	15,630	43	Increase or decrease (-), 1930-1940.....acres.....	-9,000
19	.....percent.....	820.9	44	.....percent.....	-100.0
20	Improved land.....acres....1940..	21,299	LAND CLASSIFIED BY WORKS, 1940		
21	.....1930..	6,042	45	Land drained by open ditches only.....acres.....	43,759
22	.....1920..		46	Length of these ditches.....miles.....	89.0
	Unimproved land:		47	Part protected by levees of an outside agency.....acres.....	
23	Woodland and cut-over land.....acres....1940..	11,579			
24	.....1930..	8,500			
25	.....1920..				

¹No drainage enterprises reported in Alabama in 1930 or 1920, and none in Virginia in 1920.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in these States is 3.

TABLE 11.—DRAINAGE ENTERPRISES—WORKS AND CAPITAL INVESTED, 1940, 1930, AND 1920; AND MAINTENANCE AND OPERATION, AND FINANCIAL CONDITION, 1939

	ITEM (See definitions in Introduction)	THE STATES ¹		ITEM (See definitions in Introduction)	THE STATES ¹
DRAINAGE WORKS			MAINTENANCE AND OPERATION—Continued		
1	Drainage enterprises.....number....1940..	2 4	21	Cost of maintenance and operation in 1939—Continued	
2	Open ditches:		22	By enterprises not operating pumping plants.....dollars..	(³)
3	Completed.....miles....1940..	89.0	23	Enterprises reporting.....number..	2
4	.....1930..	40.0	24	Land in these enterprises.....acres....	(³)
5	.....1920..			Average cost per acre.....dollars..	(³)
	Additional length authorized.....miles....1940..		FINANCIAL CONDITION		
6	Capital invested to January 1.....dollars....1940..	611,300	25	Drainage taxes collected in 1939.....dollars..	(³)
7	.....1930..	241,608	26	Enterprises reporting.....number..	2
8	.....1920..		27	Land in these enterprises.....acres....	(³)
9	Estimated cost when completed.....dollars....1940..	611,300	28	Average amount collected per acre.....dollars..	(³)
10	.....1930..	241,608	29	Area delinquent in drainage taxes, Dec. 31, 1939.....dollars..	41,664
11	.....1920..		30	Enterprises reporting.....number..	4
12	Average cost per acre when completed.....dollars....1940..	13.97	31	Land in these enterprises.....acres....	43,759
13	.....1930..	16.06	32	Portion delinquent in these enterprises.....percent..	95.2
14	Invested in and required for completion, 1940:		33	Total indebtedness, Dec. 31, 1939.....dollars..	169,500
15	Enterprises having open ditches only.....dollars.....	611,300	34	Enterprises reporting.....number..	4
16	Average amount per acre.....dollars.....	13.97	35	Land in these enterprises.....acres....	43,759
	MAINTENANCE AND OPERATION		36	Average indebtedness per acre.....dollars..	3.87
17	Cost of maintenance and operation in 1939:		37	Indebtedness in arrears, Dec. 31, 1939.....dollars..	41,500
18	By enterprises operating pumping plants.....dollars.....		38	Enterprises reporting.....number..	3
19	Enterprises reporting.....number.....		39	Land in these enterprises.....acres....	30,191
20	Land in these enterprises.....acres.....		40	Average arrearage per acre.....dollars..	1.37
	Average cost per acre.....dollars.....		41	Reduction of debt by refinancing, prior to 1940.....dollars..	(³)
			42	Enterprises reporting.....number..	2
			43	Land in these enterprises.....acres....	(³)
			44	Average reduction per acre.....dollars..	(³)

¹No drainage enterprises reported in Alabama in 1930 and 1920, and none in Virginia in 1920.

²An intercounty enterprise is counted in each county in which a part is located. The number of separate enterprises in these States is 3.

³Data not shown, to avoid disclosures of individual enterprises.

APPENDIX

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CHART OF DRAINAGE LAWS.....	662

CONFIDENTIAL CENSUS REPORT: Your report is required by Act of Congress. This Act also makes it unlawful for the Bureau to disclose any facts, including statistical information concerning the Nation's population, resources, and business activities. Your

<p style="font-size: small;">16-243</p> <p style="text-align: center;">DEPARTMENT OF COMMERCE—BUREAU OF THE CENSUS</p> <p style="text-align: center;">WASHINGTON</p> <p style="text-align: center;">SIXTEENTH CENSUS OF THE UNITED STATES : 1940</p> <p style="text-align: center;">DRAINAGE</p> <hr/> <p>This schedule is to be used ONLY in the following States:</p> <table style="width:100%; border: none;"> <tr> <td style="width:25%;">Alabama</td> <td style="width:25%;">Indiana</td> <td style="width:25%;">Montana</td> <td style="width:25%;">South Carolina</td> </tr> <tr> <td>Arizona</td> <td>Iowa</td> <td>Nebraska</td> <td>South Dakota</td> </tr> <tr> <td>Arkansas</td> <td>Kansas</td> <td>Nevada</td> <td>Tennessee</td> </tr> <tr> <td>California</td> <td>Kentucky</td> <td>New Mexico</td> <td>Texas</td> </tr> <tr> <td>Colorado</td> <td>Louisiana</td> <td>North Carolina</td> <td>Utah</td> </tr> <tr> <td>Delaware</td> <td>Maryland</td> <td>North Dakota</td> <td>Virginia</td> </tr> <tr> <td>Florida</td> <td>Michigan</td> <td>Ohio</td> <td>Washington</td> </tr> <tr> <td>Georgia</td> <td>Minnesota</td> <td>Oklahoma</td> <td>Wisconsin</td> </tr> <tr> <td>Idaho</td> <td>Mississippi</td> <td>Oregon</td> <td>Wyoming</td> </tr> <tr> <td>Illinois</td> <td>Missouri</td> <td></td> <td></td> </tr> </table>	Alabama	Indiana	Montana	South Carolina	Arizona	Iowa	Nebraska	South Dakota	Arkansas	Kansas	Nevada	Tennessee	California	Kentucky	New Mexico	Texas	Colorado	Louisiana	North Carolina	Utah	Delaware	Maryland	North Dakota	Virginia	Florida	Michigan	Ohio	Washington	Georgia	Minnesota	Oklahoma	Wisconsin	Idaho	Mississippi	Oregon	Wyoming	Illinois	Missouri			<p style="text-align: center;">EXPLANATIONS AND INSTRUCTIONS</p> <p>Legal requirement.—A report of every drainage enterprise in the United States is required by the Decennial Census Act of the Congress, approved June 18, 1929.</p> <p>Drainage of agricultural lands is the act or process of drawing off an excess of water by underground conduits, pipes, or tiles; or by open or covered trenches in the surface of the ground; or by pumping, for the purpose of improving the condition of the soil and crops. In this connection the area drained does not include land from which water flows without artificial aid into natural watercourses; nor does it include land protected from overflow by levees, dikes, or embankments; nor areas guarded by trenches from the run-off from higher lands, unless some form of drainage works has been constructed on the protected land.</p> <p>Definition of a drainage enterprise.—A drainage enterprise, for the purpose of this census, is the area—</p> <p>(1) organized in one drainage district; or</p> <p>(2) assessed for the same public drain; or</p> <p>(3) in corporate or in private ownership drained by works operated as one undertaking.</p> <p>This census relates only to the drainage of agricultural lands. A report is to be made for each such drainage enterprise organized under a general or a special drainage law, or as a corporation, and for each drainage enterprise under private ownership draining as much as 500 acres. Do not report any privately owned enterprise draining less than 500 acres.</p> <p>All questions are to be answered.—If exact information is not available give the best estimate possible and write "Est." beside the answer. Use the margin of the schedule or a separate sheet when additional space is necessary to make the answers clear, definite, and complete.</p>	<p style="text-align: center;">SCHEDULE No. (1)</p> <hr/> <p style="text-align: center;">This entire center space for office use only</p> <hr/> <p style="text-align: center;">CODES</p> <p style="text-align: center;">Class Code (2)</p> <hr/> <p style="text-align: center;">Levy Code (3)</p> <hr/> <p style="text-align: center;">Organized Code (4)</p> <hr/> <p style="text-align: center;">Purpose Code (5)</p> <hr/> <p style="text-align: center;">Completion Code (6)</p> <hr/> <p style="text-align: center;">Pumping Code (7)</p>
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<p>IF THE ENTERPRISE IS LOCATED ENTIRELY IN ONE COUNTY: Answer all questions for the whole enterprise.</p> <p>IF THE ENTERPRISE IS LOCATED IN MORE THAN ONE COUNTY: Prepare a separate report for each county. Answer Questions 1 to 9, inclusive, for the whole enterprise on each schedule. Answer Questions 11 to 35, inclusive, for ONLY that part of the enterprise which is located in the county reported under Question 10.</p>																																										
<p style="text-align: center;">I.—MANAGEMENT AND LOCATION OF ENTERPRISE</p> <p>1. Name of drainage district or enterprise: _____</p> <p>2. Individual, board, or company controlling enterprise: Name _____</p> <p>Post-office address: { Main office _____ Local office _____</p> <p>3. Location of enterprise (entire enterprise as now organized):</p> <p>(a) State _____</p> <p>(b) County or counties _____</p> <p>(c) Townships or other divisions of county: Use Land Office survey numbers where available; where not available, give proper name and also class, as township, town, precinct, district, etc. _____ _____</p> <p>(d) Name of lake, stream, or ditch receiving discharge from district: _____</p> <p>(e) Location of district outlet: Section _____ Township _____ Range _____ If section and township numbers are not obtainable, state below distance and direction from some nearby town. _____</p> <p>4. Person furnishing information: Name and title _____ Address _____ Date _____ Signature _____</p>	<p style="text-align: center;">II.—CLASS OF ENTERPRISE</p> <p>5. Indicate type of organization (at the present time) by X:</p> <table style="width:100%; border: none;"> <tr> <td style="width:50%;">Drainage district. _____</td> <td style="width:50%;">Commercial development: _____</td> </tr> <tr> <td>County drain. _____</td> <td>(a) Incorporated. _____</td> </tr> <tr> <td>Township drain. _____</td> <td>(b) Not incorporated. _____</td> </tr> <tr> <td>State project. _____</td> <td>Individual ownership. _____</td> </tr> <tr> <td>Irrigation enterprise. _____</td> <td>Other. _____</td> </tr> </table> <p style="font-size: x-small;">In case of doubt as to classification, give on line below reference, with date, to act or law under which enterprise is operating.</p> <p>6. Has this enterprise the power of levying taxes? _____ (Yes or No)</p> <p>7. Year in which this enterprise was organized _____</p> <p>8. If drainage was begun by a different enterprise or under a different type of organization than the present enterprise, state the facts briefly: _____ _____ _____</p>	Drainage district. _____	Commercial development: _____	County drain. _____	(a) Incorporated. _____	Township drain. _____	(b) Not incorporated. _____	State project. _____	Individual ownership. _____	Irrigation enterprise. _____	Other. _____	<p style="text-align: center;">III.—PURPOSE OF DRAINAGE</p> <p>9. Indicate principal purpose of artificial drainage by X:</p> <table style="width:100%; border: none;"> <tr> <td style="width:50%;">Improvement of land already in farms. _____</td> <td style="width:50%;">_____</td> </tr> <tr> <td>Reclamation of swampland not previously in farms. _____</td> <td>_____</td> </tr> <tr> <td>Protection against overflow. _____</td> <td>_____</td> </tr> <tr> <td>Removal of alkali or seepage from irrigation. _____</td> <td>_____</td> </tr> </table>	Improvement of land already in farms. _____	_____	Reclamation of swampland not previously in farms. _____	_____	Protection against overflow. _____	_____	Removal of alkali or seepage from irrigation. _____	_____																						
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SCHEDULE

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names or identity, from your census reports. Only sworn census employees will see your statements. Data collected will be used solely for preparing Census Reports Cannot Be Used for Purposes of Taxation, Regulation, or Investigation.

IV.—SEPARATE REPORT FOR EACH COUNTY

NOTE: { If enterprise is located entirely in one county: Answer Questions 11 through 35 for the whole enterprise.
 If enterprise is located in more than one county: Answer Questions 11 through 35 only for that part of the enterprise located in the county reported under Question 10.

10. Name of county to which the following answers apply _____

V.—LAND IN ENTERPRISE (in this county)	Code	VII.—DRAINAGE WORKS (in this county)	Code
11. Area of enterprise: (The sum of b and c must equal a.)		NOTE.—Drainage works of an enterprise include all varieties of underground conduits, pipes, or lines of tile; drains of stone, wood, or other materials; and all open ditches, canals, and pumping equipment for drainage. Levees, dikes, dams, weirs, gates, and other devices for draining away or controlling surface and soil waters are to be considered "Drainage works" when, and only when, they are constructed or operated with drainage ditches, underdrains, or drainage pumps. Tile as here used includes pipes of earthenware, concrete, or other materials buried beneath the surface in such a way as to permit the excess water to flow away. Ditches include all open artificial trenches, usually with sloping sides.	
(a) Total..... Acres	{A-1 B-1	24. Open ditches belonging to this enterprise:	{A-15 B-12 C-2 D-10
(b) Assessed for cost of enterprise..... Acres		(a) Total length constructed or improved..... Miles	C-3
(c) Not assessed but benefited..... Acres	A-2	(b) Additional length authorized..... Miles	C-4
(d) Why was acreage reported under "c" not assessed? <input type="text"/>	A-3	25. Levees and dikes belonging to this enterprise:	C-5
(e) If this enterprise was established for any other purpose than drainage, what area is served or to be served by the work for which costs are assessed?..... Acres	A-4	(a) Total length constructed, rebuilt, or relocated..... Miles	C-5
12. Overlapping of enterprises:		(b) Additional length authorized..... Miles	C-6
(a) Portion of total area (11a) that was included in later enterprises for which reports are obtained..... Acres	{A-5 B-2	26. Tile drains belonging to this enterprise:	C-7
(b) Portion of total area (11a) that has not been included in later enterprises for which reports are obtained..... Acres		(a) Total length installed..... Miles	C-7
NOTE.—Questions 13 to 17, inclusive, apply to the acreage reported under Question 10b. The sum of a, b, and c under each of Questions 13 and 14 should equal the answer to 12b.		(b) Additional length authorized..... Miles	C-8
13. Drainage condition in 1939:		27. Number of drainage wells from which water is pumped by this enterprise to lower ground water table (if none, write "None")..... Number	C-9
(Question 13 relates only to degree of wetness of the land, regardless of its actual use.)		28. Pumping equipment (show only in county where located):	C-10
(a) Area unfit to raise any crop, for lack of drainage..... Acres	A-6	(a) Kind of power..... <input type="text"/>	C-10
(b) Area drained, fit to raise normal crop..... Acres	{A-7 B-3	(b) Capacity of plant..... Horsepower	C-11
(c) Area partly drained, fit for partial crop only..... Acres		(c) Kind of pumps..... <input type="text"/>	C-12
14. Use of land in 1939:		(d) Number of pumps..... Number	C-13
(a) Improved land..... Acres	{A-8 B-4	(e) Total capacity of pumps..... Gallons per minute	C-14
(b) Timber and cut-over land (all requiring clearing before it can be plowed)..... Acres	A-9	(f) Average lift..... Feet	C-15
(c) Other unimproved land..... Acres		29. Area (in 12b only) served by pumps (if none, write "None")..... Acres	C-16
15. Land in occupied farms in 1939:		30. Maintenance of drainage works:	{A-16 B-13 C-17 D-11
(a) Total area..... Acres	{A-10 B-5	(a) Are the ditches maintained systematically?..... (Yes or No)	{A-16 B-13 C-17 D-11
(b) Area planted in 1939..... Acres	A-11	(b) Indicate method of doing maintenance work by X:	
16. Area that has been assessed by this enterprise, but was idle in 1939..... Acres	A-12	District forces..... <input type="text"/>	{A-17 B-14 C-18 D-12
17. Area available for settlement (if none, write "None")..... Acres	{A-13 B-6	Contract let..... <input type="text"/>	
VI.—CAPITAL INVESTED AND FINANCING (in this county)		Work apportioned to landowners..... <input type="text"/>	
NOTE.—The following inquiries relate to the costs assessed or to be assessed against lands in this county which, in the case of an enterprise located in more than one county, may be different from the cost of the drainage works constructed in this county. The figures should show the cost of original construction plus enlargements and extensions, but not operation or maintenance. Where investment and maintenance costs have not been kept separate, the portion representing capital investment should be estimated as accurately as possible.		Other (give name)..... <input type="text"/>	
18. Cost of drainage works to January 1, 1940..... \$ (Omit cents)		(c) Does enterprise own excavators or other power equipment (not including automobiles and trucks) used principally for maintenance?..... (Yes or No)	{A-18 B-15 C-19 D-13
Include engineering, organization, rights-of-way, damages, construction and purchase of drainage works, legal services, administration, and lands and buildings, but not lands for sale or for farming. Include obligations of earlier enterprises assumed by this enterprise, and omit obligations of this enterprise assumed by later enterprises.		(d) Cost of operation and maintenance in 1939 (if none, write "None")..... \$ (Omit cents)	{B-16 C-20 D-14
19. Estimated additional cost to complete works authorized..... \$ (Omit cents)	B-8	31. Government aid for maintenance and rehabilitation:	
20. Total indebtedness, Dec. 31, 1939 (if none, write "None")..... \$ (Omit cents)	D-2	(a) Did this enterprise ever receive from any Federal agency, directly or through State or local organization, assistance in restoring its drainage works without obligation to repay the cost?..... (Yes or No)	{B-17 C-21 D-15
21. Amount of taxes and special assessments collected in 1939 (if none, write "None")..... \$ (Omit cents)	D-3	(b) Name of such agency: <input type="text"/>	{B-18 C-22
22. Arrearage, Dec. 31, 1939:		VIII.—EMPLOYMENT AND PAY ROLL	
(a) Was this enterprise in arrears in payment of principal or interest on bonds or other obligations?..... (Yes or No)	{A-14 B-9 D-5	32. Total amount of wages and salaries paid and payable for 1939 (if none, write "None")..... \$ (Omit cents)	D-16
(b) Amount in arrears (if any)..... \$ (Omit cents)	D-6	33. Total number employed during the week ending April 29, 1939 (if none, write "None")..... Number	D-17
(c) Has any reduction been made in the total of cost assessed for this enterprise by reorganization, refinancing, bankruptcy proceedings, or any less formal agreement with bondholders or other creditors?..... (Yes or No)	{B-10 D-7	IX.—FLOOD PROTECTION BY OUTSIDE AGENCIES (in this county)	
(d) Amount of such reduction in indebtedness..... \$ (Omit cents)	D-8	34. Area (in 12b only) protected from overflow by levees or dikes belonging to a levee district, State, or other outside agency (not this enterprise). (If none, write "None.")..... Acres	{B-19 C-23
23. Area delinquent in payment of drainage taxes, Dec. 31, 1939 (if none, write "None")..... Acres	{B-11 D-9	35. Name of outside agency protecting area in this enterprise from overflow: <input type="text"/>	B-20

(Reduced facsimile)

INSTRUCTIONS TO SPECIAL ENUMERATORS
DRAINAGE SCHEDULE
CENSUS OF AGRICULTURE: 1940

GENERAL INSTRUCTIONS

(See also section *Explanations and Instructions* on face of schedule)

A drainage schedule is to be filled out for each enterprise which was organized for drainage of agricultural land, or was organized for some other purpose and has undertaken drainage of agricultural land. (See definitions on the face of this schedule, drainage of agricultural land and drainage enterprise in column 2, and drainage works in column 4.) Agricultural land is to include land usable for agriculture when drained.

Overlapping enterprises.—An independent enterprise may include part or all of an earlier enterprise, or may be partly or wholly included in a later enterprise. A separate report, on the drainage schedule, will be obtained for each of the overlapping enterprises unless one of the enterprises is omitted from the census for some reason other than the overlapping. The amount of overlapping with later enterprises will be stated in answer to Question 12a.

Subdistricts.—In some States an area wholly or partly within an organized drainage enterprise may be organized as a subdistrict, under the same or a different governing board. Each such subdistrict should be considered a separate enterprise from the main or parent district in which it is situated, and a separate schedule prepared for it, if separate records have been kept.

Two or more enterprises under the same ownership.—The same corporate or private ownership may cover two or more drainage enterprises, for each of which a separate report should be made. All lands drained by the same outlet constructed or improved by the owner (or owners) of these lands should be reported as one enterprise. All lands in one continuous body under one ownership should be reported as one enterprise, unless different parts were constructed separately and are operated independently, in which case each part should be reported as an enterprise. Separate tracts of less than 500 acres each, with drainage works under private ownership, should not be reported unless drainage facilities serving a total of 500 acres or more of such tracts were constructed or are now operated as a unit.

Enterprises that have not begun construction.—For an enterprise that has been organized but has not begun construction, a report should be made if the enterprise is a going concern, answering those questions that apply to the case in hand.

Method of making the canvass.—Each special enumerator doing field work in the Census of Drainage will be assigned a definite territory, in which he will be held responsible for obtaining complete reports regarding all drainage enterprises. Within this territory he will arrange his itinerary so as to obtain the reports as economically as possible.

Lists of drainage enterprises.—Lists of drainage enterprises will be supplied for use of the special enumerators, who should use every available means to make these lists complete and to correct all errors found in these lists. If two or more districts or drains have been combined into one enterprise, this should be reported, with the names of the separate enterprises and the name of the present organization.

The additional names should be entered on the lists in order of the year of organization.

County maps.—To show the approximate locations of the enterprises (Question 3), and especially to aid in determining the overlapping of enterprises (Question 12) and the particular land to be considered in answering certain questions on the schedule, the boundaries of the enterprises are to be drawn on county maps which will be supplied to each special enumerator with his assignment.

In districts where there is overlapping:

Plat first the enterprise organized last—the “latest” enterprise—and put its name or number within the boundary.

Plat the remaining enterprises in order, the latest-organized first, and put its name or number on that part of each not included in the later enterprises.

Where land has been assessed in three or more drainage enterprises, and therefore identification of the boundaries of different enterprises may be difficult, the boundary of an enterprise need not be traced across the area included in two later enterprises. That is, if County Drain 10 includes land that has been assessed for County Drain 18 and for County Drain 27 (both of which already have been platted, No. 27 before No. 18), the boundary of County Drain 10 need not be shown across the area that is included in both County Drain 18 and County Drain 27.

County reports.—As soon as the special enumerator completes the canvass of any county, he will prepare a general statement concerning drainage conditions in the county, and include comments that may be helpful in explaining and tabulating the data on the reports (schedules) for the individual enterprises. This report, the county map, and the corrected list of enterprises will be submitted with the final reports from the county.

INSTRUCTIONS CONCERNING SPECIFIC INQUIRIES

(The instruction numbers correspond with the question numbers on the face of the schedule)

GENERAL INFORMATION

Enterprises located in more than one county.—Many drainage enterprises include land in more than one county. That the statistics may be tabulated correctly by counties, it is necessary that the portion in each county be reported on a separate schedule. Questions 1 to 9, inclusive, are for identification and general classification, and should be answered alike on all schedules covering parts of the same enterprise; but Questions 10 to 35, inclusive, on any one schedule relate to the land and drainage works in only one county—the county named in answer to Question 10.

1. Name of enterprise.—Give the name of the drainage enterprise exactly as it appears on the county or other public records, if the enterprise is a legally organized drain or district or a corporation; if it is under private ownership, give the correct name of the individual, firm, or company.

2. Individual, board, or company controlling enterprise.—(1) For an enterprise owned by an individual or by a private firm or company, give the name of that individual or firm. (2) For a drainage district or other enterprise organized under a drainage law, give both the name and the official title of the officer immediately in charge. (3) For any other drainage enterprise, give both the name of the company or association having control, unless it has been given in answer to Question 1, and the name of the secretary or responsible executive officer. One purpose of this inquiry is to obtain the name and address of the official or other person responsible for directing the affairs of the enterprise, from whom authoritative information can be obtained, if needed.

3. Location of enterprise.—Name all counties in which any part of this enterprise is situated. Designate each township in which a part of the enterprise is situated, by township and range numbers where covered by a General Land Office survey. For an enterprise comprising only a few square miles, indicate the location more definitely by giving the section numbers or otherwise designating the approximate location in the township.

The lake, stream, or ditch to be named as receiving the discharge is that into which the water flows from the lower end of the drainage construction or improvement made by the enterprise. The location of the district outlet is the point where the drainage works discharge into the natural watercourse.

4. Person furnishing information.—Enter here both name and official title of the individual who furnishes the information given on the schedule, whether it is or is not the same as given in answer to Question 2. In cases where the information is compiled by the special enumerator making the canvass, as from county records, he should enter his own name and title and add “from county records” or other appropriate notation.

The signature required is that of the special enumerator who obtains the report.

5. Type of organization.—Classify the enterprise according to its kind of government, or to its primary purpose if that was not drainage. The name of the enterprise is not a reliable guide; for example, most so-called drainage districts in Iowa should be classed as county drains.

A drainage district is governed by officials elected or appointed for the particular enterprise.

A county drain is governed by county officials.

A township drain is governed by township officials.

A State project is governed by State officials.

A commercial development is one organized to develop and sell land for profit.

An individual-ownership enterprise is an undertaking by one or more land-owners without legal organization or supervision.

An irrigation enterprise is one organized primarily to irrigate land.

Other types of drainage enterprises might include such developments as undertakings to drain marshlands for mosquito control, if they have drained or will drain lands used or usable for agriculture when the drains have been completed in accordance with plans already adopted and which the enterprise has authority to finance and carry out.

6. Power to levy taxes.—Answer according to whether the governing board of the enterprise has authority to compel payment of the costs levied against the lands.

7. Year in which organized.—Show when this enterprise was created or begun.

For a district or drain established by decree or order of a court or of some public official or board, the date is that of the decree or order. For a company incorporated for the purpose of draining land, it is the date of incorporation. For an enterprise organized for some other purpose than drainage, which later found drainage to be needed, the date is that when drainage was undertaken. For an individual enterprise it is the time of beginning drainage.

8. If drainage was begun by a different enterprise.—If construction of the drainage works that now belong to this enterprise was begun by another enterprise, (1) give the name, date of organization, and type of organization, (2) state the relation of the present enterprise to that other, and (3) state whether a schedule has been obtained for the other enterprise or if it has ceased to exist.

If this enterprise was begun (Question 7) under a different type of organization than that under which it is operating now (Question 5), show in answering Question 8, the original type of organization and the year of reorganization.

9. **Purpose of drainage.**—The four purposes listed are to be considered mutually exclusive. Reclamation of swampland, protection against overflow, and removal of alkali or seepage refer only to improvement of land not in farms when the enterprise was organized. As here used, swampland is land normally too wet for profitable farming; overflowed land is generally not too wet but is subject to inundation by stream floods at such times and with such frequency that farming is unprofitable. Check the principal purpose of this enterprise, not a need supplied by some other enterprise—for example, not flood protection provided by an outside agency. (See Question 34.) Only the principal purpose is asked—the one most important in bringing about organization of the enterprise. If more than one item is checked, an explanation must be made on the schedule or on a separate sheet of paper.

LAND AND FINANCES

10. **County to which the following answers apply.**—Name only one county, and answer Questions 11 to 35, inclusive, as though the portion in this county were a separate enterprise from the portion in any other county.

11. **Area of enterprise.**—Give, in accordance with instructions relating to Question 10 (a), the total acreage included in the enterprise; (b) the acreage assessed to pay for the enterprise; (c) the acreage included but exempted from payment of costs; (d) the reasons for such exemption; (e) the area to be drained, by an enterprise organized primarily for some purpose other than drainage. It should be assumed that all land within the boundaries of the enterprise is or will be benefited by the drainage works constructed or to be constructed by the enterprise. Land benefited but exempt from drainage assessment may include school lands not taxable, State-owned lands, rights-of-way for ditches, and perhaps other. Make the reason clear, using a separate sheet of paper if more space is needed.

12. **Overlapping of enterprises.**—Divide the total area of the enterprise (Question 11a) into two parts: (a) The portion covered in reports obtained for enterprises organized later than this one, and (b) the portion not covered in reports obtained for enterprises organized later, in order that duplication of areas can be eliminated in tabulating the statistics.

13. **Drainage condition in 1939.**—Divide the area not included in later enterprises (Question 12b) into three parts according only to its present need of drainage. A normal crop here means a crop yield equal to that given by well-drained soil of the same character. The figures in answer to this question necessarily will be estimates, and should be the carefully considered opinion of some person or persons familiar with the drainage condition of the land.

14. **Use of land in 1939.**—Divide the area not included in later enterprises (Question 12b) into three parts according to its use or availability for farming or other purposes. Improved land here means land regularly tilled or mowed; pasture that has been cleared or tilled; fallow land; gardens, orchards, vineyards, and nurseries; land occupied by buildings, house yards, barnyards, etc.; and land occupied by ditches, levees, highways, and railways. The figures should be careful estimates by persons acquainted with the conditions.

15. **Land in occupied farms in 1939.**—Obtain the best estimate possible from persons who know that portion of this enterprise not included in later enterprises (Question 12b). Concerning large holdings embracing much unimproved land, it may be a matter of judgment as to how much of the unimproved acreage should be considered to be in occupied farms. Of any large tract that has been subdivided for sale, the subdivisions not used for farming in 1939 should be excluded. In a large plantation, portions unused for lack of tenants should be excluded. Land used for purposes other than farming, as for public highways, town sites, etc., should not be included in the answer to this question.

The area reported as planted in 1939 should include all land from which crops were harvested; all land planted, whether the crop was harvested or not; and all land in orchards, vineyards, and nurseries.

16. **Area idle in 1939.**—Obtain the best estimate possible for the acreage in this enterprise, and not included in later enterprises (Question 12b), that was not being used in 1939. Include in this idle acreage all cropland not used; all unimproved land in occupied farms except that required for pasture or for production of woodland products; all land in unoccupied farms; and all unimproved land not in farms except portions actually used intensively for grazing or other purposes. A few cattle ranging the woods or prairies at some seasons is not reason for considering the land to be in use; nor is the growing or cutting of timber, except in farm wood lots, to be considered as using the land for this inquiry. (See instruction above relating to Question 14 for definition of improved land.)

17. **Area available for settlement.**—Show the acreage, of that portion of the enterprise not included in later enterprises (Question 12b), that is drained or being drained to be sold for establishing new farms. Occupied farms should not be included, except that (1) where large holdings are to be subdivided the portions to be subdivided should be included, and (2) lands developed for sale by a land-selling company and being farmed by the company pending sale should be included.

18. **Cost of drainage works to January 1, 1940.**—Give the total of all costs paid or to be paid by this enterprise for organization and for construction, installation, or purchase of its drainage works. Include outstanding debts for materials and services received and works acquired before January 1, 1940. Include costs of earlier enterprises assumed by this enterprise, and omit costs of this enterprise assumed by later enterprises for which census reports are obtained. Do not include under this question expenditures for repairing, maintaining, or operating the works after they have been acquired.

19. **Additional cost to complete.**—Consider only those drainage works for which construction definitely has been authorized by the board governing the enterprise.

20. **Total indebtedness.**—Give the total of bonded and other amounts owed by the enterprise, for whatever purpose.

21. **Taxes collected in 1939.**—Give the total sum collected by the enterprise in 1939, from taxes and assessments whenever levied. Include interest and penalties collected with delinquent taxes and the net proceeds of tax sales.

22. **Arrearage, December 31, 1939.**—State (a) whether on that date there were obligations past due and unpaid, other than running accounts for current expenses that were not covered by written evidences of indebtedness, and (b) the sum of those past-due obligations. State also (c) whether creditors had been forced or persuaded to accept a reduction in amounts due them, and (d) the total of creditors' losses including both principal and interest on bonds, notes, and other indebtedness.

23. **Area delinquent in payment of drainage taxes.**—Show the acreage on which taxes levied by or for this enterprise were due and unpaid on December 31, 1939, and classed as delinquent under the laws of the State.

DRAINAGE WORKS

24. **Open ditches.**—Give (a) the length excavated or improved, and (b) the length not yet constructed but definitely authorized. Include both artificial channels and improved natural waterways, that are being maintained or used by this enterprise, but not private drains. Include ditches now belonging to this enterprise although constructed by others, and omit those constructed by this enterprise that have been taken over by others or have been abandoned. Include no ditch in more than one enterprise, even if in land assessed in more than one enterprise.

25. **Levees and dikes.**—Give the data concerning these works segregated in the same manner as stated for open ditches (Question 24). Do not include works belonging to the outside agency named in answer to Question 35.

26. **Tile drains.**—Give the data concerning these drains segregated in the same manner as stated for open ditches (Question 24).

27. **Drainage wells.**—Observe that this question relates to wells out of which water is pumped into a drain (which may be also an irrigation ditch) on or near the ground surface, and not to so-called "vertical drains" that give outlet into a relatively deep substratum for water accumulating on or near the surface of the ground.

28. **Pumping equipment.**—Give the data for all pumping plants of the enterprise that are actually located in the county named in answer to Question 10. Show (a) the kinds of power, and (b) the total capacity of the engines and motors that drive the drainage pumps. State (c) the kinds of drainage pumps, (d) their number, and (e) their total capacity. Give (f) the average height of the water surface in the discharge bay or ditch above the water surface in the suction bay, or in the drainage wells, when the pumps are operating.

29. **Area served by pumps.**—Show how much of the area given in answer to Question 12b is dependent for drainage, for any part of the time, upon the operation of the drainage pumps of this or of some other enterprise. It is the area that could not be drained adequately, at all times, without pumping.

30. **Maintenance of drainage works.**—State whether the drainage works are maintained systematically according to the opinion of some responsible official of the enterprise.

The cost of operation and maintenance should comprise the expenditures in 1939 assessed against the land in this county (Question 11a) incurred (1) for operating drainage pumping plants; (2) for cleaning, repairing, and maintaining in good condition all ditches, levees, tile drains, pumping plants, and other structures and equipment used in draining the land; (3) for purchase or rental of machinery to be used in maintaining the drainage works; and (4) for administration of the enterprise. It should include all expenditures for the year except principal and interest on bonds and notes and except costs chargeable to capital investment (Question 18).

31. **Government aid for maintenance.**—State whether aid in maintaining the drainage works of this enterprise, in this county, has been received from any agency financed in considerable part by Federal funds, and give the name of that agency. The maintenance work to be reported "Yes" does not include, for example, such work as enlarging levees by an agency that, by constructing navigation improvements or power developments, has made it necessary that the levees be enlarged.

32. **Wages and salaries.**—Show the total paid by the enterprise to its own employees, including officials and members of the governing board, for services in 1939 on or for the benefit of the area in this county (Question 11a). Do not include payments to a contractor for work done by him or his employees.

33. **Number employed.**—Show only the number of persons during the week specified, including officials and members of the governing board, on or for the benefit of the area in this county (Question 11a). Include only persons paid directly by this enterprise; do not include employees of a contractor or of a cooperating agency.

34. **Area protected from floods by works of an outside agency.**—Show the portion of the area stated in answer to Question 12b that is protected by works that this enterprise does not now control or maintain.

35. **Name of outside agency.**—Give the name of the agency that controls the works referred to in Question 34.

SYNOPSIS OF DRAINAGE LAWS

SUMMARY

In the 38 States included in the 1940 Census of Drainage, approximately, 81,000,000 acres of land are included in drainage enterprises organized in accordance with the provisions of State laws enacted particularly to aid in the improvement and reclamation of land for agriculture. The capital investment in the drainage works of these enterprises is \$650,000,000 (table 3, p. 1.) The following pages present a synopsis of the general drainage laws in aid of agriculture in effect on January 1, 1940. Special acts creating certain individual drainage districts, and acts for other purposes than aid of agriculture that have been used by occasional enterprises included in the Drainage Census, are not included. (In the Censuses of 1940 and 1930, no attempt was made to separate the enterprises established under special acts from those organized under general statutes, but the Census of 1920 reported 1,829,641 acres in such special-act districts,¹ mostly in Arkansas, California, and Florida.²)

Such laws have been enacted for the purpose of permitting or promoting community cooperation in construction of ditches, pumping plants, and other works that are of common benefit in removing or protecting against excess water. The objectives in the enactment of drainage laws are, (1) to establish means whereby effective cooperation may be achieved to obtain drainage benefits desired; (2) to provide a method of apportioning the cost among the landowners benefited, as nearly as practicable in proportion to the benefits to be received; and (3) to authorize a plan of distributing payment for the improvement over a period of years. This last objective has become important more recently than the others, in the development of large tracts requiring costly works and involving considerable acreages not yet in production. In general, the means of obtaining cooperation is the establishment of an organization with officers or a board of control legally authorized to adopt a plan of drainage improvement, to procure construction of the necessary works, to incur indebtedness for the purposes of the organization, and to levy special taxes against the lands benefited in order to pay the costs.

Proceedings for establishment of a drainage enterprise commonly are initiated by petition of landowners expecting to be benefited by the undertaking proposed. Usually such petition must be signed by a majority of the owners to be benefited or by the owners of a major portion of the lands to be benefited. Not infrequently some official or board of the State or political subdivision is authorized to make such petition when public properties are involved. The petition must show that the work will be conducive to the public benefit, and what lands are expected to receive benefit from and pay the cost of the undertaking.

Jurisdiction to establish the project as a legal entity with the powers specified in the statute usually is exercised by a court of the county in which a portion of the land to be

benefited is situated, or by the governing board of such county. Review by some higher court, upon appeal, is provided for.

Management of the affairs of a drainage enterprise may rest in officers elected periodically by the owners of the lands in the enterprise, or by public officers—usually the county board—designated in the drainage law. The census classification of character of enterprise distinguishes these two forms as drainage-district and county-drain organizations. Some States provide for original establishment and management of small drainage enterprises by township officials.

Methods for apportioning the cost against the properties benefited vary considerably between the States. A uniform rate per acre on all the land in the enterprise is permitted by some laws in a few States, although other laws in the same States provide methods of adjusting the rates according to the different rates of benefit that will result to different tracts. One method of apportioning the cost is to divide the land into classes, commonly five in number, according to the different amounts of benefit to be received, and assess the different classes at different rates per acre, such rates being in the ratio 1:2:3, etc. Each ownership may comprise land in any or all of the classes. Another method classifies each tract or parcel of land on a percentage basis, the parcel or parcels to receive the maximum benefit per acre being designated 100 and each other designated by a number representing the rate of benefit it will receive in proportion to the maximum. The cost of the enterprise then is apportioned against the individual parcels in proportion to the area of each and its benefit designation. Yet another method is to appraise the value of the benefits that will accrue to each parcel of land or other property as a result of the proposed drainage improvement, and apportion the cost in proportion to such benefits. Under most drainage statutes, the benefits are determined separately from the damages that may result from the proposed construction. Only a few laws provide that the cost of land drainage shall be apportioned on the basis of land or property values.

In those areas where organized land drainage could be undertaken in small units and be accomplished by works that could be constructed economically by hand and team labor, the cost of the early drainage enterprise was met by allotting to each landowner benefited the construction of a certain portion of the drain designated to represent his portion of the total benefit. Under such circumstances the cash expenditures were small and the matter of financing the enterprises needed no special consideration.

With increase in farm-land values during the years, it became profitable to incur greater per acre costs for agricultural drainage. Also, development of special excavating machinery made digging of large ditches less costly. These developments furthered the organization of larger and more expensive enterprises for draining lands already in farms, and strengthened the urge to develop for sale large tracts of swamp, wet, and periodically overflowed lands which in some regions

¹Fourteenth Census, U.S., vol. VII, p. 361.

²Op. cit., p. 354.

included increasing amounts of cut-over timber land. With these conditions, the matter of distributing payment for the drainage improvement works over a considerable period of years became of first importance, and most States therefore have authorized the enterprises established under drainage laws to issue and sell bonds to be paid within 10 to 30 years from the proceeds of the drainage taxes levied upon the land—"and other property," in some cases—in the enterprises. Some statutes provide that the bonds may be made sufficient to cover the interest charges for the first few (2 to 5) years, presumably until the land to be reclaimed can be developed sufficiently to begin to pay the debt.

The drainage statutes all provide for informing all landowners who will be affected, concerning each step taken toward establishment of the enterprise, and giving them full opportunity to protest the proceedings. Notice sometimes is given by personal service, but usually by mail, posting, and publication. Public hearings are held upon filing of the petition, or after preliminary investigation as to the practicability of the project and what lands will be benefited; and again after determination of the location and character of the works to be constructed, the total cost of the enterprise including damages to properties injured, and the amount of cost to be assessed against each property. Hearings at some other points in the proceedings for establishment of the enterprise and levying of the taxes therefor are provided by many of the statutes. Some require that construction shall be approved by election of the landowners to be assessed after the bids from contractors have been opened; some require that issuance of bonds, and the amount of each issue, shall be similarly approved. At elections the landowners vote, for establishment of the enterprise or for election of officers or for other business, under some laws in proportion to their acreages in the enterprises, under other laws in proportion to the benefits assessed, and under yet other laws only one vote for each owner.

Maintenance of the drainage works after construction is required by some statutes, and authorized by most of them. The amount that may be expended for maintenance in any year, without authorization by the landowners through proceedings somewhat similar to establishment of the enterprise, usually is restricted to a small portion of the cost of original construction. Cost of maintenance commonly is distributed on the same basis as original construction, but in some instances on a uniform rate per acre.

The first drainage statutes in most States, if not in all, merely provided relief for landowners who, in order to obtain outlet for draining their land, must cross the lands of other owners with whom agreement could not be reached for granting the right-of-way. These statutes did not establish public enterprises, but authorized condemnation of rights-of-way after investigation, determination of necessity, and award of damages by some designated official or legally appointed appraiser.

The dates of the first general laws authorizing the establishment of drainage enterprises for 36 of the 38 States

included in the 1940 Census of Drainage are given in the report of the 1920 Census. (Fourteenth Census of the U.S., vol. VII, p. 354.) The earliest statutes there indicated are those of 1847 in Michigan and Ohio. In the latest two States included in the 1940 Census of Drainage, Delaware and Maryland, drainage statutes were enacted as early as 1816 and 1790, respectively.

As the foregoing discussion suggests, the drainage statutes in most States have been developed gradually as larger and more costly improvements have become economically feasible. The States undertaking most recently the promotion of drainage development have patterned their statutes on those in use in other States where physical, economic, and governmental conditions seemed similar. The many amendments, revisions, and supplemental acts passed by the legislatures have resulted in some cases in provisions that are inconsistent or even contradictory, so that the meaning or requirement must be determined by decision of the courts.

The following synopsis is not an attempt to digest the drainage laws, but is rather an effort to present in condensed form in one place the principal statutory provisions relating to the procedure for establishing enterprises under these laws, the protection afforded to the rights of persons who might be injured by the proposed work, and the security offered to purchasers of bonds issued by the enterprises. The synopsis omits many minor details set forth in statutes, especially concerning procedure, and it includes ambiguities and seeming contradictions that have been or remain to be interpreted by the courts. The citations of court decisions given for some of the laws have been copied from annotated statutes, and in each case are the leading or later cases interpreting the preceding section.

The provisions of each law have been arranged arbitrarily herein under the headings of establishment, organization, financing, construction, maintenance, and dissolution, so far as practicable. Consequently, there is no sustained sequence in the numbers of the sections. The various subdivisions are somewhat interdependent, and for more complete understanding related subdivisions, such as "assessments" and "bonds," should be read together. Similar interdependence is particularly evident in some laws with respect to the main divisions. It is to be assumed that any person having responsibility for the legality of proceedings in the establishment or management of a drainage enterprise will acquaint himself with the full text of the statute under which the organization will operate, and with any interpretive court decisions relating thereto.

A chart of the drainage laws follows the synopsis, presenting the salient features of those laws very concisely under headings similar to those used in the synopsis, to which the chart will serve also as a partial index. The numbers in parentheses indicate the section numbers of the statute, code, or compilation as used in the synopsis. The chart includes, as the synopsis does not, brief reference to the laws of the 10 States not included in the Census of Drainage. These States comprise group II of the chart.

DRAINAGE LAWS BY STATES

Abstracted by JAMES H. GRAVES, LL. B.

ALABAMA

(Code of Alabama, 1940, Title 2, secs. 208-263)

DRAINAGE DISTRICTS

ORGANIZATION—Jurisdiction

Sec. 208. Public benefit: The establishing of proper drainage is declared to promote the public health, to aid agriculture, and to be in the interests of public welfare and convenience.

Secs. 209 and 210. Jurisdiction: The court of probate of any county has authority to locate and establish levees, drains, and canals and to cause them to be constructed and to straighten, deepen, or widen any water course, and to construct the necessary works. It is declared that the drainage of surface waters and the reclamation of wet, swamp, and overflowed lands shall be considered a public benefit and conducive to public welfare. **Sec. 210:** The court of probate must keep a complete record of all proceedings in a book designated as the "Drainage Record of _____ County, Alabama," including therein all records except the drainage tax records and the drainage tax books.

ORGANIZATION—Petition

Sec. 211. Petition to organize: Whenever it is desired to establish a drainage district, a petition must be filed in the office of the county court of probate signed by a majority of the landowners owning more than one-third of the lands in acreage in the proposed district, or by at least one-third of the landowners owning more than one-half of the land in acreage, in a contiguous body of wet, swamp, or overflowed land or lands subject to overflow. If such land be situated in two or more counties, then the petition must be filed with the court of probate of the county in which more of said lands are situated than in any other county. The petition describes the land so as to give a general idea of its location, states that it needs drainage, and that to drain it would be a public utility and conducive to the public welfare. The probate court with the approval of the State Commissioner of Agriculture and Industries immediately appoints a competent engineer, experienced in drainage, to report to the court on the establishment of the district. Whenever the owners of a majority in acres in the proposed district petition the court for the appointment of any person qualified to act as engineer, it is the duty of the court, with the approval of the Commissioner, to appoint such person. The engineer reports to the court (1) the boundary of the region that will be benefited by the works; (2) a description of the lands according to legal or recognized subdivisions; (3) whether the works will be conducive to the public health, convenience, and welfare; (4) a general plan to accomplish drainage; (5) a map showing the territory and the proposed improvement; (6) an estimate of the cost of the improvement. No landowner signing the petition may withdraw his name without the written consent of a majority in acreage of those signing the petition.

Sec. 212. Engineer's report—Notice: On the filing of the engineer's report, the probate court gives notice thereof by personal service or by publication in a form set out in the

statute, stating that the lands mentioned will be affected by the formation of the district and will be rendered liable to taxation for construction and maintenance. A copy of the notice is mailed to the Commissioner of Agriculture and Industries.

Secs. 213 and 214. Jurisdiction: The court of probate of the county in which the petition is filed thereafter retains original and exclusive jurisdiction for all purposes, coextensive with the boundaries of the district without regard to county lines but subject to the right of appeal to the circuit court of the county in which the petition is filed. **Sec. 214:** On the day appointed for the hearing the Commissioner may appear in person or by representative and advise the court of his opinion, objection, or approval of the establishment of the district.

Sec. 215. Objections to organization: Any owner of real property desiring to object to the incorporation of the district may file his objections in writing. The court hears and determines in a summary manner any objections presented as to the sufficiency of the petition or the report of the engineer. If there are lands within the proposed district that will not be benefited, they will be excluded. If it appear that there are lands outside the district that will be benefited, the boundaries may be so changed as to include such lands and the owners thereof are made parties to the proceedings. The same notice is given them, and the proceedings are adjourned until a fixed day when their objection, if any, will be heard. If it appear that the purposes of this act would be subserved by the creation of the district, the court, after disposing of the objections as justice and equity require, enters its finding of record and declares the district organized as a body corporate with all the powers of public corporations including the right of eminent domain for the purpose of obtaining rights-of-way, the right of assessment, the right to issue bonds, and the right to do all acts necessary to the purposes for which the district is created. If the court find against the sufficiency of the petition, it will dismiss the petition at the cost of the petitioners and issue an itemized statement of such cost. This court action has the full force and effect of a judgment and constitutes a lien on the lands of the petitioners within the proposed district of equal dignity with general taxes. The court will order the levy and collection of a uniform acreage tax to meet the expenses incurred. Such a tax is due immediately, becomes delinquent December 31 next following, and is collected in the same manner as delinquent general taxes.

Sec. 216. Effect of order establishing district: The order of the court establishing the district has the full force of a judgment. The court forthwith levies a uniform tax of not more than 50 cents per acre to defray expenses of establishment, organization, survey, assessing benefits and damages, and all other necessary expenses incurred before funds are provided to pay the cost of the improvement. If other lands are included later the same acreage tax is levied against them. This tax, if not paid, is collected in the same way as delinquent general taxes and is a lien of equal dignity with such taxes. Any surplus in the fund may be placed in the general fund for construction.

ORGANIZATION—Officers

Secs. 217 and 218. Board of drainage commissioners: Upon organization of a district, the probate court appoints a board of three drainage commissioners to have control of the affairs of the district. Each commissioner must be an adult owner of real property within the district, and at least one commissioner must be a resident of the county in which the proceedings are held. When the owners of a majority in acres in the district petition for the appointment of a qualified person as commissioner, it is the duty of the court to appoint such person. The board of drainage commissioners may make rules, regulations, and bylaws, not inconsistent with this act. They elect a president and secretary from their own number and employ necessary agents and attorneys. The court indicates their terms of office which are 2, 4, and 6 years respectively; and at the expiration of their terms the court likewise appoints their successors for a term of six years. The commissioners hold meetings upon the call of the president or of a majority of the board, and hold an annual meeting at the office of the judge of the probate court having jurisdiction on the 2nd Saturday in September. **Sec. 218:** Any officer of a drainage district may be removed for cause, after due hearing, on motion filed in the court of probate having jurisdiction.

Sec. 222. District engineer: Within 60 days the drainage board appoints a district engineer, to whom the probate court refers the preliminary survey. The engineer makes a complete survey and reports to the drainage board with plans for the improvement and an estimate of cost. He provides a drainage map showing the location of the works, the boundaries of the district, and a description of the land and other property needed for rights-of-way or other purposes. Upon receipt of the final report of the district engineer, the drainage commissioners adopt the same or a modification thereof approved by him, and such report so adopted is the "plan of reclamation" and is filed with the probate court and incorporated into the records of the district. A copy is submitted to the Commissioner of Agriculture and Industries for examination. Prior to the adoption of the plan, the Commissioner shall file with the drainage commissioners any suggestions he deems beneficial. After such adoption, the "plan" must be filed with the board of agricultural engineers of Alabama Polytechnic Institute, Auburn, Alabama.

Sec. 225. "Plan" filed—Viewers: Within 20 days after the adoption of the plan, the secretary of the drainage commissioners transmits a certified copy to the probate court having jurisdiction and files a petition to appoint viewers to appraise the land within and without the district to be acquired for rights-of-way, holding basins, and other works, and to assess benefits and damages to all land and other property by reason of the execution of the plan of reclamation. Within 30 days the probate court appoints a board of three viewers, who must be disinterested owners of real property in the county or counties involved.

Secs. 226 and 227. Duties of viewers: The viewers, within 30 days, proceed to determine the value of all land and other property to be acquired for the use of the district. They assess the benefits and damages that will accrue to each 40-acre tract or less, and to highways, railroads, and other rights-of-way, from putting into effect the "plan." The engineer accompanies the viewers in their inspection of the lands of the district. In assessing the benefits to property not traversed by the works provided for in the "plan," they may not consider what benefit will be derived by such property after improvements or plans other than those in the plan of reclamation shall have

been constructed, but only the benefits that will be derived from the works and improvements specifically set out in the plan or as the same may afford an outlet for drainage or protection from overflow. Where the improvement follows natural drainage or existing waterways that intersect railroad rights-of-way, the railroad company shall be required to construct and maintain any necessary new bridges or culverts or to enlarge, construct, or replace old ones at its own expense. Where the works intersect railroads at some other place, the expense of bridges and culverts shall be considered by the viewers as an element of damage, the amount to be estimated and shown separately and paid for in cash as other damages. In that case the viewers notify the railroad of a conference for the purpose of agreeing on the amount of damages. If they fail to agree, that fact is reported. The viewers give due consideration to drainage works already constructed, which give complete or partial protection to lands in the new district. Public highways, railroads, and other rights-of-way, roadways and other property are assessed according to the increased physical efficiency and decreased maintenance cost by reason of the protection to be derived from the proposed works. The viewers may not alter the plan of reclamation. They report their findings in tabular form, showing the particular property to be taken and its value and the damages awarded. **Sec. 227:** Upon the filing of the viewers' report, the probate court sets a hearing thereon, giving notice by publication in the form set out in the statute.

Secs. 228 and 229. Exceptions to viewers' report: The district or any interested person may file objections to the viewers' report before the hearing thereon, as to any assessment for either benefits or damages. The court hears all exceptions in a summary manner so as to carry out liberally the purposes and needs of the district; and if it appears to the court after having determined all exceptions that the cost including damages assessed is not greater than 90 percent of the benefits assessed against the land and other property, the court will approve and confirm the viewers' report as modified and amended. Finding the contrary, the court will dismiss the proceedings at the cost of the landowners and render a decree dissolving the incorporation as soon as all costs have been paid. If the uniform tax levied is not sufficient to pay the costs, the commissioners make such additional uniform tax levy as may be necessary to pay them. Any balance remaining is prorated to the landowners in the same ratio in which it was collected. The probate court transmits a copy of the viewers' report as confirmed to the drainage commissioners of the district. If the district be intercounty, a copy of the report so far as it affects any county is transmitted to the probate court of that county, where it becomes a permanent record. **Sec. 229:** Aggrieved parties may appeal from the order of confirmation within 10 days to the circuit court of the county. Appeals can be heard only on the exceptions to the viewers' report. Appeal does not stay the proceedings, and subsequent proceedings in the circuit court affect only the interests of appellants.

ORGANIZATION—Powers

Secs. 220, 221, and 223. Rights-of-way—Condemnation: The right of eminent domain is conferred where necessary to acquire rights-of-way or outlets over lands outside of the district. Damages awarded as compensation must be paid by the drainage board out of the first funds received from bonds or otherwise. **Sec. 221:** The drainage board and its agents may enter upon lands within or without the district to make surveys and preliminary examinations of the works of the district, but are liable for actual damage done. To prevent such entry is a misdemeanor.

Sec. 223. Before adopting the plan of reclamation, the drainage commissioners notify any railroad whose right-of-way will be crossed by the district works and arrange a meeting at which agreement is sought with the railroad as to the character and cost of the crossing. If the drainage board and railroad cannot agree or if the railroad fails to accept notice of the conference, the drainage board determines the place, manner, and extent of the necessary crossing and specifies the same in the plan of reclamation.

Sec. 224. Correcting plan: The drainage board may correct errors or amend the "plan" at any time with the concurrence of the district engineer, if it appear that such amendment would more economically accomplish the purposes of the district; provided that, after assessments of benefits have been confirmed, no amendment shall be effective until approved by the probate court after hearing of all parties affected.

Sec. 248. Lateral drains: Landowners assessed have the right to use the works as outlets for lateral drains. If their land be separated from the outlet by intervening lands and the different owners are unable to agree on the terms and conditions under which the crossing may be made, the parties seeking the outlet may invoke the right of eminent domain. Drains so constructed become a part of the system when completed, and are maintained by the drainage commissioners.

Sec. 250. Annexing lands: Any body of land however large, contiguous or adjacent to an organized drainage district, may be annexed thereto as if originally included, upon the petition of one-third or more of the landowners owning 50 percent or more of the acreage, or upon petition of one-half or more of the owners owning more than one-third of the acreage to be annexed. The proceeding is the same as that for original organization. If upon hearing the report of the drainage commissioners and engineer the probate court determines that the public welfare will be promoted thereby, it will order the lands so annexed to be made a part of the district. However, if at the hearing landowners either within the original district or any part to be annexed, representing one-third of the landowners owning a majority of the acres or a majority of the owners owning one-third of the acres, object to the proposed annexation, the court will dismiss the petition for annexation and levy an acreage tax on the land proposed to be annexed to reimburse the drainage district for all expenses incurred in connection with the proceedings.

Sec. 251. Inclusion of part of another district: The organization of any district or subdistrict shall not be construed to prevent inclusion of the whole or any part of the lands of any such district in another district, and the taxing of such lands to whatever extent they may be benefited; provided, that due credit shall be given in the adjustment of benefits and damages for the benefits received from existing works which may form part of the plan of reclamation of such other district.

Sec. 252. Interstate districts: Where drainage districts in Alabama cannot be constructed or maintained in the best manner without affecting lands in an adjoining state, the drainage commissioners are given power to join with the proper officials of adjacent counties in such other State in the construction of drainage works, each to pay the proportion of the cost agreed upon.

Sec. 253. Contract with the United States: Drainage commissioners may contract with the United States and with persons, corporations, or state governments of this or any other state, and with other drainage districts or conservation and improvement districts in other states, for cooperation in construction and maintenance of the works of the district, and may purchase,

lease, or acquire lands in other states to secure outlets or for other purposes of this act.

FINANCING—Assessments

Sec. 230. Tax levy: As soon as the confirmed viewers' report and the judgment of the court have been furnished to the drainage commissioners as provided in section 228, they levy a tax of such portion of the benefits assessed on all lands and other property as may be found necessary to pay the costs of the improvements as set out in the "plan," plus 10 percent for delinquencies. The tax is apportioned to and levied on each tract of land or other property in proportion to the benefits assessed and not in excess of 90 percent thereof. If bonds are to be issued, the estimated amount of the interest which will accrue on said bonds is included and added to the tax; but such interest is not to be construed as a part of the cost of construction in determining whether that cost is in excess of 90 percent of the benefits assessed. The drainage commissioners then prepare and certify the "drainage tax record," which becomes a permanent record in their office and a copy is filed in the probate court of each county interested. The form of the drainage tax record is set out in the statute. If the proceeds of the levy are not sufficient to pay the cost of construction, and expenses, the drainage commissioners make such additional levy as may be necessary to complete the works according to the "plan"; provided, the aggregate of all levies, exclusive of maintenance taxes and taxes for interest on bonds, shall not exceed 90 percent of the total benefits assessed.

Secs. 231 and 232. Annual levy—Installments: The drainage commissioners each year thereafter levy the amount of the annual installments of the total taxes levied under section 230, which levy is collected at the same time as State and county taxes. Prior to October 1 each year, the drainage tax book certified by the probate judge of the county organizing the district is delivered to the tax collector of each county interested, and the tax thereupon has the force and effect of a judgment as in the case of State and county taxes. The form of the certificate is set out in the statute. Such taxes constitute a lien, equal in dignity with State and county taxes. Drainage taxes become delinquent December 31 next after levy, and thereafter there is a penalty of 2 percent per month or fraction thereof until paid. Delinquent lands are sold for taxes on the first Monday in February each year. Sale of such lands for drainage taxes is subject to the lien of unpaid State, county, or city taxes, and the sale for State, county, or city taxes is subject to the lien of any unpaid taxes levied under this subdivision. If at the sale there is no bid for the amount of the drainage tax, interest, penalty, and cost, the land is not sold but is re-offered the following year. **Sec. 232:** When a property has been divided, the collector may receive taxes on a part of any tract only when the deed of transfer or division shows the agreed division of taxes, and then only with the approval of the drainage commissioners.

Secs. 234 and 235. Payment in full: Landowners have the privilege of paying their assessments in full on or before the date fixed by the drainage commissioners, after notice. Such payment is the full amount levied less any additional tax to meet interest, and does not release the land and other property from liability to pay additional taxes when assessed as provided in this act. **Sec. 235:** Failure of a landowner to pay the assessment in full operates as consent to the issuance of bonds and, in consideration of the right to pay in installments, the landowner waives the right of defense against any tax levied for the payment of bonds on grounds of irregularity or defect in prior proceedings, except in case of appeal.

Sec. 247. Maintenance and repair: When the improvement is completed, it is under the supervision and control of the board of drainage commissioners. It is their duty to maintain the improvement in good repair, and for that purpose they may levy annually a tax on the lands benefited in the same manner as other taxes are levied, not to exceed 10 percent of the assessed benefits in any one year. Damages caused by any landowner or his agent through negligence are assessed against him alone, and may be collected by suit by the drainage commissioners.

FINANCING—Bonds

Secs. 236 and 237. Issuance of bonds: The drainage commissioners may issue bonds of the district from time to time for an amount equal in the aggregate to the total cost of the improvement, including preliminary organization and administration expenses, less such amount as has been paid in cash to the district treasurer. In no case, however, may the par value of the bonds issued plus cash payments to the district treasurer exceed 90 percent of the aggregate benefits assessed against the lands or other property. Bonds mature at annual intervals for 20 years, commencing after a period not longer than 5 years from their date. Bonds have all the qualities of negotiable paper within the meaning of the law merchant. The drainage commissioners file with the probate court organizing the district a certified copy of their order for the issuance of bonds, without description of the bonds, and such order becomes a permanent record in that court. *Sec. 237:* Bonds may be sold for cash at not less than 95 percent of par with accrued interest, and the proceeds are devoted to the payment for work as it progresses and for other expenses of the district provided for in this act, and for no other purpose.

Sec. 238. Payment of bonds: Bonds are payable at such place as the drainage commissioners may designate. It is the duty of the drainage commissioners in making the annual levy to take into account the maturing bonds and interest on all bonds and to make ample provision in advance for the payment thereof. If the proceeds of the original tax levy are not sufficient, the commissioners must make such additional levies upon the benefits assessed as may be necessary to pay maturing bonds and interest; and they may issue additional bonds in like manner as in the first instance; provided, that the total tax levy, exclusive of maintenance taxes and taxes levied to pay interest on bonds, shall not exceed 90 percent of the benefits assessed.

Sec. 239. Default in payment of bond: Any bonds or interest not paid when due bear interest at 8 percent until paid, and if the default continues for 60 days the holders of such bonds have right of action against the district, wherein the court may issue a mandamus directing the levy and collection of a sufficient tax to meet unpaid bonds and interest and costs. As an additional remedy in case of default in the payment of principal and interest on bonds of a district where the default has existed for 60 days and payment has been demanded, the holder of such bonds or interest coupons may ask any court of competent jurisdiction for the appointment of a receiver for such district, and it is the duty of the court to appoint such receiver to collect drainage taxes and sue for delinquent taxes and sell delinquent lands. The form of procedure for the receiver is set out in the statute in detail.

CONSTRUCTION

Sec. 241. Contract for construction: The drainage commissioners may obtain and use labor, equipment, and material, under the supervision of the district engineer, to construct and to complete all or any of the works needed to carry out the plan

of reclamation, or they may let contracts for the construction of all or any part of the work. They give notice by publication of the letting of contracts; they may reject all bids and readvertise the work; and the successful bidder is required to enter into contract with surety in the amount of 25 percent of the estimated cost of the work awarded. Contracts are based on plans and specifications submitted by the engineer in his final report, the original of which must remain on file in the probate court and be open to inspection.

Secs. 242 and 243. Duties of engineer: The district engineer has charge of the construction of the plan of drainage. He makes monthly estimate of the amount of work done and to be paid for, and the commissioners draw warrants in favor of the contractor for not more than 90 percent of the engineer's estimate. When the work is completed, the engineer makes an estimate of the full amount due including the amounts withheld on monthly payments. *Sec. 243:* Upon default of the contractor, the drainage commissioners may declare the contract forfeited and relet it as in the first instance. The district has right of action against such defaulting contractor and his sureties for the amount of damages sustained.

Secs. 245 to 247. Intercepting railroads and highways: Where the works of a district cross a public highway at its intersection with a natural waterway through which water flows during flood periods, the cost of bridges and culverts is borne by the authority required to maintain the highway and thereafter those structures are maintained by the same authority. Where the drainage works cross a public highway at other points, the district bears the cost of constructing the new bridges or culverts but they are maintained thereafter by the county or other authority controlling the highway. *Sec. 246:* Construction across a railroad is by agreement between the construction engineer and the railroad, it being the duty of the railroad to remove its roadbed and permit excavation at a time agreed on. In the event of failure or refusal of the railroad so to do, it is held to be delaying the construction of the improvements and is subject to a penalty of \$100 per day for delay, to be collected by the drainage commissioners as in the case of other penalties. Within 30 days after completion of the work, the railroad presents an itemized bill for the actual expense incurred by it in permitting the crossing of the drainage works, but not to include the construction of a new bridge or straightening or enlarging an old one except as herein provided. After the engineer has found the bill to be correct, the drainage commissioners pay it. *Sec. 247:* When it becomes necessary to repair any bridge or construct a new bridge across a railroad by reason of enlarging any watercourse or excavating any canal, or by reason of natural wear and tear and deterioration of such bridge or structure, the repair, maintenance, and improvement shall be made at the expense of the railroad.

DISSOLUTION

Sec. 262. Dissolution: Any district may be dissolved by the probate court having jurisdiction thereof whenever it is made to appear that the works need no further care or maintenance and that such maintenance would no longer be conducive to the public health, convenience, or welfare, and that the obligations of the district have been liquidated; provided, the court will not consider the dissolution of a district except upon petition of two-thirds of the owners of the real property owning not less than two-thirds of the area taxed. After the filing of such petition, opportunity must be given for objections thereto in the same manner as for organization.

SUBDISTRICTS

Sec. 263. Subdistricts: Subdivision 2 of this title (sec. 263-273), under the heading "Subdistricts," (sec. 265) declares: "Each county of the state is hereby declared to be and is hereby created a drainage district." The county board of revenue commissioners with the judge of probate as chairman shall act as and exercise the powers of a board of drainage commissioners. "This shall in no way affect drainage districts organized * * * under any Alabama drainage law." (L. 1936, Special Session, p. 83.) This provision is mainly for flood control and control of erosion, but does not affect drainage districts organized and operating in aid of agriculture.

ARIZONA

[Revised Code, 1928 (ch. 81, art. 5, sec. 3515, p. 823); Revised Code Supplement, 1936; Session Laws]

ORGANIZATION—Petition

Sec. 3515. Organization of district: Whenever 5 or more of the holders of title or evidence of title to agricultural lands which are susceptible of drainage by the same general system of works desire to provide drainage, they may propose the organization of a drainage district, which district when organized will have the powers conferred by this act. The equalized assessment roll immediately preceding the petition for organization is sufficient evidence of title; however, no person acquiring title for the purpose of signing the petition and voting will be permitted to do so. Such signing, however, does not invalidate the petition if there be sufficient other legal signers.

See: *Act Constitutional:* In Re bonds of drainage district #4 (1920), 22 Ariz. 31; 193 Pac. 833.

Proceeding under Drainage Act is Statutory: 205 Pac. 806.

Sec. 3516. Petition proposing district: The petition is presented to the board of supervisors of the county in which the greater portion of the lands are situated. It describes the proposed boundaries and prays for organization. Petitioners provide bond for costs in the event the district is not authorized. If, in the opinion of the supervisors, the district is necessary and feasible, they give notice of a hearing on the petition by publication in each county affected.

Sec. 3517. Hearing on petition: At the hearing the board of supervisors defines and establishes the boundaries of the district, but they may not modify the proposed boundaries so as to exclude lands susceptible of drainage by the same system of works, and they may not include lands which will not be benefited. Any person owning land which can be drained by the same works may make application to have his land included in the district. All the proceedings of the supervisors are set forth in their minutes and the boundaries described and determined may not be brought into question except by appeal as next provided.

Sec. 3518. Appeals to the superior court: Any interested party may, within 30 days, appeal from the decision of the supervisors to the superior court of the county, if he is a party to the record. If there be more than one appeal, they must be consolidated. Appeals are heard in the same manner as appeals in civil cases and the superior court enters its judgment affirming, modifying, or reversing the order appealed from. The court issues a remittitur to the supervisors, who, at their next meeting, enter on their minutes such order as is directed by the court. Appeals must be heard and determined within 30 days.

Sec. 3519. Divisions and elections: When the boundaries are defined and established, the supervisors divide the district

into 3 or 5 divisions as nearly equal in size as practicable and numbered consecutively. One director, who must be a resident freeholder and elector of the division, is elected by each division; but when requested in the petition, 3 directors with the same qualifications may be elected at large by the qualified voters.

Sec. 3520. Election to determine organization: The supervisors give notice, by publication in each county interested, of an election to determine whether the district shall be organized. The notice gives the proposed name, the boundaries of the district and of the precincts therein, and the polling places. It also gives the names of one or more persons in each division of the district to be voted for as director. Election is conducted in conformity with the general election laws of the state.

Sec. 3521. Voter qualifications: A voter must be qualified to vote under the general election laws and must be the owner of real property situated within the boundaries of the district, on which he shall have paid taxes as shown by the county tax rolls next preceding the date of election.

Secs. 3522 and 3523. Canvass—Result: The supervisors canvass the vote on the first Monday succeeding the election. A majority vote controls, and if it is obtained the supervisors thereupon declare on their minutes that such territory is duly organized as a drainage district, and the persons receiving the highest number of votes are the duly elected directors. **Sec. 3523:** The supervisors file for record with the recorder of each interested county a certified copy of their order establishing the district. This completes organization. No board of supervisors may thereafter permit the organization of another district embracing any of the lands in the first organized district without the consent of the board of directors of such prior district.

Secs. 3524 to 3526. Contesting election: The organization may be contested by any person owning property in the district liable to assessment. Action must be brought in the superior court of the county where the original petition was filed. If there is more than one contest, they must be consolidated and tried together. Contests must be brought within 20 days after the canvass of votes. The court determines whether the election was conducted in accordance with this statute, and interested parties may appeal within 30 days to the Supreme Court where the appeal must be determined within 60 days. **Sec. 3525:** The directors immediately qualify, and hold office until their successors have been elected and have qualified. **Sec. 3526:** The directors classify themselves by lot to determine their term of office. They organize, elect a president from their number, and appoint a secretary.

Sec. 3527. Meetings—Financial statement: The directors hold regular meetings every 3 months, and such special meetings as they may determine by a majority vote entered in their minutes. All meetings are public and a majority is a quorum. On the first Tuesday in March each year they publish a verified statement of the district's financial condition.

Secs. 3531 to 3538. Election of directors: Election is held on the first Wednesday in October of each second year after the first election. Persons receiving the highest number of votes are declared to be elected and must qualify and give bond within 10 days. Vacancies are filled by the board until the next election. **Sec. 3532:** After the original drawing of lots for classes, the term of a director is 4 years. The office of the board may be established in the county seat or other suitable place, but may not be changed when once established without notice by posting and publication. **Sec. 3533:** Notice of the

election for directors must be posted in the office of the board and in the district 15 days prior to the date of the election. The board appoints the election officials. Secs. 3534 to 3538: These sections provide the machinery for balloting and canvassing votes. The district may change to the election of directors at large, instead of for each division, by petition of a majority of the landowners.

ORGANIZATION—Powers

Sec. 3528. Directors—Powers: The directors conduct the business of the district, make contracts, obtain necessary assistance in surveying, locating, and constructing the works, and repair and maintain same after construction. They may enter on lands where it is necessary in the construction of the works, and may acquire and possess lands necessary to the district's system of works. They may make rules and regulations for carrying on the business of the district.

Sec. 3529. Change of boundaries of divisions: The board may change the boundaries of the divisions of the district, not less than 60 days before an election, provided such change is made to keep the divisions as nearly equal in area and population as practicable. Changes must be shown in the minutes of the directors.

Sec. 3530. Eminent domain: All of the laws of the state relating to the taking of private property for public uses may be invoked by a drainage district and the condemnation and use of such property is declared by the statute to be a public use.

Sec. 3540. Title to property: Legal title to all property, including water carried by the drainage works, immediately vests in the district and is dedicated and set apart for the uses thereof. Directors may hold, use, and possess all property in the name of the district and for its purposes.

Sec. 3567. Power to build works across streams, etc: The directors have power to construct works across streams, roads, streets, railways, and rights-of-way but must restore such property to its original condition as nearly as possible. Where agreement with owners is not possible, the directors may acquire the property needed by condemnation. Rights-of-way across state lands are dedicated to the district by the statute.

Sec. 3572. District property not taxable: Rights-of-way, works, water, and other property of like character belonging to a drainage district, as well as its bonds or other evidences of indebtedness, may not be taxed for State, county, or municipal purposes. (Sec. 5483, R.S. 1913.)

Sec. 3579. Changing boundaries: Boundaries may be changed as provided, but such changes shall not impair the organization nor adversely affect the obligations of the district.

Secs. 3580 to 3586, 3589 and 3590. Petition to change boundaries—Inclusion: The holders of title or evidence of title, representing one-half or more of any body of lands adjacent to the boundaries of a drainage district and which are contiguous thereto, and which taken together constitute one tract of land, may file a petition with the board of directors praying to have the contiguous lands included in the district. The petition must describe the boundaries of lands sought to be included and the several parcels owned by the petitioners, with their assent to the inclusion of the lands described. It must be acknowledged as deeds are acknowledged. *Sec. 3581:* The directors give notice of the hearing on the petition by publication and call upon interested parties to show cause why the petition should not be granted at the next meeting of the board. Costs are paid by the petitioners. *Sec. 3582:* At the hearing the board considers all objections which have been presented in writing. Failure of interested parties to show cause is taken as assent.

Sec. 3583: The directors require as a condition precedent that the petitioners pay to the district such sums as they would have been assessed had they been included in the original organization. *Sec. 3584:* The board may allow or reject the petition as they may deem to be for the best interests of the district. If the petition is allowed, the board describes the boundaries of the district as changed and as they will be after the inclusion of the lands,¹ and may cause a survey to be made for that purpose. *Sec. 3585:* If cause is shown, the board may adopt a resolution to the effect that the best interests of the district require that the boundaries be changed. This resolution describes in detail the boundaries which the board deems best to include. *Sec. 3586:* Upon the adoption of the resolution, the board orders an election on the question of changing the boundaries, which election is held in the same manner as that to determine whether bonds shall be issued. If the majority be affirmative, the board orders the boundaries changed in accordance with their resolution voted on, and a certified copy of the order is filed in the office of the recorder of each interested county. *Sec. 3589:* The secretary of the board records the order in the minutes of the board, and a certified copy is admissible in evidence with the same effect as the petition. *Sec. 3590:* Legal representatives of landowners may sign the petition.

Sec. 3597. State lands: Lands vested in the state at the time of organization become a part of the district and the state pays all proportionate charges and assessments against them. Claims for payment are presented to the Board of Control of the state, which board, finding the claim correct, orders payment. The state auditor thereupon draws a warrant on the state treasurer, who pays it.

Sec. 3600. Districts may be subdivided: Petitioners for a drainage district may, if they so elect, request that the lands in the district when organized be subdivided into tracts of not less than 40 acres, to the end that benefits may be determined and the proportionate part of all assessments to be levied may be apportioned against each subdivision in the proportion that the same may be determined to be benefited. (L. 1917, ch. 57, sec. 1.)

FINANCING—Assessments

Sec. 3602. Apportionment of benefits: When any district is organized, the directors appoint an engineer and two appraisers, to divide it into tracts of not less than 40 acres and apportion to each subdivision the amount of benefits which it will receive. The apportionment is by units; that is, to the land determined to be least benefited, one unit of assessment; to each tract receiving a greater benefit successively a greater number of units. No subdivision may be apportioned less than one unit nor more than 5. The surveyor and appraisers make written return to the directors and the apportionment of units is filed and is binding on all parties upon approval by the directors. The schedule so filed remains the basis of all taxes thereafter collected against the respective subdivisions.

Sec. 3545. Election to determine levy: If the money received from the sale of bonds be insufficient or if bonds be unavailable for the completion of the adopted plans, and additional bonds be not voted, it is the duty of the directors to provide for the completion of the works by the levy of an assessment therefor; provided, the question of such levy be first submitted to a vote of the electors. The order of submission for vote must be entered in the minutes of the board, stating the amount to be levied and the purpose thereof. Notice is by publication and posting and the election is in all respects the same as that for election of officers. A majority vote controls.

Secs. 3554 and 3555. Yearly estimate: The directors, at the first meeting in July of each year, furnish the supervisors and the assessor of each interested county an estimate in writing of the money needed for district purposes during the next year. The amount must be sufficient to pay interest on outstanding bonds, incidental expenses, repairs, and to pay the principal of maturing bonds. *Sec. 3555:* If there is more than one county, the total estimate is divided between the counties in proportion to the value of the real property in the district in each county, taking the equalized values of the last assessment roll as the basis. They furnish the supervisors and assessors of the respective counties a statement of the part of the estimate apportioned to their county.

Sec. 3556. Tax levy—Rate: The supervisors of each interested county at the time of levying the county taxes, levy a drainage district tax sufficient to raise the amount of the directors' estimate. Should the directors fail to report the amount required to meet principal and interest on bonds, the supervisors then levy a tax sufficient for that purpose. If the supervisors fail to do so, the assessor levies the tax. The rate is determined by deducting 15 percent for anticipated delinquencies from the total assessed value of the real property in the district and then dividing the sum necessary to be raised by the remainder of such total.

Sec. 3557. Collection of tax: The tax is entered on the assessment roll and collected at the same time and in the same manner as State and county taxes and paid into the county treasury for the use of the district.

Secs. 3558 and 3559. District tax may be paid without paying other taxes: Drainage district taxes and each installment thereof may be paid separately without at the same time paying State and county taxes assessed against the same property. The county treasurer must receive and receipt therefor. But nothing in this Act shall be construed to permit the payment of any of the State or county taxes without at the same time paying the district taxes against the same property. (L. 1923, ch. 46, p. 1.) *Sec. 3559:* General revenue laws apply to the levying and collecting of district taxes.

Sec. 3560. Treasurer: The treasurer of the county wherein the district was organized is the custodian of its funds. The treasurers of the other counties having lands within the district must upon order of the board of directors at any time, not oftener than twice a year settle with the district treasurer. The district treasurer is responsible on his official bond.

Sec. 3561. "Funds": A "bond fund," a "construction fund," a "general fund," and a "funding fund" are created by this section.

Sec. 3562. Warrants: The treasurer pays out money belonging to the district only on warrants signed by the president and secretary of the directors. He reports all money in each fund in writing at each regular meeting or when required.

Sec. 3570. Election for special assessments: Directors may at their discretion submit to the qualified voters at any time the question of levying a special assessment to raise money for any purpose of the district. Election is in all respects similar to that for issuing bonds. (Sec. 3541.) The notice states the amount of money required and the purpose for which it is to be used. A majority vote controls.

Sec. 3571. Limit of indebtedness: The directors have no power to incur any debt by bonds or otherwise not expressly granted in this act, except, before the collection of the first assessment, the board may incur indebtedness not to exceed \$2,000, bearing interest at 7 percent, to meet the expenses of organization.

Sec. 3604. Annual tax levy: The board of supervisors of any county in which any district or part of a district is situated must annually at the time of levying county taxes, levy a district tax sufficient to raise the amount called for in the estimate of the directors for that year. Supervisors must levy the amount in dollars and cents against each parcel shown by the schedule accompanying the estimate for that year. These amounts are a special tax against the several parcels of land and must be entered on the assessment roll. If the supervisors fail to levy the tax, the assessors must do so. Such taxes are collected at the same time as State and county taxes. (L. 1917, ch. 57, sec. 5.)

Sec. 3605. Assessments apportioned on unit basis: All assessments are apportioned against the several tracts of land according to the unit system of benefits herein provided. (L. 1917, ch. 57, sec. 6.)

FINANCING—Bonds

Sec. 3541. Bond election: For the purpose of constructing necessary works the directors estimate the amount needed and immediately call a special election on the question of issuing bonds. Notice is by posting and publication specifying the purpose of the election, the amount of bonds it is necessary to issue, and the denominations and rates of interest thereon. If a majority vote is in favor of issuing bonds, the directors issue them in the amount voted on. If the result of the election be against the issuing of bonds, the directors spread such result on their minutes, and whenever thereafter a petition signed by one-fourth or more of the qualified electors of the district is presented, asking a new election, such election is held in the same manner as the first.

Sec. 3542. Term of bonds—Payment: Bonds are to be payable in gold coin, except funding bonds, and are to be in 10 series falling due January 1 from 11 to 20 years after date in increasing percentages as to amount. Interest may not exceed 6 percent. Principal and interest is payable at the office of the county treasurer of the county where the district office is located. Bonds are in the amounts of \$100 or \$1,000 each and are negotiable. The secretary keeps a record of the bonds sold and the name of the purchaser.

Sec. 3543. Sale of bonds: The directors may sell bonds from time to time as may be necessary and advantageous, to raise money for construction and for the acquisition of works and in carrying out the objects of the district. They declare by resolution entered on their minutes their intent to sell the specified amount of bonds at a certain time and place, and give notice thereof by publication in the county where their office is located and elsewhere as they may deem necessary. Sealed proposals are received by the board prior to the date set. A deposit may be required with each bid. Sale is to the highest bidder, or the board may reject all bids. No bond may be sold for less than 95 percent of its face value.

Sec. 3544. Lien of bonds: Bonds are a lien upon the real property in the district and the lien of any issue has preference over that of any subsequent issue. They are paid from revenues derived from assessments upon the real property of the district and all such property is liable to assessment therefor. Nothing herein is to be construed as a tax upon the State, school, or university lands within the district.

Secs. 3546 to 3550. Funding bonds: Whenever a district has outstanding bonds or other obligations, payment thereof may be provided by the issuance of funding bonds. *Sec. 3547:* A petition must be presented to the directors, signed by a majority of the qualified electors, setting forth the amount of bonds,

coupons, or other indebtedness proposed to be funded, with a general description thereof, and the total amount of bonds sought to be issued. Such amount may not be greater than the total indebtedness proposed to be funded. The petition is entered on the minutes of the directors. **Sec. 3548:** After the recording of the petition, the directors call a special election on the question of issuing funding bonds. Notice is by posting and publication with the amount and purpose of the proposed issue stated therein. The election is the same as for the original bond issue. A two-thirds majority is required for the issuance of funding bonds. If more than one-third be against the question, the result must be so declared. In either case the result is recorded in the minutes of the directors. **Sec. 3549:** When issued, funding bonds are payable in gold coin in 20 series. On January 1, after the expiration of 20 years, 5 percent of the whole amount becomes due and on January 1 each year thereafter an additional 5 percent, until all are paid. The bonds are negotiable, bear 6 percent interest, are in denominations not less than \$100 nor more than \$500. **Sec. 3550:** It is unlawful to exchange any funding bond for less than 95 percent of its face value.

Secs. 3551 to 3553. Exchange of funding bonds: When funding bonds are issued, they are deposited with the treasurer of the county where the district was organized, and he is empowered to deliver them in exchange for the bonds or other indebtedness to be funded only after such bonds or indebtedness have been delivered to him and he has been ordered by the board of directors so to do by resolution duly spread on their minutes. After delivery the treasurer cancels the old bonds or indebtedness and reports that fact, with identification, to the directors at their next meeting. When funding bonds are issued for the purpose of sale to the highest bidder, the directors may sell them from time to time as may be necessary and advantageous to raise money to pay bonds, coupons, or other indebtedness outstanding at the time of the filing of the petition for the issuance of such funding bonds. Resolution of intention to sell and notice is the same as in the sale of the original bonds. Such bonds may not be sold for less than 95 percent of their face value, including accrued interest. All money so received must be paid to the treasurer and kept in a separate fund called the "funding fund" and applied exclusively to the payment of indebtedness outstanding at the time of the filing of the petition for funding bonds.

Sec. 3563. Payment of bonds: When interest coupons are presented, the treasurer pays same from the "bond fund." Whenever that fund contains \$10,000 in excess of the amount required to pay interest coupons due, the directors have the treasurer advertise for the surrender for redemption of bonds of the district. The lowest bid is accepted but no bond may be redeemed above par. Should there be no redemption, the money is invested in other approved interest-bearing bonds.

Secs. 3573 to 3578. Validation of bonds: Within 30 days after the order directing the issuance of bonds, the directors must bring an action in the superior court of the county in which their office is located to determine the validity of such bonds. It is a proceeding *in rem* and jurisdiction is acquired by publication in the county in which the action is pending and is complete after the first publication. Within 30 days interested parties may appear and contest the validity of the bonds. Either party has the right of appeal within 30 days, and the appeal must be determined by the Supreme Court within 3 months. (L. 1921, ch. 138.) If the directors do not act to validate the bonds, any assessment payer, after 30 days and within 90 days, may bring such action. The court hears and determines the

sufficiency of all proceedings; and, if there is more than one action, they must be consolidated. Upon the hearing the court will disregard errors and omissions which do not effect the substantial rights of the parties. The state laws of pleading and practice prevail. Costs may be apportioned between the parties or taxed against the losing party in the discretion of the court. The validity of bonds may not be contested in any other manner than that herein provided.

Secs. 3591 to 3594. Reduction in bonded indebtedness: If the bonded indebtedness is greater than the district needs to complete its works, the directors may call a special election on the question of reducing the bond issue. The election is the same as for issuing bonds and the notice must state the amount of authorized bonds and the amount of the proposed reduction. The validity of the bonds is not affected. Unused bonds must be destroyed after the reduction of bonded indebtedness has received an affirmative majority.

CONSTRUCTION

Sec. 3564. Contracts: After adopting the plan for the works, the directors give notice by publication in each interested county and elsewhere as they deem necessary, calling for bids for construction and describing the work to be done. Bids are opened in public and work let to the lowest responsible bidder, or all bids may be rejected and the directors may construct the work under their own supervision. Contracts for material must be awarded to the lowest responsible bidder. Contractors give bond to be approved by the directors, for 50 percent of the contract price.

DISSOLUTION

Sec. 3599. Districts may be dissolved: The board of directors or any landowner may file with the board of supervisors in the county in which the largest part of the lands are situated, a verified petition stating: (1) the date of organization; (2) that all indebtedness has been paid and no obligations are outstanding; (3) the amount of money remaining undisposed of in the treasury; (and either of the following:) (4) that all lands are being adequately drained by works constructed by the district or by other persons or organizations, and that such works are being maintained by agencies other than the district; (5) that all lands or substantially all have been included in an irrigation district invested with the power of drainage; (6) or that satisfactory provision for drainage of all of the district lands has been made and continuance of the organization is no longer required. The supervisors fix a hearing on the petition, with notice by publication in each county affected, the first publication not to be less than 21 days before the hearing. The supervisors hear the evidence and, if they find the allegation sustained, enter upon their records an order declaring the district dissolved. If they find otherwise, the petition is dismissed. The order of dissolution terminates all of the legal powers and functions of the district. Funds remaining either are turned over to a drainage or irrigation district formed to take the place of the district being dissolved, or are paid back *pro rata* to the taxpayers, as may be provided by the order of dissolution. (L. 1925, ch. 8, sec. 1.)

ARKANSAS

(Popes Digest, Statutes of Arkansas—1937, and Supplement—1938, Chapter 52, art. 1)

DRAINS

ORGANIZATION—Petition

Sec. 4455. Districts: Three or more owners of real property within a proposed drainage district may petition the county

court to establish such district. The petition describes generally the region to be included and the petitioners give bond to pay costs if the district is not formed. The court appoints an engineer selected by the petitioners, if satisfactory to the court, who gives bond for the faithful performance of his duties.

The engineer makes a survey to ascertain the limits of the region that would be benefited by the drainage, and files his report with the court showing the general character of the works that would be required. The county clerk thereupon gives notice by publication, calling on all interested persons to appear at a certain date and show cause for or against the establishment of the district. If the court after hearing all witnesses deems the drainage to be to the best interest of the parties affected, it will enter an order on its record establishing the district. The preliminary expenses are paid by the county, to be repaid from the first assessment.

If a proposed district lies in more than one county, the petition is addressed to the circuit court of the county in which the largest portion of the land is situated, and all proceedings are had in that court. If the court does not act promptly on the petition, it may be compelled to do so by mandamus proceedings. (L. 1921 amending Act 1911, p. 193.) The court apportions the costs between the counties in proportion to the benefits assessed to each, and notice is published in a newspaper of general circulation in each county. (The statute provides that where the district includes land in more than one county, the words "county court" and "county clerk" shall mean Circuit Court and Circuit Clerk, respectively.)

See: *Jurisdiction: Bayou Meto D. Dist. v. Ingram*, 165 Ark. 318; 264 S.W. 947.

Notice: Burns v. Fisher, 171 Ark. 1012; 287 S.W. 205.
Mahan v. Wilson, 169 Ark. 117; 273 S.W. 383.

Petition: Robinson v. Mud Slough Dr. D., 174 Ark. 369; 295 S.W. 360.
Smith v. Lawrence, 175 Ark. 712; 300 S.W. 386.

Bonds: Indian Bayou Dr. D. v. Dickie, 177 Ark. 728; 7 S.W. (2d) 794.
Drainage Dist. v. Mchts. & Planters Bank, 176 Ark. 474; 2 S.W. (2d) 1079.
Grady Dr. D. v. Free, 178 Ark. 346; 10 S.W. (2d) 854.

No assessment against county roads: 179 Ark. 91; 14 S.W. (2d) 226.

Sec. 4456. Who may sign petition: If the petition is signed by a majority either in number, acreage, or value of the holders of real property within the district, it is the duty of the court to establish the district without further inquiry. If the petition is not so signed, it is the duty of the court to investigate and establish the district if in its opinion such establishment will be advantageous to the holders of real property therein. Married women and legal representatives may sign the petition, and a corporation signature is good if its corporate seal is attached. (Act April 28, 1911, p. 193, sec. 2.)

See: *Jacks Bayou Dr. D. v. St. L. I. M. & S. Ry. Co.*, 116 Ark. 30.
Jones v. Fletcher, 132 Ark. 328.

Sec. 4457. Effect of order: The order of the court establishing the district has the full force and effect of a judgment. Any landowner may appeal within 20 days, but in the absence of appeal the judgment is conclusive and binding upon all of the real property within the district and upon the owners thereof. Any owner may also appeal from any order refusing to establish a district.

See: *Wulff v. Claiborne*, 107 Ark. 325.

Chicago Mill & Lumber Co. v. Dr. D., 117 Ark. 292.

Sec. 4501. Subdistricts: When three or more owners of lands wholly or partly within a drainage district petition the county

court to establish a subdistrict to embrace their property, and post a bond for the expenses, the county court enters an order directing the commissioners of the main district to have a survey made and ascertain the limits of the region that will be benefited. The commissioners report generally the character of the territory, the benefits to be derived, the character of the works required, and the expense of constructing them. The court clerk gives notice by publication to landowners in the subdistrict to show cause for or against its establishment. The court hears parties affected, and if of the opinion that formation of the subdistrict would promote the public welfare and be to the best interests of the owners of said land, will establish the subdistrict under the provisions of sections 4456 and 4463. The main district pays for preliminary estimate and publication and is repaid from the first money received by the subdistrict.

Sec. 4502. Commissioners of subdistricts: The court appoints the commissioners of the main district in which the greater portion of the subdistrict is situated to act as commissioners of the subdistrict. The petition for the organization of the subdistrict must be filed in the county in which the main district was organized.

See: *Magnitude of the improvement immaterial: Mahan v. Wilson*, 169 Ark. 117; 273 S.W. 383.

ORGANIZATION—Officers

Secs. 4458 and 4459. Commissioners: When the court establishes a district it appoints three landowners within the county as a board of commissioners to assess benefits and damages resulting from the improvement. If a majority in value of the owners of real property petition for the appointment of a particular person as commissioner, it is the duty of the court to make such appointment. The court must remove any commissioner on petition of a majority in value of the owners of property within the district. **Sec. 4459:** "Real property" as used in this act means the same as in the act providing for the collection of county and State revenues and embraces all railroads and tram roads.

Sec. 4460. Plan: As soon as the board has formed its plan of improvement and estimated the cost thereof, they file it with the county clerk. The plan must be accompanied by a map showing the location of the ditches and specifically describing them.

Sec. 4490. More than one county—Commissioners: In case of a district in more than one county, all three commissioners must be the owners of real property within the district. (L. 1913, p. 738, sec. 6.)

ORGANIZATION—Powers

Sec. 4472. Authority of commissioners: The boards of commissioners have control of the construction of the improvements in their districts. They may advertise in local papers or papers published in other states for proposals to do any of the work by contract. No work exceeding \$1,000 in cost may be let without public advertisement. They may reject any proposal. The court may remove any commissioner for cause stated in writing, with opportunity to the commissioner to answer and to appeal, and may appoint a successor. (Act of May 27, 1909, p. 830.) (*Hopkins v. Hellums*, 108 Ark. 460.)

Sec. 4476. Authorization of plans—Bonds: The commissioners may alter the plan of work by filing changed plans with the county clerk and giving notice by publication of such filing. If the commissioners or any landowner deem that the changed plans have made the assessments inequitable, they may petition the county court to have a reassessment of the property. In no event shall a reduction of assessment be made after the

assessment of benefits has been confirmed. Any reduction must be paid for in damages and the claim for such damages shall be subordinate to the holders of bonds which have theretofore been issued. Property owners have the right of appeal from the reassessment. (Act of March 13, 1913.)

See: Hudson v. Simonson, 170 Ark. 243; 279 S.W. 780.
Bayou Meto Dr. Dist. v. Ingram, 165 Ark. 318; 264 S.W. 947.
Prothro v. Williams, 147 Ark. 535; 229 S.W. 38.
Indian Bayou Dr. D. v. Walt, 154 Ark. 335; 242 S.W. 575.

Sec. 4478. Lateral ditches—Intervening lands: Any landowner may build ditches to drain his land into the main ditch, and if intervening landowners refuse permission, he may bring action in the Circuit Court to condemn a right-of-way in the same manner as other condemnation proceedings. The jury must deduct from the damages the benefits that will accrue to the intervening landowner and such landowner has the right to use the ditch.

Sec. 4479. Omitted lands: When lands in the district for any reason were not assessed benefits or were not assessed to the extent of the benefits received, or when any corporation or individual outside of the limits of the district shall drain lands into the district ditches, the commissioners will assess the benefit or the enhanced benefit received by such lands in the same manner as benefits were originally assessed. (Sec. 4461.) Vested rights in natural drainage may not be interfered with.

Sec. 4480. Outlet: When necessary for a proper outlet, the commissioners may construct ditches or other works on lands beyond the jurisdiction of the court, or which for other reasons cannot be included in the district, so as to secure the objects of the improvement. They have the right to condemn the right-of-way for such construction. The drain beyond the limits of the district is the property of the district and no lateral drains may connect thereto without compensation to the district to be fixed by the court. (See sec. 4934 on Eminent Domain.)

Sec. 4481. Continuation of district: Upon completion, the district does not cease to exist but continues for the purpose of preserving the works and enlarging them from time to time as may be advantageous. Commissioners may from time to time apply to the court for the levying of additional taxes, at which time the proceedings are the same as for the original levy.

See: *Authority to enlarge:* Indian Bayou Dr. D. v. Walt, 154 Ark. 335; 242 S.W. 575.
Gray v. Doyle, 167 Ark. 495; 269 S.W. 579.
Clay v. England, 172 Ark. 373; 288 S.W. 895.
Lesser Goldman Collon Co. v. Cache River Dr. D., 174 Ark. 160; 249 S.W. 711.
Indian Bayou Dr. D. v. Dickie, 177 Ark. 728; 7 S.W. (2d) 794.

Sec. 4497. Sale of land for taxes: On the sale of land for taxes of a drainage district, the land is first offered subject to the lien of all district assessments then existing thereon. If there is no purchaser, the commissioner appointed to make the sale reports that fact to the court, and the land may not again be offered for sale until the lapse of one year nor until an attorney *ad litem* has notified the commissioners or directors of the interested district and trustees of all bondholders having liens thereon that the land has been offered for sale and no purchaser found. When the report of the attorney is made showing compliance with this provision, the court orders the sale of the land free of incumbrances of the assessments of all other improvement districts that are subordinate to the lien that is foreclosed, but subject to subsequent installments of assessments for benefits in the plaintiff district. After payment of the foreclosed lien and costs, the court distributes the remainder of the sale price equitably. If the board of directors of any district having a lien on the land, or the

trustees of any bondholder having such lien, are not notified of the application for the sale they may at any time within 3 years have the sale set aside and the land resold.

See: Oliver v. Gann, 183 Ark. 959; 39 S.W. (2d) 521.
Bd. of Comrs. v. Bd. of Drktrs., 181 Ark. 898; 28 S.W. (2d) 721.

Sec. 4519. Special act districts included: All drainage districts created by a special act are made drainage districts under the terms of Act 279 of May 27, 1909, with all the powers and liabilities conferred by that act, provided this act shall not be construed to take away from any improvement district created by special act any power conferred on it nor to displace any commissioner or director. (Act 227 of March 23, 1927.)

Secs. 4526 and 4531. General power to include lands: When any lowland or lake has been drained into the ditches of a drainage district which has completed its works, lands benefited by such drainage may be added to the drainage district; but no lands paying taxes in another drainage district may be added. (Act #180, March 22, 1927.) **Sec. 4531:** Sanitary districts may be included but the amount of assessment is limited on lots and blocks served by sewers to \$.50 per year on a lot 50x150 ft.

Sec. 4532. Procedure to include lands drained: The commissioners, when they find that land has been benefited by connecting with the works of the district, may file with the clerk of the chancery court of the county where the land is situated, a petition setting forth the reasons why such land should be annexed to the district. After notice by publication the court hears all interested parties and then enters its decree granting or denying the petition. If the land is annexed, it thereafter constitutes a part of the district. **Sec. 4533:** The assessor of the district proceeds to assess the benefits to such land. If there is no assessor then the board of commissioners assesses it. The assessment is in conformity with sections 4561-63 and appeal is in the same manner. The commissioners may equalize the assessment. The commissioners may have a reassessment of the benefits of the entire district so as to equalize the burden. The reassessment of benefits follows the original assessment in procedure.

FINANCING—Assessments

Sec. 4461. Assessment of benefits: The commissioners assess the land within a district and inscribe in a book provided for the purpose the description of each tract, the name of the owner, the amount of benefits assessed against it, and an estimate of the probable amount the owner will have to pay. Their assessment embraces not only the land but all public roads, railroads and other improvements on the land that will be benefited by the drainage system. Where already constructed drainage works are to be used, the commissioners assess their value, which is paid by the district in cash or reduced assessments. The commissioners also assess damages, and where they make no return of damages, it is equivalent to a finding by them that there are none.

See: Oats v. Dist., 135 Ark. 149.
Dickerson v. Dist., 138 Ark. 471.
Hudson v. Simonson, 170 Ark. 243; 279 S.W. 780.

Sec. 4462. Lands outside of district: If the commissioners find that other lands not embraced within the boundaries of the district will be benefited, they assess the benefits and damages to such land and report same to the court. The court then gives notice by publication to the owners of the land to show cause why it should not be included in the district. The court investigates the question of benefits to the outside land and makes a finding thereon from which either party may appeal

within 20 days. If the finding be in favor of the commissioners, the limits of the district are extended to embrace the lands involved.

Sec. 4463. Confirmation of assessments: When their assessment is completed, the commissioners file it with the clerk of the court, where it becomes a public record. The county clerk gives notice by publication of an order to appear and show cause why the report should not be confirmed. Any owner may appear and present objections. The court makes findings confirming or changing the assessment, which findings have the force and effect of a judgment. Either party may appeal within 30 days. (Acts 1909 as amended by L. 1913, p. 738.)

See: *Sufficient publication: Johnson v. Tucker Lake L. & D. Dist.*, 168 Ark. 889; 271 S.W. 965.
Dr. Dist. v. M. & P. Bank, 176 Ark. 474; 2 S.W. (2d) 1079.

Sec. 4464. Assessment of damages by jury—Condemnation: The property owners are construed to have accepted the award of damages by the commissioners unless within 30 days demand is made in writing for assessment by jury. In that event, the commissioners institute in the Circuit Court an action to condemn the land and have the right to pay into court the sum fixed by it and to then proceed with the work without awaiting the action of the jury. (Acts 1909, p. 829.)

Sec. 4465. Court order for assessment—Installments—Lien: At the time the assessment of benefits is filed, or thereafter when called for by the commissioners, the court will enter an order, which has all of the force of a judgment, assessing a tax upon the real property in the district sufficient to pay the estimated costs of the improvement plus 10 percent for contingencies. This tax must be paid by the real property in the district in the proportion of the assessment of benefits, and in annual installments not to exceed 25 percent of the assessment in any one year.

The tax so levied is a lien upon the real property in the district and is entitled to preference over all other demands, executions, incumbrances, or liens, whensoever created, and continues until such assessment with any penalties or costs has been paid. The remedy against such assessment is by appeal within 20 days; and on the appeal the presumption is in favor of the legality of the tax. Any owner of real property within the district may compel compliance with this section by mandamus. Should the commissioners deem it inconvenient to immediately begin the construction of the works after the confirmation of the assessment of benefits, they may report to the court the rate of taxation necessary to pay the preliminary expenses of the district, whereupon the court will levy such tax with 10 percent added for contingencies, and the tax is extended on the tax books of the county and collected in the same manner as other taxes. (Act of May 22, 1923.)

Sec. 4466. Levy and collection of tax: Whenever it is deemed prudent not to proceed immediately with the construction and not to abandon the proceedings, the court or the board of commissioners are empowered to levy and collect a tax based upon the benefits and collectible from the real property of the district in proportion to the respective assessments of benefits against the several pieces of property, for the purpose of paying the preliminary expenses. This tax is collected in the same manner as the tax for construction. If any district is abandoned before it makes final assessment for benefits, the preliminary expenses are taxes against the real estate upon the basis of the assessment for county purposes. (Act of March 22, 1923.)

Sec. 4468. Collection of taxes: The amount of the drainage taxes is annually extended on the "drainage tax book." This

book contains a description of each tract of land with the amount of the annual installment due on said tract and levied for that year. Notice of any change in description must be given the county clerk by the commissioners. (Act of March 25, 1937.)

See: *Collector must accept general taxes alone when tendered: Howell v. Lamberson*, 149 Ark. 183; 231 S.W. 872.

Sec. 4469. Collection of taxes: The county clerk annually turns the drainage tax book over to the tax collector of each county, at the same time that he delivers the real estate tax book of the county. Drainage taxes are collected at the same time as state and county taxes and a separate list thereof is issued. Drainage taxes are paid over to the commissioners of the various drainage districts at or before the time that the collector makes settlement with the county treasurer. Penalty is provided against the collector for failure to collect the drainage taxes or to enter them on the tax books.

Sec. 4470. Payment by treasurer—Warrants: The district treasurer makes disbursement only on warrants signed by the chairman of the board of commissioners. All warrants are dated and numbered consecutively, recorded, and state on their face the name of the payee, the amount, and the purpose for which the warrant is drawn. No warrant may be paid unless there are sufficient funds in the treasury to pay all other warrants bearing a lower number. No warrants may be made payable or be paid in anything but currency. No warrant may be increased because of depreciation in the market value thereof. (Acts 1909, p. 829, sec. 11.)

Sec. 4471. Increase of tax levee: If the taxes first levied prove insufficient to complete the improvement or to pay the bonds and interest as they become due, the board reports the deficiency to the court and the court thereupon levies upon the property previously assessed a tax sufficient to complete the improvement and pay the bonds and interest, which tax is collected in the same manner as the first levy; but the total levy shall in no case exceed the benefits assessed on such property. The performance of these duties may be enforced by mandamus at the instance of any interested person. (Act March 28, 1911, p. 198.)

See: *Increased levies must be within the assessed benefits: Griffin v. Little Red River Dr. D.*, 157 Ark. 590; 249 S.W. 16.

Sec. 4482. When assessments payable—Enforcement: District drainage taxes are payable between the first Monday in January and the 10th day of April each year. If any taxes are not paid at maturity, the collector shall not include them in the taxes for which he will sell land but shall report the delinquency to the Board of Commissioners, who must add thereto a penalty of 25 percent. The board enforces collection by chancery proceeding in a court of the county where the lands are situated. That court gives judgment for the taxes and penalty with 6 percent interest from the end of the 60 days allowed for the collection thereof. The judgment provides for the sale of delinquent lands by a commissioner of the court after advertisement. The proceedings are *in rem* and it is immaterial that the ownership of land be incorrectly alleged. Judgment is enforced only against the land and not against any other property of the defendant. All delinquencies may be included in one suit with notice by publication. The form of notice is set out in full in the statute. Should the commissioners fail to commence suit within the 60 days after delinquency, the holder of any bond may bring suit in the same manner.

Sec. 4483. Enforcement—Redemption: The statute sets out minutely and in detail the method of conducting the suit for

foreclosure and the character of the title conveyed. In the event the bid for any property is not sufficient to pay the assessment with interest, penalties, and costs, the commissioner of the court bids the same off in the name of the board of directors of the drainage district, bidding the whole amount due, and executes his deed to the district. The deed when recorded must be received in evidence and shows an indefeasible title in the district, unassailable either in law or equity; provided, within 2 years after final decree the owner of the land sold may file a petition alleging the payment of taxes on the land for the year in which they were sold, and upon the establishment of that fact, the court will vacate the decree; and provided, any landowner shall have the right of redemption within 5 years, which runs from the day the lands are offered for sale and not from the confirmation of the sale. (Acts 1909, p. 829, sec. 24.)

Sec. 4494. Interest included in tax—Payment of assessments: The interest which will accrue on bonds issued by districts and subdistricts must be included and added to the tax, but the interest to accrue on account of the issuing of said bonds shall not be construed as a part of the costs of construction in determining whether the costs are in excess of the benefits.

When assessments of benefits are made, the landowners have the privilege of paying them in full within 30 days. But all such assessments are made payable in installments so that not more than 25 percent shall be collectible against the wishes of the landowner in any one year. The deferred installments bear interest at 6 percent and are payable only in installments as levied. The levy of assessments may be by way of proportional amounts of the total assessed benefits, and interest need not be calculated until it is necessary to do so to avoid exceeding the total amount of benefits and interest. (L. 1913, p. 728, sec. 10.)

Sec. 4524. Assessment of benefits—Collection—Preliminary expense: For the purpose of paying principal and interest of any bonds issued for preliminary expenses, either original or refunding, when an assessment of benefits has not been made, the court, when asked by the commissioners of the district, will enter an order having the effect of a judgment decreeing that there shall be assessed and collected a tax upon the real property of the district sufficient to pay such bond issue as same matures, plus 10 percent for contingencies, based upon the valuation as shown by the last county assessment. Collection is in the same manner as state and county taxes. Such tax is a lien on the real property in the district from the date of the levy. Appeal within 30 days may be had but the presumption is in favor of the legality of the tax. (L. No. 59, Acts of 1927.)

Sec. 4527. Reassessment of benefits: The commissioners have power to reassess the benefits not oftener than once a year in the same manner as the original assessment is made. All appeals must be taken within 30 days from the action of the court thereon. (Act #203 of March 23, 1927, sec. 2.)

Sec. 4528. Reassessment and extension—Procedure: If the commissioners have filed plans for additional works, no proceeding shall be taken looking to the confirmation of the assessment of benefits based thereon until after a petition has been filed with the court signed by a majority in number, acreage, or value of the landowners, praying that the plan shall proceed. If no such petition is filed within one year, the commissioners must withdraw the revised plan. If the petition is filed, the clerk gives notice by publication of a hearing thereon. The form of the notice is set out in the statute. The court, after determining that the petition is adequate, hears all objections there to and decides whether the assessment of benefits is

equitable and just. Appeal from either side to the circuit court must be filed within 30 days, and appeal from the decision of that court also within 30 days.

Sec. 4529. Judgment—Reassessment: When such reassessment of benefits has been confirmed, it is the assessment of benefits until another reassessment has been made. Taxes are levied and collected in the same manner as on the original assessment and are a first lien on lands of the district from the time made.

See: *Constitutional*: Dr. D. #18, Craighead Co. v. McMeen, 183 Ark. 984; 39 S.W. (2d) 713.

Sale of forfeited lands: Watson v. Barnett, 191 Ark. 990, 88 S.W. (2d) 811.

Use of funds: Green v. Wulff Dr. D. #4, 193 Ark. 1087; 104 S.W. (2d) 1076.

Tarleton Dr. D. #15 v. American Investment Co., 186 Ark. 20; 52 S.W. (2d) 738.

Reassessment: Dr. D. #18 v. McMeen, 183 Ark. 984; 39 S.W. (2d) 713.

State ex rel. Murphy v. Cherry, 188 Ark. 664; 67 S.W. (2d) 1024.

Lien: Tarleton Dr. D. #15 v. American Investment Co. ante. Harris v. Little Red River Levee Dist. #2, 188 Ark. 975; 69 S.W. (2d) 877.

Collection and Enforcement: Oliver v. Gann, 183 Ark. 959; 39 S.W. (2d) 521.

Deaner v. Gwaltney, 194 Ark. ___; 108 S.W. (2d) 600.

Union Investment Co. v. Hunt, 187 Ark. 357; 59 S.W. (2d) 1039.

Redemption: Levee Dist. #2, 188 Ark. 975; 69 S.W. (2d) 877. Bauer v. Gwaltney, 191 Ark. 1030; 88 S.W. (2d) 1005.

FINANCING—Bonds

Sec. 4467. Bonds to pay preliminary expenses: If the directors or commissioners find it desirable, they may issue coupon bonds or other negotiable evidences of indebtedness to raise money to pay preliminary expenses; and such bonds or evidences of indebtedness may be issued from time to time in payment of the preliminary work done. They may secure the payment of such obligations by a pledge of the assessment of benefits when they shall have been confirmed.

Sec. 4474. Bonds: To hasten the work, the board may borrow money at not exceeding 6 percent interest and may issue negotiable bonds therefor and pledge all assets for the payment thereof. It may issue to contractors to do the work its negotiable instruments bearing interest at not more than 6 percent. Bonds may not run more than 30 years. The issue may be divided so that a portion thereof will mature each year as assessments are collected, or all may mature at the same time if proper provision is made for a sinking fund.

See: *Advertisement of sale of bonds not required*: Boyce v. Clapham, 219 S.W. 24.

Sec. 4484. Bonds secured by lien—Enforcement: Bonds are secured by lien on all the lands, railroads, and tramroads in the district. The board of directors must levy an annual tax so long as is necessary to pay any bonds issued or obligations contracted. Such levy and collection may be enforced by mandamus.

If any bond or interest coupon is not paid within 30 days after maturity, it is the duty of the chancery court in the proper county, upon application of the holder of such bond or coupon overdue, to appoint a receiver and collect the taxes aforesaid. The proceeds of such taxes are applied to the payment of the interest first, and then to the overdue principal. The receiver may be directed to foreclose the lien on the lands. (L. 1919, p. 829, sec. 25.)

Sec. 4485. May not pledge bonds—Sinking fund: It is unlawful for any officer to pledge any bond or coupon as security for the payment of any debt or obligation whatever. It is unlawful

to use the proceeds of any bond for any purpose except as specifically and expressly directed by this Act. Violation of this provision is a felony. The entire revenue of the district from all sources and "all real estate, railroads, and tramroads subject to taxation in the district is by this act pledged." The board of directors is required to set aside annually, from the first revenues collected from any source whatever, a sufficient amount to pay the interest on the bonds and to create a sinking fund for their ultimate retirement, if a sinking fund is contracted for. (L. 1919, sec. 26.)

Sec. 4487. Warrants—Annual report: Commissioners must keep the original itemized bills when all warrants have been paid and must make a sworn financial statement to the county clerk each year. The books and records of the district must be examined at least once each year by the state bank examiner.

Sec. 4520. Refunding bonds: Any drainage district having outstanding bonds, certificates of indebtedness, or unsatisfied judgments is authorized to issue refunding bonds for the purpose of paying the indebtedness with interest. The refunding bonds may bear interest not to exceed 6 percent and mature within not to exceed 30 years from date of issue. (Act #16 of February 16, 1927, sec. 1.)

Secs. 4521 to 4523. Refunding bonds may not be issued for a greater amount than necessary to pay past due outstanding bonds and future outstanding bonds to mature over a period of not exceeding 5 years after the issuing of the refunding bonds. The amount of such issue may include necessary discounts and expenses in connection with the issue. **Sec. 4522:** Refunding bonds are secured by a lien on the assessment of benefits like other bonds, and the issue does not affect the assessment of benefits. **Sec. 4523:** Refunding bonds may be issued to pay bonds sold prior to the assessment of benefits for preliminary expenses.

See: *Keith v. Dr. D. #7 of Poinsett Co.*, 183 Ark. 786; 38 S.W. (2d) 755.
Oliver v. Western Clay Dr. D., 187 Ark. 539; 61 S.W. (2d) 442.
Dr. D. #7 of Poinsett Co. v. Hutchins, 184 Ark. 521; 42 S.W. (2d) 996.

CONSTRUCTION

Sec. 4473. Contractors—Payments—Bond: Contractors must give bond in an amount required by the board, and the board may not remit any penalty or forfeiture of said bond upon completion of the contract. The board may appoint necessary agents and fix their compensation. They may buy necessary material and equipment and in general make such contracts in the prosecution of the work as may best subserve the public ends. The board may draw its warrants in favor of the contractor for not more than 80 percent of the work reported by their engineer to be finished, reserving the remainder until completion and acceptance.

See: *Liability for negligence:* *Wood v. Dr. Dist.*, 110 Ark. 416.

Contractor's bond, how construed: *Union Indemnity Co. v. Forger & Hanson*, 174 Ark. 1110; 298 S.W. 1032.
Holcomb v. Amer. Security Co., 184 Ark. 449; 42 S.W. (2d) 765.
Green v. Wulff Dr. D. #4, 193 Ark. 1087; 104 S.W. (2d) 1076.

DISSOLUTION

Sec. 4525. How district may be abolished: The board of Commissioners when they deem it inadvisable or impractical to construct improvements contemplated by the organization, may, when all of the indebtedness has been paid, file a petition with the court praying that the district be abolished and giving their reasons therefor. The court clerk gives notice by publication

of a hearing on the petition and the court hears the evidence and grants the petition or dismisses the same in its discretion. Overruling of one petition does not bar the filing of another.

CALIFORNIA

[*General Laws of California (Deering)* 1937, and *General Laws Supplement, 1939*]

DRAINAGE

1. *Act No. 2200—Drainage Law of 1885* (Stat. '85, p. 204)
2. *Act No. 2202—Drainage District Law, 1903* (Stat. '03, p. 291)
3. *Act No. 2203—Drainage District Improvement Act, 1919* (Stat. '19, p. 731)
4. *Act No. 2204—Drainage District Act of 1923* (Stat. '23, p. 196)
5. *Act No. 2205—Irrigation District Drainage Law* (Stat. '07, p. 589)
6. *Reclamation District Act of 1872* (Title VIII, art. II, secs. 3446-3493)

1. ACT NO. 2200—DRAINAGE LAWS OF 1885

(Statutes 1885, p. 204)

ORGANIZATION—Petition

Sec. 1. Petition—Procedure: Whenever the owners of two-thirds of any body of land susceptible of one mode of drainage desire to drain the same, they may present to the board of supervisors of the county in which the greater portion thereof is situated, at a regular meeting of the board, a petition setting out a description of the land, the number of acres in the district and in each tract, the name of the owner, and the name of three persons whom they desire to serve as trustees for the first three months. The petition must be verified by at least one signer and be published for four weeks prior to hearing thereon with notice of such hearing. (As amended Statutes of 1909, p. 25.)

Sec. 2. Intercounty districts: When the district is situated in more than one county, the trustees must, after the petition has been granted, forward a copy to the board of supervisors of each county interested and such boards must not allow another district to be formed within the territory without the consent of the trustees.

Sec. 3. Excluding and including lands: If the supervisors find upon the hearing that lands have been improperly included in the district, they will, before fixing the boundaries, exclude such lands. They will also include adjacent lands upon petition of any owner presented at the hearing, if deemed for the best interests of the district. Finding that the petition should be granted, the supervisors will, by order, define the boundaries of the district and declare it duly formed. The persons named in the petition are to be trustees for the first three months or until their successors are appointed.

Secs. 4 to 6. Recording petition: The petition and the order defining the boundaries must be recorded in the office of the recorder of each county having land in the district. **Sec. 5:** After the approval of the petition, the landowners by majority vote of the acreage must adopt bylaws for governing and controlling the district and for the future election of trustees. The bylaws must be signed by a majority ownership in acreage. **Sec. 6:** Bylaws and all amendments must be filed for record in the office of the recorder of the county in which the district was organized.

ORGANIZATION—Officers

Secs. 7 and 8. Trustees: The trustees organize by electing one of their members president, and they also elect a clerk. They employ an engineer to make surveys and plans, locate the works, and estimate the cost thereof. They may modify or change the

original plan when necessary; construct, maintain, and keep in repair all necessary works; and do all things required for the proper drainage of the lands. The trustees may draw warrants in payment of their services but such warrants are void until countersigned by the board of supervisors of the county.

Sec. 8: The trustees report the plan of the work and the estimate of the cost to the supervisors of each county interested.

ORGANIZATION—Powers

Secs. 15 to 19. Eminent domain: The work is executed under the direction of the board of trustees. They must keep account of all expenditures and such accounts and all contracts are open to inspection of the board of supervisors and any interested person. The trustees may acquire by purchase all property necessary to carry out the plan of drainage. They may acquire by condemnation necessary rights-of-way for the works, and they may take material for construction and maintenance from lands outside as well as lands inside of the district. The proceedings for condemnation must be had under the general statutes. (Title VII, part 3, Code of Civil Procedure.)

Sec. 20. Drainage entirely by owners: Whenever land susceptible of drainage by one method is entirely owned by parties who desire to drain it and to manage the undertaking without trustees, such parties may file a petition provided for in sections 1 and 2, stating that they intend to undertake such drainage on their own responsibility. If the petition is granted, the parties have all of the rights, immunities, and privileges possessed by boards of trustees. (L. 1909, p. 30.)

Sec. 20-a. Changing boundaries—Including and excluding lands: Drainage districts may include lands not embraced in the original organization or exclude lands so embraced as provided in this section; and such inclusion or exclusion shall not affect any of the district's rights nor impair nor discharge any obligation for or upon which the district may become liable had such change of its boundaries not been made.

The owners of lands susceptible of the same mode of drainage as the lands within the district, contiguous to the boundaries of the district, may separately or jointly file with the supervisors of the county where the district was organized, a petition for inclusion in the district. The petition must state the grounds for inclusion and must be acknowledged in the same manner as conveyances of land. The supervisors' clerk gives notice of the filing of the petition by publication in each of the counties affected and also by mail to each property owner or landowner in the district. The notice fixes the time when any objectors may appear and show cause, at a regular meeting of the board, why the petition should not be granted and the boundaries of the district changed accordingly. At the hearing the supervisors hear all objections to the petition and the proceedings are recorded by the board. Failure to object to the petition is deemed to be assent except as to holders of warrants of the district. The expenses of the proceeding are paid by the petitioners. The supervisors determine whether it is to the best interests of the district to include the lands or any part of them mentioned in the petition and, after determining all objections and finding in favor of the inclusion, they will issue an order of record that the lands mentioned be included in the district; provided, if the holders of legal title represent 10 percent of the total acreage embraced within the exterior boundaries of said district file with the supervisors written objections to the inclusion of such land, it is the duty of the board to deny the petition.

Before making an order including such lands within the boundaries of the district, the supervisors require the petitioners

to pay to the county treasurer of the county where the district was formed an equitable amount determined by them as and for a contribution to the cost of the work already done in the district. In addition, the supervisors, when there is a lien on the lands within the district, must determine the amount that the lands to be included should be assessed for the payment of the lien, and they enter an order making the assessment, which constitutes a lien against the lands included with the same force and effect as the lien of the original assessment against lands in the district.

On a petition by one or more owners in fee of lands within a district to exclude their lands, the supervisors will hold a hearing similar to that for inclusion of lands and issue their order in accordance with their findings in the matter. If there be outstanding bonds or assessments of the district at the time of filing the petition or final determination, whether such obligations are due or not, the order of the board excluding the lands will not release them from the lien of the bonds or assessments, but such lien remains in full force. (L. 1923, p. 30.)

FINANCING—Assessments

Sec. 9. Commissioners: Upon the filing of the trustees report, the supervisors of the county in which the district was formed appoint three commissioners, being disinterested residents of the county or counties, to view the lands and assess to each tract a proportionate share of the whole expense. They also assess the benefits which will accrue to each tract. Such assessments when collected are paid to the county treasurer, and paid out by him for the construction of the work upon warrants of the trustees approved by the supervisors.

Sec. 10. Warrants: Warrants are drawn by the trustees and approved by the board of supervisors and presented to the treasurer for payment. If not paid on presentation, they are registered and bear interest at 6 percent until paid and are paid in the order of their registration. Warrants may be used in the payment of assessments without regard to the order of their registration. Assessments are paid to the treasurer of the county where the particular tract of land is situated.

Sec. 12. Additional assessments: If the original assessment is insufficient to complete the drainage, or if further sums are required from time to time for maintenance and repair, the trustees must present to the supervisors of the county where the district was formed a statement of the work to be done and its estimated cost, and a statement of the expected cost of maintenance, repairs, and administration; and the board may make an order directing the commissioners, or new commissioners named, to assess the amount of the estimated cost as a charge against the lands in the same manner as the original assessment. (L. 1937, p. 1668.)

Sec. 13. Equalization of assessments: The commissioners make a list of the charges against each tract in the district showing: a description of the tract, the number of acres, the names of the owners if known, or a statement that they are unknown, and the amount assessed against each tract. (No mistake in the name of the owner renders the assessment invalid.) The commissioners cause the list to be published and posted in each county interested, with a notice that in 10 days they will meet as a board of equalization for the purpose of equalizing assessments. They may continue the session for not to exceed 10 days in all.

Sec. 14. List—Lien—Installments—Notice: (a) The original list of assessments must be filed in alphabetical arrangement first, with the treasurer of that county in which the district is organized, and then a copy, certified by the commissioners,

must be filed with the treasurer of each county interested.

(b) From and after the filing of the list, the charges assessed upon any tract of land within the district constitute a lien thereon. The list must remain in the office of the treasurer at least 30 days. (c) During the time the list remains in the office of the county treasurer, any person may pay the amount assessed against his land to the treasurer of the county in which it is situated without interest charges, and in cash or warrants of the district. (d) The trustees may order the assessment paid in installments at such times and in such amounts as they may deem proper. If, at the end of 30 days or longer period fixed by the trustees, any first installment has not been paid in cash or in warrants, the treasurer may return the list to the trustees. When additional installments are ordered, the same procedure is followed. (e) Unpaid installments or assessments bear 7 percent interest from the date of the return of the assessment list to the board of trustees. (f) After the lists are returned to the trustees with any assessment or installment reported by the treasurer as unpaid, the trustees by resolution fix a date between 30 and 90 days thereafter when such installments will be delinquent. The secretary sends notice to all delinquent landowners in the form set out in the statute. (g) Service of notice may be in person or by mail or by publication for two weeks. (h) If any such installment or assessment be not paid within the time ordered by the board, then the same and accrued interest thereon shall be delinquent and a penalty of 10 percent of the principal and interest is added. The remaining unpaid and uncalled portions of the assessment also become due and delinquent at the same time. (i) Immediately after the installment has become delinquent, the trustees publish in one notice a list of all delinquents, containing the names of the owners, descriptions of the properties, the amounts due, and notice that the property will be sold on a date stated, in front of the courthouse, to pay the amount due. At the time stated, the trustees sell the property to the highest bidder for gold coin of the United States. The trustees, having sold the property, pay the county treasurer the amount due thereon for the benefit of the district and return any surplus to the landowner. (j) If no bid is sufficient to pay the amount due on the property, the district becomes the purchaser and certificate of sale is executed to the district and recorded in the office of the county recorder. The property may be redeemed by any interested party within one year upon payment of the charges against it and 2 percent per month interest thereon from the date of the sale. (k) If not redeemed within one year, the purchaser or the district is entitled to a deed executed by the trustees and the effect of such deed is to convey said property free of all liens and encumbrances except taxes and district assessments. The trustees may sell such property so acquired at public auction, after notice, but not for less than the amount for which it was sold together with any subsequent assessments. (l) Assessments heretofore made in any district are validated and shall be collected in the manner provided by law at the time they were made. (L. 1937, p. 1669.)

Secs. 19-a and 19-b. Reapportionment: Trustees have power to reapportion the assessment upon any portion of land that has been subdivided into smaller parcels in such manner as will charge each parcel with a just proportion of the assessment previously made. **Sec. 19-b:** Where original assessments are declared invalid for any reason, or have been omitted, a new assessment may be levied and the lands are charged in subsequent assessments with such proportion of the former assessment as the benefits derived bear to the whole amount of the former assessment. Payments made on assessments declared invalid become a credit on the subsequent assessment of the same land.

DISSOLUTION

Sec. 20½. Disincorporation: When a petition for disincorporation of a district is signed by a majority of the electors and presented to the trustees of a district, they submit the question of disorganization to an election in the same manner as an election for trustees. If two-thirds of the electors vote in favor of disincorporation, the trustees enter that fact on their minutes and forward a copy thereof to the board of supervisors of the county in which the district was formed, who file it with their clerk and from the date of such filing, the district is deemed disincorporated; provided, if there is any outstanding indebtedness of the district of any kind, taxes must be levied to pay the indebtedness in the same manner as if there had been no disincorporation; but for all other purposes the district is dissolved after the filing of the trustees' entry with the supervisors' clerk.

2. ACT NO. 2202—DRAINAGE DISTRICT LAW, 1903

(Statutes 1903, p. 291)

ORGANIZATION—Petition

Secs. 1 and 2. Who may sign: Whenever 50 or a majority of the holders of title or evidence of title to agricultural lands other than swamp and overflowed lands, which are susceptible of a general mode of drainage by the same system of works, desire to provide drainage, they may propose the organization of a drainage district under this act. The equalized county assessment roll next preceding the presentation of the petition is sufficient evidence of title; provided, no person acquiring land in the district for the purpose of enabling him to join in the petition or to become an elector shall be allowed to sign the petition or to vote at any election. Illegal signing, however, does not invalidate the petition. **Sec. 2:** The petition is presented to the board of supervisors of the county in which the greater portion of the lands in the proposed district are situated and sets forth the boundaries of the district, with a prayer for organization. Bond must accompany the petition in double the amount of the probable cost of organization, conditioned to pay costs if for any reason the district is not organized. The petition must be presented at a regular meeting of the supervisors after having been published in each county interested at least two weeks, with notice stating the date of the meeting at which it will be presented.

Sec. 3. Hearing: The supervisors hear the petition at such meeting and may adjourn for not more than 4 weeks in all, and on the final hearing they make such changes in the boundaries as they deem advisable and fix said boundaries. They may not modify the boundaries so as to exclude any territory susceptible of drainage by the same system, nor may any land be included which will not be benefited. Any person whose lands are benefited may have them included, upon application, in the discretion of the board.

Sec. 4. Appeal: The order of the supervisors may be appealed to the superior court of the county within 10 days; and if there is more than one appeal, they will be consolidated. The appeal is heard in the same manner as appeals from justice courts and the superior court may affirm, modify, or reverse the order of the supervisors appealed from. Thereupon remittitur is issued to the supervisors directing what order the board shall enter in the premises, which order must be entered on their minutes. Appeals must be heard and determined within 30 days.

Secs. 6 to 10. Election for organization and directors: The supervisors give notice of an election to determine whether the district shall be organized, designate the name of the district, describe its boundaries and the polling places therein, and name

an election board for each precinct. The notice is published in each county affected. The election is conducted in accordance with general law without any particular form of ballot. *Sec. 7:* No person may vote unless he possesses the qualifications required of electors under the general law. *Sec. 8:* The supervisors canvass the vote and, if a majority vote is in favor of organization, the board by order entered on its minutes declares the territory duly organized as a drainage district and the persons receiving the highest number of votes duly elected as directors. *Sec. 9:* A certified copy of such order is immediately filed in the office of the county recorder of any county having lands in the district, and a copy is forwarded to the board of supervisors of each county. No board shall thereafter allow another district to be formed including any of the lands without consent of the directors of the district in which the lands are situated. *Sec. 10:* The election may be contested by any person owning property within the district liable to assessment, and the directors are made parties defendant. The contest is brought within 20 days in the superior court of the county where the petition was signed. The superior court must speedily try the contest and determine whether the election was regular and enter its judgment accordingly. Further appeal to the supreme court may be had within 30 days and that appeal must be determined by the supreme court within 60 days.

ORGANIZATION—Officers

Secs. 5 and 12. Directors: When the boundaries of a district have been defined and established, the board by order divides the district into 3 or 5 divisions, as nearly equal in size as practicable, numbering them consecutively. One director is elected by each division. Directors must be resident freeholders of the division for which elected; provided, when requested in the petition, three directors, who shall be resident electors and freeholders of the district, shall be elected at large by the qualified electors of the district. *Sec. 12:* The directors classify themselves into two classes by lot, as nearly equal in number as possible, and the term of office of the class having the lesser number expires on the first Tuesday in March of the next odd-numbered year after the year in which the meeting is held. The term of the other class expires on the first Tuesday in March of the second odd-numbered year. The directors organize as a board by electing a president from their number and appointing a secretary.

Secs. 13 to 26: These sections relate to the biennial election of directors, providing in great detail for the notice, form of ballot, canvassing of returns, and statement of results.

ORGANIZATION—Powers

Sec. 52. Crossing streams, etc.: The directors have the power to construct necessary works across watercourses, highways, railroads, and other ditches in such manner as to afford security for life and property; but they must restore the affected works to their original state as near as may be and not unnecessarily impair their usefulness. Railroads and highway supervisors must unite with the directors in forming intersections and crossings; and where they cannot agree, the directors may resort to condemnation. Rights-of-way through State lands are dedicated.

Sec. 56. Restrictions: The directors have no power to incur debt in any manner other than as provided in this act. Any such debt is void. For purposes of organization, before the collection of the first assessments, the directors may incur indebtedness not exceeding \$5,000 and cause warrants of the district to issue therefor bearing 7 percent interest.

Sec. 57. Tax exemption: The right-of-way, works, reservoirs, and public plants, and other property of like character belonging to any drainage district shall not be taxed for State, county, or municipal purposes.

Secs. 64 to 74. Change of boundaries—Exclusion: The boundaries of a district may be changed to exclude land included in the district at the time of organization, but no such change or exclusion shall impair the effect of its organization or any of its rights or privileges nor impair any contract or lien or charge upon which the district was or may be liable had the change not been made or the land not been excluded. *Sec. 65:* The owners of the fee of one or more tracts of land within the district may jointly and severally file with the board of directors a petition praying that their lands or other lands contiguous thereto may be excluded and taken from the district. The petition states the reasons for exclusion and the boundaries of the tracts, and must be acknowledged in the same manner as conveyances of land. *Sec. 66:* The directors give notice of the petition by publication in each county affected. The notice gives the names of the petitioners and the description of the land sought to be excluded, and notifies all interested persons to appear at the next meeting of the board and show cause in writing why the change in boundaries should not be made. *Sec. 67:* The board hears the petition and all evidence in its behalf and in support of all objections filed. The evidence must be recorded in shorthand and filed with the board. The failure of any person interested, other than the holders of outstanding bonds, to file objections is deemed as assent to the exclusion of such land; and the filing of the petition is deemed assent by the petitioners. The cost of the proceeding is paid by the petitioners. *Sec. 68:* Upon the hearing, if the board deems it to the best interests of the district not to exclude said lands it will deny the petition. Finding the contrary, and if no person interested shows cause against exclusion or withdraws objections filed or fails to establish such objections, then the board will forthwith make an order that the lands or some defined portion thereof be excluded from the district. *Sec. 69:* Holders of outstanding bonds may give their assent in writing to the exclusion of said lands or any part thereof and lands so excluded are thereafter released from the lien of the bond. The bondholders' assent must be acknowledged in the same manner as conveyances of land. The assent must be filed with the board and recorded in its minutes, and a certified copy of said minutes is admissible in evidence and may be recorded in the office of the county recorder of the county where the lands are situated. *Sec. 70:* The board, having excluded the land, makes an entry on its minutes describing the boundaries, and for that purpose may cause a survey to be made. A certified copy of the entry is filed with the recorder of each county affected. Exclusion does not affect the status of the district in any manner. If the land excluded from a district embraces the greater portion of any division of the district, then the office of director for such division becomes vacant at the end of 10 days. The vacancy is filled by appointment by the board of supervisors of the county where the office of the board is located, from the district at large. The appointed director holds office until the next regular election. *Sec. 72:* Thirty days before the next general election, the directors make an order dividing the district into three or five divisions as nearly equal in size as practicable, numbered consecutively, and one director is elected by each division. The directors also establish voting precincts, which may be changed by them from time to time. *Sec. 73:* Guardians, executors, and administrators may sign a petition for exclusion of land when

so authorized by the proper court. *Sec. 74:* Exclusion of land does not operate to release it from any obligation to pay or any lien thereon of valid outstanding bonds or other outstanding indebtedness of the district at the time of the filing of the petition. For the purpose of discharging such obligations, the lands excluded shall be considered a part of the district, and payment of their quota of such outstanding obligations may be enforced notwithstanding the order of exclusion. Such lands, however, are not liable for obligations of any kind or nature incurred after the filing of the petition. This provision does not apply to outstanding bonds, the holders of which have assented to the exclusion.

Secs. 76, and 79 to 86. Inclusion of lands: The holders of title representing one-half or more of lands adjacent to the boundaries of a district, which are contiguous and together constitute one tract of land, may file with the directors a petition in writing, asking that such lands be included in the district. The proceeding is then by publication of notice and hearing on the petition in the same manner as for exclusion of land. (Secs. 64 to 74, inclusive.) *Sec. 79:* Before granting the petition, the directors may require that the petitioners pay to the district such sum (determined by the board) as the lands would have been required to pay as assessments had they been included at the time of organization. *Secs. 80 to 86:* If the directors believe it to be to the best interests of the district to include the land, they adopt a resolution to that effect describing the external boundaries of such land. The board then orders an election on the question of whether the lands shall be included, with the usual notice and proceedings in elections. A majority of the votes cast controls the election, and if inclusion be voted, the board thereupon orders the boundaries changed in accordance with the resolution adopted by the board. The change is recorded in the recorder's office of each county affected. Inclusion does not affect the legal status of the district. After the inclusion of land, the directors must, 30 days prior to the next general election, make an order redividing the district into three or five divisions as the case may require, approximately equal in size and numbered consecutively. One director is thereafter elected by each division.

Sec. 97: In addition to their other powers, drainage districts have authority to borrow money from the United States for the purpose of financing or refunding any and all obligations of the district and to enter into contract with the United States or any agency thereof. (L. 1935, p. 854.)

FINANCING—Assessments

Sec. 40. Directors' estimate of money needed: Before the first meeting of the board of supervisors in September of each year, the directors file with the supervisors and the county auditors an estimate in writing of the money needed for the expenses of the district for the ensuing fiscal year, including the sum to be placed in the sinking fund to pay principal and interest of bonds outstanding. (L. 1935, p. 854.)

Sec. 41. Intercounty districts: Where the district is intercounty, the amount required must be divided by the board of directors in proportion to the value of the real property of the district in each county as shown by the equalized assessment rolls for that year. Where the assessed valuation is on a different basis in different counties, the directors, by resolution, determine the proportion of the required amount to be levied on the lands in each county after notice and hearing. The directors furnish the supervisors and the county auditors with a written statement of the amounts apportioned to each county. (L. 1929, p. 1381.)

Secs. 42 and 43. Tax levy: The supervisors of each county must annually levy a drainage district tax sufficient to raise the amount apportioned to such county by the board of directors. They determine the rate of tax by deducting 15 percent for anticipated delinquencies from the total assessed value of the real property in the district within the county and dividing the amount required by the remainder of such total. *Sec. 43:* The tax is collected at the same time and in the same manner as state and county taxes.

Sec. 45. "Funds.": The statute creates a "bond fund," a "construction fund," a "general fund," and a "funding fund." The treasurer of the county where the district was organized makes payment from such funds upon warrants signed by the president of the board of directors and attested by the secretary.

Sec. 55. Special election for assessments: The directors may call a special election at any time on the question of a special assessment to raise money for any of the lawful purposes of the district. Such elections are conducted in conformity with section 27. (See next paragraph.) If two-thirds of the electors vote in favor thereof, the directors proceed to levy taxes to raise the required funds, and the money is paid to the district treasurer to be used for the purpose specified in the notice of election.

FINANCING—Bonds

Sec. 27. Bond election: For the purpose of constructing necessary works and acquiring the property and rights necessary for the district, the directors must, as soon as possible after organization and whenever thereafter the construction fund has been exhausted, estimate and determine the amount of money necessary to be raised. They then call a special election on the question of whether bonds shall be issued in the amount so determined. Notice is by posting and publication and the election is conducted in the same manner as the election of officers. If the majority voting at the election be in favor of issuing bonds, the directors cause them to be issued. If the majority be against bonds, the result is declared and recorded.

Sec. 28. Form of bonds—Medium of payment: All bonds are payable in lawful money of the United States. The directors prescribe the form of the bonds and of any coupons attached. An "issue" of bonds is all of the bonds issued in accordance with the proposal approved by the electors of the district. Each issue is numbered consecutively and the bonds of each issue are likewise numbered consecutively. Bonds must mature within 40 years and bear not to exceed 6 percent interest. The secretary must keep a record of all bonds sold, their numbers, date of sale, price received, and the name of the purchaser. (L. 1939, ch. 1030.)

Sec. 29. Sale of bonds: The board may sell the bonds from time to time as may be most advantageous to raise money for the construction of works and the acquisition of property and rights-of-way. It declares the intention to sell a specified amount of bonds by resolution entered on its minutes, and gives notice by publication for three weeks of the time and place at which sealed proposals for the purchase of such bonds will be received. The board awards the purchase of bonds to the highest responsible bidder. It may reject all bids, and may not sell any bonds for less than 90 percent of par value.

Secs. 30 and 31. Lien of bonds: The bonds are a lien on the property of the district, and the lien of any issue of bonds is a preferred lien to that of any subsequent issue. Bonds are paid by revenues derived from the annual assessments of real property of the district and all the real property shall be and remain liable to be assessed for such payment. *Sec. 31:* If the money raised by bonds be insufficient for completing the plan of

drainage and additional bonds be not voted, the directors must levy additional assessments therefor; provided, there must first be an estimate by the board of the amount required and then the levy must be submitted to a vote of the electors. The election is in the same manner as for officers. A majority of the vote cast controls the result which is declared by the directors and entered of record.

Secs. 32 and 36. Refunding indebtedness: Whenever the district has outstanding bonds or other indebtedness, payment may be provided by the issuance of new bonds. In order to fund the indebtedness, a petition is presented to the directors, signed by a majority in number of the holders of title to real property in the district, stating the purpose of refunding and the amount of bonds sought to be issued. The petition is entered in the minutes of the board. A special election is held on the question of refunding in the same manner as elections of officers. It requires a two-thirds vote to carry the proposal to refund. The result of such election being favorable, refunding bonds are issued, payable in not more than 40 years and bearing 6 percent interest. (L. 1937, p. 1475.) **Sec. 36:** No bonds may be sold or exchanged for less than 90 percent of par value. Bonds are deposited with the treasurer of the county where the district was organized, who may not deliver them in exchange for any indebtedness until the evidence of such indebtedness has been delivered to him and the board has ordered such exchange by resolution on its records. Bonds remaining unsold for one year, and their cancellation being necessary in the refunding of the obligations of the district, may be cancelled by resolution of the board of directors. (L. 1935, p. 853.)

Sec. 48. Redemption of bonds: Coupons are paid from the bond fund. Whenever that fund amounts to \$10,000 in excess of the amount needed to meet interest coupons, the directors may advertise for and purchase outstanding bonds not matured at the lowest value at which they may be offered for liquidation. Bids being equal, the lowest numbered bond has the preference. If no bonds are offered, the treasurer may invest the bond fund in bonds of the State or United States.

Secs. 58 and 59. Validation of bonds: Within 30 days after the passage of a resolution to issue bonds, the directors may file suit in the superior court of the county where the district was organized to determine the validity of such bonds. All interested parties are made defendants. The proceeding is *in rem*; jurisdiction of all parties is required by publication of a summons once a week for three successive weeks, and is complete 20 days after the full publication. Interested parties may contest the action at any time within said 20 days. **Sec. 59:** If the directors have not brought validation proceedings within 30 days after the issuance of any bonds, within 90 days after such issuance any district assessment payer may bring such action. The supervisors have the right to appear and contest the action. (L. 1929, p. 1382.)

Sec. 88. Election to reduce bonds: When the directors determine that the authorized bonded indebtedness of a district is greater than it is likely to need to complete its system as planned, and there being no outstanding bonds, the directors may call a special election to vote on the proposition to reduce the bonded indebtedness to such sum as the board may determine to be sufficient. If a majority of the votes cast be for reduction of the bonds, then the directors may sell only the amount of bonds stipulated in the notice of the special election. On a contrary vote the authority to sell bonds remains as it was before the special election was held. In case there are outstanding bonds, a district desiring to reduce its authorized bonds may take advantage of this section only by obtaining

the assent of the bondholders in the same manner as provided in section 69. When, after completion of the system and payment of all indebtedness, any bonds voted remain unsold and not necessary to be sold for the purpose of the district, the directors may call a special election on the question of destroying such bonds. If a two-thirds majority of the votes cast are in favor of destroying said bonds, the president in the presence of a majority of the board must destroy them, deducting their amount from the total authorized to be issued, and no part thereof may thereafter be reprinted or reissued.

CONSTRUCTION

Sec. 49. Bids for construction: After the adoption of the plan, the directors give notice by publication, calling for bids for construction of the work or any part thereof. The work must be let to the lowest responsible bidder, or the directors may reject all bids and construct the works under their own superintendence. All contractors must give bond in the amount of 50 percent of the contract price. All expenses of acquiring property and constructing the works are paid out of the "construction fund." No director may be interested in any contract, under penalty of fine and imprisonment.

3. ACT NO. 2203—DRAINAGE DISTRICT IMPROVEMENT ACT, 1919

(Statutes 1919, p. 731. Amended by 1921, p. 894; 1927, p. 220; 1929, p. 1320; 1933, p. 2098.)

ORGANIZATION—Petition

Sec. 1. Petition—Plans—Map: When 20 or more property owners, or the owners of a majority of the land, within a district proposed to be organized, which district contains wet or overflowed lands or lands needing surface or underground drainage and that are susceptible of drainage and will be benefited by the construction of improvements, shall file with the board of supervisors of the county in which the lands are situated a petition for the establishment of such works as may be necessary, defining the property in a general way and the approximate boundaries of the proposed district, the board will grant or deny the petition within 60 days. If the petition is granted, the supervisors instruct the county surveyor to prepare plans and specifications for the improvement. The surveyor's plans must contain a map of the district showing clearly the exterior boundaries. Such boundaries may include more or less territory than shown by the petition and shall include all lands which, in the opinion of the surveyor, will be benefited. The location, size, and type of the works must also be shown.

Sec. 2. Intercounty districts: When the lands lie in more than one county, the petition is presented to the supervisors of the county in which the greater portion of the lands are situated. It must be signed by 10 property owners or the owners of a majority of the lands of the district within each of the counties to be affected. Jurisdiction lies with the supervisors of the county having the largest acreage in the proposed district. The officers of the county having jurisdiction shall be the officers of the district with the powers and duties herein provided. The counties other than that having jurisdiction collect the assessments levied each year upon the lands within their respective boundaries and pay same over to the county having jurisdiction. When a municipality will be benefited by the works of the district, territory therein which is benefited may be included in the district. When the lands within a proposed district lie entirely within the boundaries of two or more municipalities, the supervisors have jurisdiction to form and maintain a drainage district within the municipalities; provided, the consent of the legislative body of each municipality

expressed by resolution adopted by a two-thirds vote of all of its members must be obtained prior to the passage of the resolution of intention provided for in section 6. Any work or improvement contemplated herein may be done either within or without the boundaries of the district if necessary to drain or protect lands within the district.

Sec. 3. Action on petition: The supervisors by resolution on their minutes may grant or deny the petition. It may not be granted unless the public health and welfare will be promoted, and the resolution must so state. If the petition includes any portion of an incorporated municipality, the supervisors must find by resolution that such portion of said municipality will be benefited by the works.

ORGANIZATION—Officers

Secs. 4 and 5. Surveyor—Engineer—Attorney: The county surveyor is the engineer of construction of the district and his deputies are deputy engineers of construction. He surveys the works and estimates the cost thereof and furnishes plans and specifications. The supervisors may appoint a consulting engineer to assist the engineer of construction and an attorney for the district or the board, by resolution entered on their minutes. **Sec. 5:** Before the passing of any resolution of intention, plans and specifications prepared by the engineer of construction must be filed with the supervisors. If the work is of such nature as to be within the jurisdiction of the state reclamation board, the approval of that board must be had before the plans are adopted.

ORGANIZATION—Powers

Sec. 6. Resolution of intention: Before ordering any work to be done under this act, the board of supervisors must pass a resolution of intention. The form of the resolution is set out in the statute. It gives notice of the general location of the improvement, and the character of the work proposed to be done in accordance with the plans and specifications on file with the clerk; it states that bonds will be issued for the costs and incidental expenses, giving the amount and number of the installments thereof; that a special fund for the payment of the bonds will be provided by special assessments upon the land within the district; and gives notice that at the time fixed interested parties will be entitled to be heard and the board will finally determine the matter. (Amended by Statutes of 1921, p. 895; 1927, p. 223.)

Sec. 6a. Contribution by the county: As a part of the resolution of intention, the supervisors may provide that the county will pay out of its general fund a stated portion of the cost if the board shall find that the expenditure will benefit and promote the public health of the community or will protect any public road from damage by reason of overflow. If it is provided in the resolution that the amount to be paid by the county shall be due upon the completion of the works, then that amount shall be deducted from the amount for which bonds would otherwise be issued. (L. 1921, p. 896.)

Sec. 7. Publication by resolution of intention: The resolution of intention must be published at least twice in a newspaper of general circulation in the county or counties affected. It must also be posted along the line of the works at distances of not more than 300 feet apart, but not less than three notices in all. After 20 days have elapsed from such posting and publication, the board of supervisors has acquired power to proceed with the hearing. The determination of the board to proceed is *prima facie* evidence of the existence of all of the facts upon which the power of the board depends except such as must be of record or are rebutted by the record.

Sec. 8. Objections: Any property owner interested may file written objections to the ordering of the work as an entity but not merely to some part thereof. The objections of any person who ceases to be a property owner before the hearing will not be considered. Property owners are only those who own property which will be liable to assessment. The board hears first objections to the plans and specifications, and then objections to the boundaries of the district.

Secs. 9 to 11. Finding of board—Boundaries: At the conclusion of the hearing the board, by resolution on its minutes, declares its findings and determines in its discretion whether the works shall be ordered or the proceedings abandoned. If they determine that the works should be ordered, they further determine the boundaries of the district and approve the plans and specifications. If the boundaries are changed, the engineer of construction furnishes a new map or plat showing such boundaries as changed. Boundaries may not be changed to include territory not within the boundaries as shown on the original map and set forth in the resolution of intention as published and posted. The board by resolution may order the work to be done and call for sealed proposals for construction, referring bidders to the plans and specifications as adopted by the board at the conclusion of the hearing on the resolution of intention. **Sec. 10:** The notice inviting proposals for construction is published and posted. All bids must be accompanied by certified check for 10 percent of the amount bid. **Sec. 11:** Bids are opened in public and the board may reject all of them if that is deemed for the public good. It may accept the proposal of the lowest responsible bidder and award the contract. If the successful bidder neglects or refuses to execute a contract for the work within 15 days, the deposit with the bid is declared forfeited to the county.

FINANCING—Assessments

Sec. 12. Estimate of cost and assessment: After executing the contract for construction, the supervisors direct the engineer of construction to estimate the total cost of the improvement, including expenses of every kind, and assess the same in proportion to the benefits on the lands in the district. The engineer proceeds to view the lands in the district, and he examines witnesses under oath. He assesses the costs in proportion to the benefits to be derived insofar as he can estimate them, including benefit to lands, whether operating property or not, of any public utility within the district. He states the amount to be assessed on each parcel separately, and divides the total assessments into yearly installments of amounts clearly sufficient to retire the bonds and pay the interest thereon. The engineer makes a written report to the board, with a detailed plat of the district on which each parcel is designated and described by number and reference.

The board fixes a time for a hearing on the engineer's report; and notice is by publication. The form of the notice is set out in the statute. Interested parties may file written objections, at least one day prior to the hearing, to the assessment as a whole or on the several parcels of land. The board may correct or modify the report or call for a new report, and their action thereon is final and conclusive as to all matters therein and no assessment may be set aside, except upon such hearing, for error or defect in the proceedings prior thereto, where notice of the hearing has been given.

Upon adoption of the report, the board levies a special assessment upon the lands found to be benefited in the amount set forth in the engineer's report as adopted by the board. A certified copy of the special assessment as levied by the board is filed with the recorders and with the tax collectors of the

counties interested. The assessment for the first year immediately becomes due and payable and constitutes a lien on the lands assessed. Thereafter installments for each succeeding year become due in October and immediately constitute a lien upon the lands assessed. All money paid upon assessment is placed in a special fund with the county treasurer of the county in which the district was organized, in the name of the district, and may be used only to pay bonds and interest and incidental costs of that district. After bonds are retired, any surplus remaining is paid into the maintenance fund of the district.

The assessments are collected in the same manner as State and county taxes after notice by the tax collector by publication. The first installments become delinquent in the ensuing April. Annually thereafter the tax collector publishes like notice of installments due and collects them in like manner. When installments become delinquent, the tax collector proceeds to collect them with 10 percent penalty added in the same manner as delinquent State and county taxes are collected. The entire assessment against a parcel of land as well as the installment for the current year may be paid in full at any time with interest to date of payment together with a premium of 3 percent of the principal then unpaid, and the tax collector will issue receipt therefor. (L. 1921, p. 896; L. 1933, p. 2099.)

Sec. 23a. Maintenance: The supervisors each year levy an *ad valorem* tax on the taxable property in each drainage improvement district organized under this act in an amount sufficient to maintain and repair or improve the works during the current year. The sum so collected is kept separately in a "maintenance fund." In intercounty districts the amount collected is turned over to the county having jurisdiction. (L. 1933, p. 2107.)

Secs. 14 and 15. Final hearing: When the work is completed, a declaration of that fact is filed with the clerk of the board of supervisors together with an itemized statement of the cost and the gross amount of bonds proposed to be issued. Such declaration is verified and signed by the engineer of construction and by the contractor. The supervisors then fix a time for hearing, to be known as the final hearing, to determine whether the works shall be accepted and to determine the aggregate amount for which bonds shall be issued. Notice is by publication and posting and the form of the notice is set out in the statute. Any party may file written objections on the ground that the work has not been completed or done according to the contract. **Sec. 15:** When, upon the hearing, the board is of the opinion that the work has been completed according to the contract they, by resolution, so state and accept said work, making a final order that bonds be issued to pay for same.

FINANCING—Bonds

Secs. 16, 16a, and 17. Issuance of bonds: Upon the expiration of 20 days after the making of the final order accepting the work (see section 15 of the Act) the clerk of the board of supervisors furnishes the county treasurer an attested copy of said final order and the treasurer proceeds to issue bonds bearing the date of the final order to the aggregate principal sum stated in such order. The form of the bonds is set out in the statute. The supervisors are empowered to determine the number of years, not to exceed 20, within which the bonds shall be paid, and to fix interest thereon not exceeding 7 percent. The first payment of principal may become due in from 1 to 5 years after date. The number of installments of principal must be named in the resolution of intention. Installments of principal may not differ more than \$1,000 from the amount obtained by dividing the whole issue by the number of installments. Each installment except the last must be an even multiple of \$100. **Sec. 16a:** The treasurer of the county in which the district was

organized must advance the maturity of any bonds to the first day upon which interest thereon becomes due, and pay and cancel the bonds whenever there shall be sufficient surplus money in the interest and sinking fund in excess of that necessary to pay semiannual interest. **Sec. 17:** Bonds by their issuance are conclusive evidence of the regularity of all proceedings prior thereto, and no tax levied to pay bonds shall be set aside by reason of any informality or defect in the proceedings prior to the issuance of said bonds.

Sec. 18. Costs paid by contractor: All costs of every kind for engineering, employees, and publication and all other expenses shall be paid by the county. The amount thereof becomes a charge upon the contractor and must be repaid by him to the county before the delivery to him of bonds by the county treasurer; provided, if the cost is not paid within 10 days, the bonds may be sold at not less than 95 percent of their face value to satisfy such cost, any surplus over such expenses to be paid to the contractor.

4. ACT NO. 2204—DRAINAGE DISTRICT ACT OF 1923

(Statutes 1923, p. 196)

ORGANIZATION—Petition

Sec. 1. Persons who may initiate proceedings: Whenever 50 or a majority of the holders of title or evidence of title holding a majority in acreage, or two-thirds of the holders of title or evidence of title holding one-third in acreage of the land in any body of wet, swamp, or overflowed lands, or lands otherwise needing drainage, or irrigated lands which contribute to the need for drainage, or other lands within the proposed district, situated within one or more counties of the state, the whole or any part of which may be within or without the exterior boundaries of any municipal corporation, shall desire to form a drainage district for agricultural or sanitary purposes, which said district shall be conducive to the public health, convenience, or welfare, or of general public benefit, they may proceed under this act. The equalized county assessment roll next preceding the filing of the petition is sufficient evidence of title. Where the property is assessed to unknown owners or the assessment roll does not give the true name or gives the name of only a portion of the owners, the known owners of record are considered the owners for the purposes of this act. The owners of undivided interests may sign for such interests and shall be considered as true owners. Persons holding property in a trust capacity under appointment of the court may sign any petition when authorized by the order of the court. Any transfer of title for the purpose of establishing or defeating the petition not made in good faith and for valuable consideration is held to be a fraud and the grantee will not be considered to be the owner of the land.

Sec. 2. Contents of petition: The petition is presented to the board of supervisors of the county in which the greater portion of the acreage is situated, and must recite that the public welfare will be promoted by the proposed improvement. The petition must also show the name and the boundary line of the proposed district; and if there are nonresidents of the county, the petition must be accompanied by an affidavit giving the name and post office address of such nonresidents if known, and if unknown must contain a statement that upon diligent inquiry the names and addresses cannot be ascertained. The petition must be accompanied by bond approved by the supervisors in double the amount of the probable costs of organization and conditioned to pay costs if the district is not organized. The petition may consist of any number of separate instruments, but consolidated before presentation to the supervisors. Signatures

may be withdrawn at any time before publication under section 4 by filing a declaration of intent to withdraw, acknowledged as real estate conveyances are acknowledged.

Sec. 3. Engineer to investigate: The petition is presented at a regular meeting of the supervisors, and they appoint a competent drainage engineer selected by the petitioners and approved by the board. The engineer investigates and reports as to: (1) The limits of the region that would be benefited by the improvement; (2) whether the improvement would be conducive to the public welfare; (3) the general character of the works necessary; and (4) the probable cost of construction. His report includes a map of the territory that should be included in the district. This report is preliminary only.

Sec. 4. Hearing on engineer's report: At their next meeting after the filing of the engineer's report, the supervisors fix a hearing on the petition not less than one nor more than two months after the order. They give notice by publication in the manner provided in section 6. Within five days the clerk of the supervisors sends a copy of the notice and of the engineer's preliminary report, including all maps and estimates, to the state engineer who must make, at the cost of the proposed district, an investigation to determine the feasibility of the project. He reports his findings in writing to the supervisors before the date set for the hearing. If the report be adverse, the supervisors may adjourn the hearing one month and it may then be dismissed or continued for not to exceed 8 weeks in all, during which time the supervisors may modify the petition to conform to the recommendation of the state engineer and grant the same. Failure of the state engineer to report does not invalidate the proceedings and the supervisors may not delay the proceedings for a longer period than allowed herein, except upon written request of the state engineer for an extension of time in which to examine the proposed district.

Sec. 5. Hearing: At the hearing the supervisors determine whether the petition is in due form, and the affidavit of three or more petitioners that they are acquainted with the locality, have examined the petition, and that it is signed by the required number of landowners may be taken as *prima facie* evidence of the regularity of the petition. The board hears all competent evidence presented in favor of or against the petition, and makes such changes in the proposed boundaries as it deems advisable and defines and establishes such boundaries. But the board may not modify the boundaries so as to exclude any lands which may be benefited by the proposed work, or any irrigated lands which, through the use of water thereon, contribute to the need for drainage in the proposed district. The board may not deprive itself of jurisdiction. Any person controlling land that will be benefited by the proposed improvement may petition the board to have such land included. If such petition is granted, the landowners are considered to have signed the original petition and are subject to the conditions imposed on other petitioners. After hearing all evidence the board by resolution either dismisses or grants the petition as offered or amended. Dismissal is without prejudice to the filing of a new petition covering the same or other matters at this or any future meeting of the board. Upon passing the resolution, the supervisors make an order setting forth all of the facts, and enter it on their minutes and file a copy with the state engineer. A certified copy of the order is immediately filed in the office of the county recorder of each county in which any lands are situated, and from and after such filing of the resolution granting the petition the organization of the district is complete.

Sec. 6. Notice—Generally: Notice required by this act comprises: (1) publication once a week for two consecutive weeks in

a newspaper published in each county containing district land; (2) posting a printed copy for not less than 10 days in five or more public places in the district, at least two notices in each county interested; (3) mailing a printed copy of the notice to each nonresident owner whose address is known. The affidavit of the clerk is sufficient evidence of compliance with these requirements.

Sec. 7. Validity of organization: The directors or any landowner at any time after the organization is completed may bring action in the superior court of the county in which the district was organized to determine the validity of the organization. Action is by petition reciting the boundaries of the district, the steps taken in organization, and a prayer that the district be declared to be a drainage district, legally organized and existing. The proceeding is *in rem* and jurisdiction of all parties is had by publication of a summons once a week for three weeks in a newspaper within the county. Jurisdiction is complete within 10 days after the publication of such summons. At any time before the expiration of said 10 days, any interested party may contest the validity of the organization. Such action shall be speedily tried and judgment rendered declaring that the district is or is not legally organized and existing under this act. Any party may appeal within 30 days after judgment. At any time after the execution of any bonds of the district by the directors, before or after the sale of the same, the directors or any interested party may bring a like action to determine the validity of the bonds. Upon similar proceedings the court renders judgment, subject to appeal, that the bonds are or are not legally executed and valid obligations of the district.

ORGANIZATION—Officers

Secs. 8 to 10. Directors—Appointment and elections: Within two weeks after the granting of a petition for the formation of a district, the county supervisors appoint three qualified persons to act as directors of the drainage district, whose terms of office are designated as 3 years, 2 years, and 1 year respectively after the date of the first annual meeting. At the last regular meeting of the supervisors preceding the annual meeting as provided in section 28, the supervisors appoint one qualified person to succeed the director whose term expires at the time of said annual meeting; and he shall hold office for three years and until his successor is appointed and qualified. Vacancies are filled by the supervisors for the unexpired term; but upon petition of 15 percent of the property holders, an election is called to fill such vacancy. If the director to be elected is succeeding one whose term expires at the time of the annual meeting, the petition must be filed before their last regular meeting in November and the election must be held prior, by not more than two weeks, to the date of the annual meeting as provided for in section 28. **Sec. 9:** Directors must be landowners in the district and qualified electors of the state. **Sec. 10:** Each director must take oath of office and file a bond in the sum of \$2,000 approved by the supervisors.

Secs. 11 to 13. Organization of directors: Immediately after taking oath of office, the directors meet and organize as a board and elect a president, secretary, and treasurer from their own number. Duties of each officer are set out in detail in the statute. **Sec. 12:** The directors hold regular monthly meetings at a time fixed by resolution, which time may not be changed except by a resolution passed at least one month prior to the change. Special meetings may be held as required after notice to all members of the board. All meetings are public and a majority constitutes a quorum. At their last meeting before the annual meeting, they render and publish a verified statement of the

financial condition of the district and forward a copy to the state engineer and to the supervisors of each county in which any part of the district is situated. **Sec. 13:** Directors may call a special election after notice on any subject when they deem it to be for the best interests of the district to have a vote of the landowners. A majority of the votes cast governs the action of the directors. They may also call mass meetings to express opinions on any subject relating to the affairs of the district, with notice; but it is left to the discretion of the directors to take action on the opinions expressed by such mass meeting.

ORGANIZATION—Powers

Sec. 14. Qualification of voters: Any holder of title or evidence of title to lands or other property within the district may vote at any election or meeting in person or by proxy. Authorized agents of corporations and persons holding property in trust under order of court may vote. Each person is entitled to cast one vote for each \$100 or fraction thereof of equalized benefits as provided in section 22. But when a vote is taken prior to such equalization of benefits, each person is entitled to cast one vote for each acre held by him.

Secs. 15 and 16. Directors' powers: It is the duty of the directors to conduct the business affairs of the district, execute necessary contracts, appoint an engineer and attorney and other employees as may be required, and fix their compensation and prescribe their duties. They have the right to enter on any land to make surveys and locate the works of the district. They may acquire by purchase, lease, or condemnation, or other legal means the lands and other property necessary for the construction, maintenance, and improvement of the necessary works of the district. They may construct the drains and other works and do all lawful and necessary acts to accomplish drainage and protection of lands within the district. They may sue and be sued in the name of the district. They establish equitable by-laws for the control of the district and create separate and distinct funds to be known as the "general fund," "construction fund," "bond fund," and "maintenance fund." **Sec. 16:** Directors appoint an attorney as soon as practicable, either an individual or partnership, and may specify his compensation or leave the fixing thereof to the board of supervisors of the county where the district was organized.

Sec. 17. Engineer—Plan: The directors as soon as practicable appoint an engineer, who may be an individual, partnership, firm, or corporation, and fix his compensation. He makes necessary surveys, prepares plans and specifications, and has charge of construction. He makes such report as the directors may require and also makes an annual report before the regular meeting of the directors preceding the annual meeting, showing the progress of the work. Upon receipt of the final report of the engineer with plans and specifications for draining, reclaiming, or protecting the lands of the district, the directors may adopt such report or a modification thereof and thereafter the report shall be the "plan for drainage," and be made a part of the records of the district. If the works to be constructed are within the jurisdiction of the State Reclamation Board, the approval of that board must be obtained before the plan is adopted.

Sec. 26. Condemnation proceedings: In condemnation proceedings the directors proceed in the name of the district under title 7 of part 3 of the Code of Civil Procedure, the provisions of which are made applicable, and it is specifically declared that the use of property which may be appropriated under this Act is a public use subject to the regulation and control of the State in the manner prescribed by law.

Sec. 27. Directors—Powers—Construction: The directors have full authority to construct the works of the district and maintain them. They are authorized to employ men and machinery and take direct charge of constructing the works and improvements, or to let contracts for all or any part thereof to the lowest and best bidder after advertisement. They may reject all bids, and after the second rejection call a mass meeting of property owners to discuss methods for carrying out the plan. Each bid must be accompanied by certified check or bond for 5 percent of its amount. The successful bidder executes bond for one-half of the contract price, conditioned to carry out the contract. If during the progress of the work it is found that it will be to the advantage of the district to make changes in the plans as adopted, such changes may be made with the approval of the board of directors; provided, changes that will cause a less benefit to any land or other property than that approved by the board of supervisors shall be made only after instituting proceedings similar to those provided in section 22.

Sec. 28. Annual meetings: On the second Tuesday in January of each year is held an annual meeting of the owners of land in the district, called by the directors in the manner provided in section 6, to hear the annual report of the directors and conduct other business. The president of the directors acts as chairman of the meeting.

Sec. 33. Right to waters collected: The directors have the right to file upon, appropriate, and obtain title in the name of the district to any and all waters developed and collected by the works constructed, such water to be known and designated as drainage water. The directors may use, lease, or otherwise dispose of such drainage water; provided, that no disposition shall be made that will deprive the district of title thereto. The directors have no power to guarantee the amount of such drainage water. Any proceeds from the disposition of such water may be used for the benefit of the district as the directors may order.

Sec. 38. Existing drains taken over: At the time of the construction of the works set forth in the plan of reclamation, existing drains, systems, and works, if necessary to the drainage or protection of any land in the district, must be connected with and made a part of the works of the district. No drains or works within or without the district, constructed after the completion of the "plan of drainage," shall be connected with the district without the consent of the board of directors. Appeal is to the board of supervisors having jurisdiction and their decision is final and binding on all parties.

Sec. 39. Consolidation: Two or more irrigation districts in the same or different counties may be consolidated into one district and such new district and its directors have the rights, powers, and privileges of any district organized under this act. In order to consolidate, the directors of each district give notice to the landowners of a time and place when a vote will be taken on the question of consolidation. If a majority of the votes cast in each district are favorable, the boards of directors of the districts present a petition to the supervisors of the county in which the greatest amount of land is situated, accompanied by complete minutes of the meeting, the names of the landowners, and the boundaries of the district. After notice a hearing is set at which any interested party may file objections to the regularity or sufficiency of any of the proceedings. If such objections are overruled, or none are presented, the supervisors grant the petition by order on their minutes and the districts are thereby united as one district with an appropriate designation. All of the provisions of this act apply to consolidated districts. The supervisors appoint

three directors out of the boards of directors of the original districts, or such directors may be elected in accordance with the alternative method in section 8. A certified copy of the order of the supervisors is filed with the county recorder of each county interested and with the state engineer. If objections to the petition are sustained, it is dismissed and the cost is paid by the districts.

Secs. 40 and 41. Reorganization: Any district organized under the provisions of any law may be reorganized under this act. A consent is first presented to the supervisors of the county where the district was organized, signed by 50 or a majority of the holders of title, who hold a majority of the lands of the district. The proceedings thereafter are similar to those for original organization. No such change of organization affects in any way the validity of any debt, liability, or obligation under the former organization. All such obligations attach to the reorganized district. **Sec. 41:** In reorganized districts the directors reapportion the assessment of benefits and award of damages and otherwise follow the proceedings provided for in this act. Taxes already collected, however, or levied and due at the date of the approval of said reassessment of benefits may not be reapportioned but remain as levied.

Sec. 42. Change of boundaries: Boundaries may be changed, but not to impair the organization of the district nor its rights or obligations. The holders of title to one-half or more of any adjacent body of land may file a petition in writing with the board of directors, praying to be included within the district. Such petition must be acknowledged in the same manner as conveyances of real property. The proceeding is then closely similar to that for original organization, with notice and hearing by the directors. As a condition precedent, the directors may require that there be paid to the district an amount estimated to be equal to the taxes which the landowners would have paid if included in the original organization.

FINANCING—Assessments

Sec. 18. "Organization tax"—Notice of assessment: The directors, as soon as appointed and qualified, levy a uniform tax to be known as the organization tax, not to exceed \$2.00 per acre upon each acre in the district, to be used to pay expenses incurred in organizing the district, making surveys, assessing benefits, and awarding damages, and incidental expenses before other funds are available. The organization tax is due immediately and payable at the office of the treasurer; it becomes delinquent 60 days after the date of the notice, and thereafter bears interest at 12 percent. The secretary prepares a list of such taxes, signed and certified by the president and secretary under seal of the district, which thereafter becomes a permanent record in the secretary's office. The directors immediately give notice of such list in the manner prescribed in section 6, describing the property, the acreage, and the amount of tax and stating the place and date for paying the tax. No more than one organization tax may be levied in any one district; provided, if the boundary lines are extended, the same uniform tax applies to the lands annexed. Any surplus in the organization tax is placed in the general fund and credited to the assessment for the construction fund. **Sec. 19:** Delinquent organization taxes are immediately certified by the secretary to the tax collector of each county in which the lands are situated, and he collects such taxes in the same manner and at the same time as delinquent state and county taxes.

Secs. 20 and 21. Assessment of benefits: After the adoption of the plan for drainage, the directors assisted by the engineer proceed to view the lands of the district and determine the value of all lands or other property within and without the district

to be acquired or used for rights-of-way for the work set forth in the plan, and to assess the amount of benefits and award the amount of damages that will accrue to each tract or subdivision, railroad, and other interest or property from carrying out the plan. The directors may, if it be more equitable, adopt a certain number of acres as a maximum tract to be assessed separately. If they determine that the benefit to the lands in the district will be uniform and equal, they may assess the benefits at a uniform amount per acre. The assessed benefits to railroads and other rights-of-way, excepting canals carrying water for irrigation, power, domestic, or other use and their respective rights-of-way, shall be based on the increased physical efficiency and the decreased maintenance cost to result from the improvements; provided, the assessed benefits shall not exceed per acre the benefits assessed to adjoining lands. To ascertain the benefits to canals carrying water for irrigation, power, domestic, or other use and their respective rights-of-way, the directors shall consider the relation between the probable amount of water lost by seepage or waste from said canals to the detriment of lands and other property within the district and the probable total amount of said water causing such detriment. If the district embraces irrigated land, the directors in determining the benefit to any tract consider the protection of the tract itself against future injury, or the provision for caring for the seepage or waste waters from the tract which may be of injury to other lands.

The board prepares a report of its findings, showing in tabular form the owner, a description of the property, the number of acres in each tract assessed, the amount of benefits assessed, the amount of damages awarded, and the assessment for the construction fund which must be in proportion to the assessment of benefits. In the establishment of the construction fund the directors, with the engineer, estimate the cost of the works set out in the plan, including cost of rights-of-way and other works, discount on bonds, interest on bonds for not exceeding two years, interest on warrants, such other expenses as may be right and proper, and delinquencies and incidentals estimated as 15 percent of the total. The report must also contain an estimate of the amount of bonds to be issued. **Sec. 21:** The report is filed with the clerk of the board of supervisors of the county in which the district was organized, and the supervisors give notice as prescribed in section 6 to all interested persons of the time and place of a hearing on said report where remonstrances may be filed.

Sec. 22. Hearing on assessment—Lien: Any interested person may appear and advocate or remonstrate against the report on assessments of benefits or awards of damages. All remonstrances must be in writing and be filed before the date of the hearing. If the supervisors determine after hearing all remonstrances that the assessment of benefits and the assessments for the construction fund and the awards of damages are just and reasonable, that the estimated cost of construction is not excessive and is less than the benefits assessed against the lands and other property in said district, that the plan for drainage is adequate and feasible, and that the proposed bond issue is necessary and ample, they by order approve and confirm said report as submitted or as modified, equalizing and finally determining the assessment of benefits made and levied on each tract of land and other property in the district, and approve the bond issue proposed therein. If the assessments for construction are found excessive or are greater than the assessments of benefits, the supervisors by order dismiss the proceedings; or they may, upon the unanimous recommendation of the directors, declare the district dissolved, but not until all outstanding indebtedness is paid.

From and after the filing of the assessment report with the recorder, the charges assessed upon any tract of land within the county constitute a lien thereon and such filing is notice to all persons. No subsequent act of the directors may invalidate said assessment or lien, but the directors may be compelled by mandate or other proper proceedings to perform their duties as required by law.

The clerk of the board of supervisors transmits a certified copy of the order and a copy of the report as approved to the secretary of the board of directors of the district and it becomes a part of the permanent record of the district. The clerk transmits a like copy to the recorder of each county affected, so far as it affects lands in such county, and the same is filed for record. Upon dissolution under this section, funds remaining in the treasury are apportioned equally as to each acre of the district and paid to such owners by warrants drawn on the treasurer.

Sec. 29. Budget: The directors in the preparation of the annual report submit a budget showing the amount necessary to be levied against the lands and other property within the district for the current year. The budget provides funds for constructing and maintaining the drainage works, liquidating warrants and interest thereon, paying interest on the bonded indebtedness and retiring any maturing bonds, and for management and control of the district, with 15 percent of the total added for incidentals and possible delinquencies. Before the first Monday in February of each year the budget is certified to the board of supervisors of the county having jurisdiction, and at the time of levying county taxes they levy a drainage district tax sufficient to raise the amount of the budget. This tax is computed in proportion to the benefits shown by the equalized assessment of benefits, and is entered on the assessment roll and collected at the same time and in the same manner as state and county taxes, and paid into the county treasury for the use of the district. In the case of intercounty districts the budget is divided by the directors in proportion to the assessment of benefits on the lands in each county, and to the supervisors of each county is certified that part of the budget apportioned to such county. The treasurer of each county pays to the treasurer of the county in which the district was organized all drainage taxes received by him. The county treasurer of the county in which the district was organized retains such portion of said taxes as is required for the bond fund, and at least twice a year pays the balance to the treasurer of the drainage district.

Sec. 30. Warrants: Warrants are issued consecutively and bear the date of issue and the name of the fund from which payable, and state the purpose for which issued. Warrants not paid when presented for lack of funds have that fact endorsed on their back and draw interest at 7 percent thereafter until funds are in hand to pay them with interest. When there is sufficient money in the treasury to pay all outstanding warrants, the treasurer gives notice thereof by publication and posting. After the date of the first such publication and posting, warrants cease to draw interest.

Sec. 36. New plans—Additional assessments: Where the works called for in the plan of drainage are insufficient to accomplish the objects of the district, the directors have power to formulate amended plans for works that will accomplish the desired result, and additional assessments may be made in conformity to the provisions of sections 17 and 20. If for any other reason the assessments for the construction fund are inadequate additional assessments may be made and bonds sold, in conformity with the foregoing provision; provided, the total assessments

for the construction fund shall not exceed the assessment of benefits.

Sec. 37. Reapportionment of benefits: The directors, upon their own motion or on petition of the landowners against whom 50 percent or more of the benefits have been assessed, may make a reapportionment of the assessed benefits; provided, that at least five years shall have elapsed since the last previous assessment of benefits was equalized; and provided further, that the total assessment of benefits shall not be reduced. The procedure is the same as for the original assessment of benefits.

FINANCING—Bonds

Sec. 23. Bond plan submitted to commission: Immediately after the approval by the supervisors of any bond issue or any report of the directors to the district, the directors submit a certified copy of said report to the commission authorized by law to approve bonds of irrigation districts for certification as legal investments for savings banks and other purposes. The provisions of the act creating the commission are made applicable to drainage districts organized under this act; and the commission is authorized to make the same examination and report as in the case of irrigation districts. The commission reports to the board of drainage directors such matters as in their judgment may be desirable; provided, it may state generally the conclusions of said commission regarding the nature of the soil proposed to be drained or protected as to its fertility and susceptibility of drainage; the plans, works, and costs necessary for a complete and satisfactory project; and the advisability of proceeding with the bond issue. If the estimate of the amount of the bond issue includes any amount for the payment of interest on bonds of such issue, as provided in section 20, and such estimate for the payment of interest is approved by the state commission, it is lawful for the directors, if the bond issue is thereafter approved by the electors of the district, to use for the payment of interest so much of the proceeds of the sale of bonds as may be approved for that purpose in the report of the commission.

Sec. 24. Directors follow recommendation of commission: If the commission modifies the plans or the amount of the bond or prescribes the conditions to insure the success of the project, or finds the bond issue not advisable, it so states in its report to the directors. After receiving the report or after 90 days have elapsed since the directors' report to the commission, the directors, if they so determine and declare by resolution that the proposed plan or a modification thereof is satisfactory, make an order determining the amount of bonds that shall be issued; provided, if any district issues bonds to carry out the plans approved by the commission, it is unlawful for the district thereafter to make any material change in the plans without the consent of the commission; and if any changes in plans are made which cause a less benefit to any land or other property than that approved by the supervisors under section 22, the directors may proceed only after instituting and conducting proceedings similar to those provided for in section 22.

Sec. 25. Bond election: Upon the approval of any bond issue by the irrigation district bond commission, the directors call an election on the question of issuing said bonds. Regular notice is given, stating the amount of the bonds and the voting places in the precincts established by the directors. Prior to the election, the directors cause a roster of the voters to be made, containing the names of the electors, the number of votes each is entitled to cast, and the name and number of the precinct where the elector is entitled to vote. A copy of said roster is conspicuously posted in each polling place. The

election is in conformity with the general election laws, but no informality will invalidate the election if it is fairly conducted. A majority of the votes cast controls.

Sec. 34. Bond issues: Bonds may not exceed in total amount 90 percent of the assessments for the construction fund. They may mature at any time designated by the directors, within 20 years from their date, and bear 6 percent interest. They may be in either coupon or registered form, and in denominations of multiples of \$100 but not exceeding \$1,000. Both principal and interest are payable at the office of the treasurer of the county where the district was organized. Directors may sell bonds at not less than 90 percent of par value at public or private sale, to the highest and best bidder, after advertisement for three weeks that bids will be opened at a specified time and place. The funds derived from bonds must be used for the cost of construction and for interest on the bonds.

Sec. 35. Bond fund: The bond fund comprises that portion of the annual levy made for the purpose of paying principal and interest on the bonded indebtedness, and any penalties and indemnities collected and interest thereon. It is the duty of the treasurer of the county where the district was organized to pay bonds and interest when due.

CONSTRUCTION

Sec. 31. Crossing highways, etc.: When it becomes necessary to construct any portion of the works set out in the plan for drainage across any highway, railroad, or other right-of-way, the directors serve notice on the persons controlling such highway, railroad, or right-of-way of their intention to make such crossing and at what time. If the persons notified desire to construct such crossing within the time stated in the notice, they may submit plans for the approval of the engineer of the district, who will modify those plans and the requirements of the district subject to approval by the board of directors. The parties controlling said highway, railroad, or right-of-way must construct said crossing according to the approved plan or the board of directors will cause the crossing to be constructed according to the plans and specifications of the engineer of the district but in such manner as to cause no unnecessary injury or interference with the use of such property and to afford security for life and property. The cost of constructing any crossing is paid by the drainage district provided such crossing would not be necessary except for the works of the district. Such crossing when constructed must be maintained by the highway, railroad, or other owner of the right-of-way, in a manner approved by the directors of the district.

DISSOLUTION

Secs. 47 to 52. Petition: Any district organized under this act in which action has been taken by the board of directors, subsequent to those provided for in section 22, may be dissolved by the following procedure:

The directors present a verified petition to the superior court of the county in which the district was organized, signed by not less than three-fourths of the holders of title owning not less than three-fourths in acreage as shown by the last preceding assessment roll, praying for dissolution. The petition sets forth the entire indebtedness of the district and holders of such indebtedness so far as known. The petition also sets out the entire assets of the district, including all uncollected assessments.

Action on the petition is in the nature of a proceeding *in rem* and jurisdiction of all parties is had by publication in each county interested. Interested parties may appear and contest the dissolution. The court in its decree has power to

make orders to carry out the discharge of the indebtedness and distribution of the property of the district, and to declare any portions of such indebtedness to be liens upon several parcels of land.

Any surplus, after disposition of the property of the district and payment of all indebtedness, is distributed to the assessment payers in the proportion in which each has contributed to the costs of the improvement.

5. ACT 2205—IRRIGATION DISTRICT DRAINAGE LAW

(Statutes 1907, p. 569)

Sec. 1. Authority: Any irrigation district may provide for drainage made necessary by irrigation, and has the same powers respecting such drainage as it has respecting irrigation. All such laws shall be construed and enforced so as to apply to such drainage as well as to irrigation.

Sec. 2. Board of directors—Duties: It is the duty of the board of directors of the irrigation district to provide for drainage, and to do all necessary and proper acts for the construction, maintenance, and management of drainage works.

6. RECLAMATION DISTRICT ACT OF 1872

(Article II, Swamp and overflow salt-marsh and tide lands, and Reclamation Districts; secs. 3446-3493^{1/2}, pp. 462-532)

This law was enacted in 1872 and is the foundation upon which the present reclamation laws are based. There have been many changes and additions and the present codes of reclamation have been evolved by amendments and additions designed to encourage agricultural developments.

By an Act of December 24, 1911, a Reclamation Board was created to pass upon and approve plans for reclamation along the Sacramento River or its tributaries. Thereafter reclamation districts of which any part was within the Sacramento and San Joaquin Drainage District had to have their plans approved by the Reclamation Board, whereas all reclamation districts outside of that Drainage District had to have the approval of the supervisors of the county having the largest area in the district. In general terms this Act of 1872 is similar to Act No. 2202, Drainage District Law of 1903 (Statutes 1903, p. 291, *ante.*), and it does not appear to be necessary to add any synopsis of the earlier act.

Sec. 3455. Report of plans of reclamation works and proceedings thereon: Any districts located in whole or in part within the Sacramento and San Joaquin Drainage District must proceed as follows: (1) The board of trustees must report to the board of supervisors of the county in which the greater part of the district is situated, and file with the county clerk of said county three copies of the original plan or plans of the work of reclamation, and three copies of every new or supplemental plan, together with the estimate of cost of any such plan. (2) Within five days the county clerk must certify two copies of said plan to the secretary of the Reclamation Board. (3) The Reclamation Board then holds a hearing to consider objections to the plan, after notice by publication and posting. (4) At the hearing the Reclamation Board receives evidence with respect to the plan and must approve, modify, or reject the plan, but they have no power to amend, modify, or reject it on the ground that it provides for a levy that in their judgment is of excessive strength; but no claim for compensation shall thereafter be made against the Reclamation Board or the Sacramento and San Joaquin Drainage District for any part of such levy which said Board may consider to be in excess of what is required to comply with its plans for flood control. (5) The action of the Board is final and not thereafter subject to attack either before the Board or in any court.

Districts outside of the Sacramento and San Joaquin Drainage District: When no part of the district is situated within the boundaries of the Sacramento and San Joaquin Drainage District, the trustees report the plan to the board of supervisors of the county in which the greater portion of the district is situated. The supervisors appoint three disinterested commissioners who view and assess the lands and apportion the assessments according to benefits.

COLORADO

(Statutes Annotated—1936, and Cumulative Supplement—1940, Chapter 57, p. 1248)

DRAINAGE AND DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 1. Petition to organize: The owners of agricultural lands susceptible of drainage by the same system of works may propose the organization of a drainage district by presenting a petition to the county commissioners of the county in which the greater portion of such lands are situated, praying that the commissioners will cause the question of organization to be submitted to a vote of the landowners within the described boundaries, or that a drainage district may be established without election as provided in section 10 of this chapter.

See: Colo. Inv. etc. Co. v. Riverview Dr. D., 83 Colo. 468; 266 Pac. 501.

Coates v. Bd. of Co. Comrs., 71 Colo. 241; 205 Pac. 943.

Secs. 2 and 3. Contents of petition: The petition must be signed by a majority of the owners of the lands in the proposed district, whether resident or nonresident of such county, as well as by the owners in the aggregate of a majority of the total number of acres sought to be included. The petition describes the boundaries generally and alleges that the land can be made more useful by drainage. It must be accompanied by a map showing each tract of land and the name of the owner. The petitioners name a committee of three or more of their number to present the petition and give notice of a hearing thereon. The equalized county assessment roll is sufficient evidence of ownership. Entrymen on United States lands are competent signers of the petition. Bond in double the probable cost of organization, conditioned to pay costs if the district is not organized, must accompany the petition. **Sec. 3:** County commissioners may require cash in lieu of bond.

Sec. 6. Publication: Prior to the presentation to the county commissioners, the petition must be published in the county for two weeks and notice given of the time and place of presentation thereof.

Sec. 7. Hearing: If at the time set in the notice it appears that the petition is adequately signed and notice has been properly given, the county commissioners hear the petition and any applications for inclusion or exclusion of lands. They may adjourn the hearings from time to time not to exceed four weeks in all.

Secs. 8 and 9. Boundaries: The county commissioners may change the boundaries of a proposed district by including lands that can be drained or will be benefited by the same works, upon application of the owners thereof. They may exclude land that will not be benefited. They may not exclude lands mentioned in the petition that will be benefited and are susceptible of drainage. **Sec. 9:** When they have determined the boundaries, the commissioners make an order defining them, establishing the district, and giving it a name.

Sec. 10. Drainage system without an election: When the prayer of the petition is for the formation of a drainage district

without holding an election, and it appears that a large portion of the land to be included is unoccupied or many of its owners are not resident on the land, so an election would be impracticable, the board is authorized to cause a drainage system to be constructed. The commissioners manage the enterprise until, upon petition signed by the owners of a major portion of the land, they call an election of directors to whom they thereupon transfer control of the district.

ORGANIZATION—Election

Secs. 11 to 20. Election—Notice—Divisions: When asked in the petition, the commissioners call an election to determine the question of the organization, giving notice of the same. The notice states the name of the district, its boundaries, the polling places, the election officials, the date of the election, and the names of at least three persons eligible to be elected directors. **Sec. 12:** Three directors are elected, who must be the owners of land within the district. The commissioners may, and if requested in the petition must, divide the district into three divisions as nearly equal as convenient; and each division elects one director who must be a landowner in that division. **Sec. 13:** The commissioners designate the polling places and precincts. **Sec. 14:** They appoint three judges of election for each precinct, who must be landowners in that precinct. **Sec. 15:** Notice is by publication in each county interested. **Sec. 16:** Every owner of land in the district, who is a citizen of the United States or has declared his intention to become a citizen, and is a resident of Colorado, is entitled to vote in the precinct where he resides, or, if a nonresident, in the precinct where the greater portion of his land is situated. **Sec. 17:** The commissioners canvass the vote on the second Monday after the election. A majority vote controls in perfecting the organization and electing the officers. **Sec. 18:** The commissioners cause a certified copy of their order declaring the district to be organized to be filed with the county clerk of each county affected, and thereafter no land in such district may be included in another district without the consent of the owner of such land. **Sec. 19:** From and after such filing, the district is complete. **Sec. 20:** No action affecting the validity of the organization may be maintained after the expiration of one year from the date of the filing of the commissioners' order.

Sec. 21. Judicial notice: From and after the filing of the order of the commissioners establishing the district, the courts must take judicial notice of its organization; a certified copy of the order is *prima facie* evidence of the regularity and legal sufficiency of all acts, matters, and proceedings therein set forth.

Sec. 22. Election—Officers: The directors elect a president from their own number and appoint a secretary. They have complete management of the affairs of the district. The directors construct the drainage system and may acquire the necessary property and rights-of-way by condemnation. They may appropriate, divert, and use water for beneficial purposes, including any water gathered or discharged by the works of the district, under the same rules of law applicable to individuals. Directors have one year in which to file their claim to any water. They may not contract for work to cost more than \$5,000 unless such contract is approved in writing by the owners of land equal in number to a majority of the vote cast at the last district election, and no contract for more than \$10,000 without it first being approved by a majority vote at an election; provided, the directors have power to contract with the state or the United States for surveys for a proposed drainage system or its construction in whole or in part, the contract to provide for the payment to the state or the United States of the actual cost of

such work. Contracts, however, must be first ratified at an election by the qualified electors. (*Olney Springs Dr. D. v. Auckland*, 83 Colo. 510; 267 Pac. 605.)

Secs. 29 to 46 provide for giving notice of all elections, canvassing the vote by the directors, and declaring the result and filing it with the county clerk.

Sec. 47. Treasurer: The county treasurer of the county in which the office of the district is located is *ex officio* treasurer of the district, and is liable on his official bond. The county treasurer of each interested county collects assessments for the district at the same time and upon the same list as required for other taxes, and transmits to the district treasurer once each month all money collected for the district.

FINANCING—Assessments

Secs. 50 to 52, and 54. Warrants: The treasurer pays out money only on warrants issued by the directors, signed by the president and secretary under seal. *Sec. 51:* When there are no funds in the treasury to pay warrants, they are so stamped on their face and bear 6 percent interest thereafter until paid. *Sec. 52:* All claims against the district must be verified. The treasurer keeps a register of all warrants, showing the date, name of payee, and amount; when paid, they are cancelled on their face. All warrants must be made payable to bearer, and are paid in the order of their presentation. *Sec. 54:* The treasurer makes a financial report at each regular meeting of the board and at other times when required.

Sec. 55. Assessment of benefits: As soon as the plan has been adopted and before construction is begun or bonds voted, the directors make a special assessment of benefits by classifying the land in 40-acre tracts and numbering them according to the benefit to be received. Those tracts receiving the most and about equal benefits are numbered 100, and the other tracts are marked with their proportionate percentage of benefit. This classification when established remains the basis for the levy of taxes for district purposes. The directors may make a new classification when injustice appears to have been done.

See: *Colo. Inv. etc. Co. v. Riverview Dr. D.*, 83 Colo. 468; 266 Pac. 50.

Wilcox & Son v. Riverview Dr. D., 93 Colo. 115; 25 Pac. (2d) 172.

Sec. 56. Objections to classification—Hearing: The directors make personal service on all landowners residing within the district who are affected, giving notice of the time and place where objections to the classification of the various parcels of land will be heard. Service of nonresidents is by mail, and by publication where the address is not known. The affidavit of any creditable person as to service of notice, and that of the newspaper as to publication, is sufficient.

Sec. 57. Correcting assessments: The directors hear all objections of interested persons and correct the assessments in accordance with justice and right, if injustice has been done. If not satisfied that there is injustice, the assessments stand as made and the directors enter an order to that effect. Appeal may be had within 10 days to the county court of the county where the lands are situated, accompanied by bond to pay the taxes as finally levied and the cost occasioned by the appeal if the directors are sustained by the court.

Sec. 58. Hearing—Special jury: Appeals to the county court may be heard at any term thereof after 10 days from the date the appeal was taken. The costs are to be divided at the discretion of the court between the district and the landowners taking the appeal. As a special jury to try the case, the court summons six landowners living outside of the district, who are not interested in the lands or the works of the district, nor kin to

any party interested, but have knowledge of the costs and benefits of farm drainage. Vacancies may be filled by the court under the same limits of qualification. If both parties agree, the case may be tried by three qualified jurors. The jury examines the classification as determined by the board of directors and hears testimony for and against it. The jury corrects any error in classification, but if no injustice has been done confirms the classification as made. The determination is in writing, and is filed with the court. This classification, when established, is recorded with the drainage records; provided, the county judge may hear applications for appeal to the district court, and grant or refuse them in his discretion. If appeal is not taken or is refused by the county judge, the jury's decision is final and conclusive. If appeal is granted, the decision of the district court is final. Bond must be given for costs on appeal, and the landowners appealing must pay the costs if the classification of the jury is sustained. Procedure by the district court is like that by the county court with six jurors having the same qualifications, and the decision of such jury is conclusive without further right of appeal. The classification as determined and entered in the records of the district is thereafter the basis on which all assessments are made.

Sec. 59. Effect of appeal: Taking an appeal does not operate to delay collection of any taxes from which no appeal has been taken, nor to delay the work or the issuance of bonds.

Sec. 60. Modification of classification: The directors modify their classification to conform to the changes made on appeal, and certify such modified classification to the county clerk of each county affected for filing in his office.

Sec. 61. Special assessments: The board of directors, before July 1 of each year, determines the amount of money required to meet the current expenses of the coming year, including construction, maintenance, operation, deficiencies, and principal and interest of bonds, and by resolution order such amounts to be raised by special assessment. The assessment is apportioned among the several tracts of land according to the acreage of each and its classification on the graduated scale, so that each tract may bear proportionate burden according to its benefits. They make a special assessment roll, the form of which is given in the statute.

Sec. 62. Assessment list: The assessment roll is completed before July 15, and on the first Tuesday in August the directors hear complaints and correct errors in the assessments, but they may not change the classification of any land on the graduated scale at such hearing.

Sec. 63. Alternative method of assessment: The directors may adopt the following method of assessment as an alternative: As soon as the plans for the system have been determined and before actual work has begun or bonds have been voted, the directors may assess the amount of benefits which will accrue to each tract of 40 acres according to legal subdivisions. The assessed benefits represent, in the judgment of the directors, the increase in value of each tract of land by reason of the contemplated drainage. The directors prepare a report of their findings tabulated in the form that is set forth in the statute. The directors also estimate the cost of the work set out in the plans, including organization and administration. One copy of the directors' estimate is filed with the recorder of the county where the district is organized and one copy in the office of the district. The secretary of the district gives notice of the directors' findings by publication in each county affected, the form of the notice being set out in the statute. Landowners have 10 days in which to file exceptions to the report. Such

exceptions are heard by the board of directors and determined in a summary manner so as to carry out the purposes of the act and the needs of the district. If it appears to the directors after hearing that the estimated cost of construction is less than the benefits assessed, they approve and confirm the report as modified or amended. The secretary transmits the confirmed report to the county clerk and recorder of each county affected for permanent record. Appeal may be taken in the same manner as provided in sections 57, 58, and 59, and modifications are made in the report in order to conform to the findings of such appeal.

Where the works as set out in the plan are found insufficient, the directors may formulate amended plans containing new works or enlargement of existing works, and additional assessments may be made in the same manner in proportion to the increased benefits accruing.

After the list of confirmed benefits has been filed with the various recorders, the directors levy a tax on all land to which benefits have been assessed in the proper proportion and in the amount necessary plus 10 percent for emergencies. The tax must be apportioned to each tract in proportion to the benefit assessed thereon and not in excess thereof. If bonds are issued, the amount of interest which will accrue thereon is added to the tax. But the interest to accrue shall not be construed as a part of the cost of construction in determining whether the costs of the improvement are equal to or in excess of the benefits assessed. When bonds are issued, the tax is divided into such number of annual installments as will meet the requirements of punctual payment of interest and principal of bonds as they accrue.

If the proceeds of the original tax are insufficient to meet principal and interest of bonds issued, the directors make additional levy to pay such obligations and interest. The board of directors may make additional assessments to complete the works set out in the plan or additional work necessary, but in no case shall the total of such levy exceed the total of the benefits assessed. As soon as the said total tax is levied, the secretary prepares a list of all taxes in a book, the form of which is prescribed, and certifies it under seal and it becomes a permanent record in the office of the district and in the proper assessors' offices.

Sec. 64. Maintenance tax under alternative plan: Where the alternative method of assessment (sec. 63) has been adopted and the tax has been levied to pay for the completion of the works, thereafter taxes may be levied for maintenance and operation expenses and deficiencies as provided in sections 61 and 62, except that the amounts to be raised shall be apportioned among the several tracts in proportion to the benefits assessed, and that the amount assessed to pay bonds and interest shall be determined as provided in section 63 and shall so appear in the assessment roll provided in section 61. (L. 1923, p. 280.)

Sec. 65. Assessments—How made: On or before September 1 of each year the secretary transmits to the county assessor of each county affected a certified copy of so much of the assessment book as relates to his county, together with a certified copy of the order of the board of directors. Thereupon the county assessor enters on his record as part of the assessment roll the assessment so certified in the same manner as state and county taxes are entered.

Sec. 66. Delinquency—Sale—Redemption: The laws of the State for the collection of general taxes apply to drainage taxes. The provisions for collecting drainage taxes are to be deemed and construed to be for the purpose of carrying into effect the police powers in this chapter granted to drainage

districts and shall not be construed as a special tax under the taxing power; provided, in the case of sale for delinquency and no bids received, the property shall be struck off to the district and the certificate of sale delivered to its secretary for record in the district office. The district becomes entitled to a tax deed in the same manner and subject to the same equities as a private purchaser. Redemption is in the same manner as in the case of lands struck off to the county for county taxes. (L. 1921, p. 275, amending L. 1911, p. 323.) [Comstock v. Olney Springs Dr. D., 97 Colo. 416; 50 Pac. (2d) 531.]

Secs. 67 to 70. Sale of property acquired for taxes: The president of the board of directors, when authorized by resolution of the board, may convey real property acquired at tax sales on such terms as agreed on without authorization from the electors of the district, and the deed to such property when attested by the secretary under the district seal conveys the entire title held by the district. (L. 1929, p. 555.) **Sec. 69:** Proceeds of the sale are paid into such fund as the directors by resolution may direct. (L. 1929, p. 536.) **Sec. 70:** The board of directors may employ necessary means to perfect title to property taken by tax deed.

Sec. 71. State lands—Assessments—Delinquency: The treasurer of any drainage district wherein actual physical construction has been begun or completed and in which there are state lands upon which the drainage taxes have not been paid shall, before August 1 of each year, mail to the Board of State Land Commissioners a list with a description of each 40-acre tract of state lands against which any assessment is delinquent. The statute then provides the method for payment of such taxes upon State lands. (L. 1933, p. 448.)

FINANCING—Bonds

Secs. 81 and 82. Bond issue—Election: For the purpose of constructing the drainage system and to pay the first year's interest on bonds authorized, the directors may estimate the amount necessary and call a special election by the qualified electors to determine the question whether bonds in such amount shall be issued. **Sec. 82:** Notice of the election is by posting in each precinct and by publication, and the election is the same in all respects as the election for directors (secs. 11 to 17.) (L. 1911, p. 324.)

Secs. 83 and 84. Bonds—Where payable—Interest: A majority vote being in favor of the issuance of bonds, the directors immediately issue them in the amount specified, payable in series beginning at the expiration of 11 years, at which time not less than 5 percent of the whole amount must be paid, with an increasing percentage payable each year thereafter until at the expiration of 20 years the issue has been paid in full. The yearly percentages are of the entire bond issue and not of the amount unpaid. Bonds bear interest not to exceed 8 percent, payable semiannually. Principal and interest of the bonds are payable at the office of the county treasurer of the county where the district was organized, and at such other places as the directors may designate. (L. 1921, p. 280, amending L. 1911, p. 325.) **Sec. 84:** Bonds are negotiable in form and in denominations of \$100 and \$500; they are signed by the president and secretary, and bear the district seal. They are numbered consecutively and bear date of the day of issuance. The secretary must keep a record of all bonds sold, the dates of sale, and the names of purchasers.

Sec. 85. Bonds maturing in less than 20 years: Provision may be made by majority vote of the qualified electors for bonds to mature in any number of years less than 20 and to arrange for the payment thereof in series. (L. 1911, p. 326.)

Sec. 86. Additional bonds—Election—Priority: When money provided by any previous issue of bonds becomes exhausted and it is necessary to raise additional money for authorized purposes, additional bonds may be issued after submitting the question at a special election by the qualified electors in the same manner as the original issue. The lien of any bonds issued, and interest, is prior to that of any subsequent issue. (L. 1911, p. 326.)

See: *No provision for additional levies to pay new issues: Wilcox & Son v. Riverview Dr. D.*, 93 Colo. 155; 25 Pac. (2d) 172.

Secs. 87 and 88. Sale of bonds: The directors may sell bonds from time to time in such quantity as necessary and advantageous to carry out the purposes of the district. They, by resolution, declare their intention to sell a specified amount of bonds, give notice of the time and place of the opening of bids by publication in Denver, and elsewhere at their discretion. **Sec. 88:** The notice states that sealed proposals will be received until the time fixed, at the office of the district. When bids are opened, bonds are awarded to the highest responsible bidder, but the directors may reject all bids.

Sec. 89. Real property liable for bonds and interest: Bonds and interest are paid from annual assessments on the real property in the district, and the property remains liable to be assessed for such payment as provided in this act. Bonds and interest coupons are receivable in payment of assessments levied. (L. 1911, p. 327; L. 1931, p. 326.)

See: *Water rights for irrigation are real property: Comstock v. Olney Springs Dr. D.*, 97 Colo. 416; 50 Pac. (2d) 531.

Sec. 90. Prior bonds under other acts validated: This section validates bonds authorized and issued under the Acts of 1911 and 1921 as amended, whether they have been sold or not.

Sec. 94. Confirmation of organization and bonds: The directors may commence special proceedings in the district court of the county where the office of the district is situated by which the acts of the directors in the issuance of bonds, whether sold or not, may be judicially examined, approved, and confirmed. The proceedings conform to those for the ratification of bonds of irrigation districts. (L. 1911, p. 329.)

Sec. 95. Refunding bonds: The directors have power to issue refunding bonds for the purpose of redeeming or compromising outstanding bonds of the district and unpaid interest thereon whether same be due or not due, or payable at the option of the district or by consent of the bondholder. Refunding bonds may not exceed in amount the bonds outstanding and unpaid and matured interest thereon at the time of issuing. Interest on refunding bonds may not exceed the rate on the bonds refunded and in no case shall such interest exceed 6 percent. (L. 1933, p. 450, sec. 1.) Such refunding bonds are issued in lieu of the bonds and interest refunded, and shall evidence the same indebtedness, shall be supported by the same liens, assessments, appraised benefits, and levies. Except as to time of payment, they shall be payable from such revenues in the same manner as the bonds refunded, but shall not constitute a blanket indebtedness or lien on lands within the district unless so provided on the face of the bonds. (L. 1933, p. 451.)

Sec. 97. Election for refunding bonds: Whenever it is desired to issue refunding bonds, the directors call a special election of the qualified voters of the district at which is submitted the question of issuing such bonds, or the question may be submitted at a general election. The election conforms in all respects to that for directors (secs. 11 to 17), provided that no informality shall invalidate the election if it shall have been otherwise fairly conducted. Notice is by publication and

posting, and such notice gives complete information as to the bonds and interest sought to be refunded. A majority vote decides the issue. (L. 1933, p. 451.)

Secs. 98 to 100. Form of refunding bonds: Whenever refunding bonds are authorized, the directors provide by resolution for the date, denomination, rate of interest, maturity, places of payment (within or without the state), and the form of the bonds. They are coupon bonds bearing semiannual interest. The district treasurer records all bonds in a book kept for that purpose. (L. 1933, p. 452.) **Sec. 99:** Refunding bonds mature serially, the first payment thereof to be within not more than 5 years and the last not more than 35 years from date, provided each bond is redeemable at the option of the district 5 years prior to its maturity and on any interest paying date thereafter. Interest ceases 30 days after publication of notice of call. Maturities must be in substantially equal annual amounts of principal or in such amount as will require substantially equal annual assessments for principal and interest throughout the period, commencing not later than 5 years after the date of issuance. (L. 1933, p. 453.) **Sec. 100:** Refunding bonds may be exchanged for outstanding bonds and interest, or may be sold, in which latter event the proceeds are used exclusively for the payment of principal and interest on bonds refunded and for improvement of the district. In no case shall the principal amount of refunding bonds exceed the amount of outstanding bonds and matured interest coupons surrendered and cancelled simultaneously with the issuance of the refunding bonds. Any exchange or sale of refunding bonds shall be made in such manner as to cause no loss of interest to the district. (L. 1933, p. 453.)

Sec. 101. Constructive consent of bondholders: If the directors desire to obtain constructive consent of unknown and known holders of bonds desired to be retired or refunded, they declare by resolution, before disposing of the refunding bonds, their intention, to sell or dispose of such bonds. They cause the resolution to be entered on their minutes, and give notice of the proposed disposition of such bonds by publication for four consecutive weeks in three newspapers published in Colorado, one of which shall be in Denver and one in the county in which the directors' office is situated. (L. 1933, p. 454.)

Sec. 102. Constructive consent (continued): Before authorizing the issuance of such refunding bonds, the directors, if they desire to obtain constructive consent, require that the known holders of not less than 80 percent of the total in amount of all such bonds or unpaid interest that are to be retired or refunded, shall submit to the board an offer to deliver all such bonds in exchange for bonds or cash not exceeding the amount of the total of such bonds and unpaid interest, or to accept in full payment a sum of money or refunding bonds representing the proportion which such total proposed refunding bond issue shall bear to such total outstanding bonds and interest proposed to be refunded, based on the par value of such proposed refunding bonds or cash; such creditors and such owners of such bonds and interest to agree to absorb the loss between the amount of the total outstanding bonds and interest and the amount of the refunding bonds at par, or cash, and to receive such refunding bonds or cash in full payment of the outstanding bonds and interest; and such creditors to agree to make such proper *pro rata* distribution of the refunding bonds as shall be required to retire the total outstanding bonds and interest proposed to be refunded.

The offer must be in writing and is irrevocable after submission to the directors until after the board has opportunity to authorize the issuance of refunding bonds to discharge such outstanding bonds on acceptance of such offer. * * * For the

purpose of obtaining the constructive consent of the unknown holders of bonds, the directors file in the district court an action *in rem*, setting forth the plan adopted by the district for retiring or refunding such bonds. The petition states that the percentage of the bondholders (not less than 80) have filed their written consent to the proposed plan. Notice of the petition is by publication. If there is no dissent within 90 days from the first publication of the notice, the unknown owners are deemed to have consented to the refunding. (See statute for minute details.)

Sec. 105. How refunding bonds paid: Refunding bonds and interest are paid from annual assessments levied on the real estate in the district, and such real property remains liable to be assessed for such payment; provided, however, that except when refunding bonds are issued for unpaid matured interest, no existing liens or liabilities created by an original issue of bonds shall be increased by issuing bonds to refund such original bonds. In collecting annual assessments to pay refunding bonds, the procedure is the same as in collecting the original assessment except that amounts for principal and for interest shall be ordered, certified, and collected separately. (L. 1933, p. 458.)

Sec. 106. Taxes—How paid: The county treasurer collects drainage taxes at the same time as general taxes. A property owner may pay county and school taxes separately from drainage taxes, and vice versa. The treasurer keeps record of the principal and interest payments separately. Assessments for interest are not construed to be a part of the cost of construction or a charge against any benefits theretofore appraised. (L. 1933, p. 459.)

Sec. 107. Lien of refunding bond assessments: The lien of assessments to pay refunding bonds and interest is on a parity with general taxes, and no sale for nonpayment of general taxes extinguishes the lien of refunding bond assessments. The lien of the assessments against appraised benefits for the payment of an original issue of bonds continues and persists for the benefit of the owners of the refunding bonds, which owners shall be subrogated to all of the rights and remedies of the owners of bonds refunded, except that if there shall be a reduction in the amount of the outstanding bonds, there shall be a corresponding reduction in the amount of the lien. (L. 1933, p. 459.)

Sec. 108. Insufficient funds—Proportionate payments: In the event that there are not sufficient funds to pay the installments of principal or interest when due, the treasurer must apply the money in the respective funds in proportionate payments on all bonds or coupons then due, endorsing the payment on the bonds or coupons. After respective maturities, the treasurer must make disbursements whenever he has sufficient funds to pay 5 percent of the total principal or 25 percent of the total interest due at maturity. (L. 1933, p. 460.)

Sec. 109. Matured refunding bonds may be used in paying assessments: Refunding bonds of any maturity may be used at face value in paying assessments levied to pay principal of refunding bonds, provided bonds so used must have all future interest coupons attached and no credits can be allowed for such coupons. Interest coupons maturing in any year may be used at face value to pay interest assessments which become due and payable in that year. (L. 1933, p. 460.)

Sec. 111. Manner of release from lien: This section provides methods by which any tract of land may be released from the lien of refunding bonds. The principal method is: If the bonds to be refunded were issued upon the basis of an assessment for benefits under this Act or under the Act of 1911 as originally enacted, the proportionate share of the outstanding debt chargeable

to the particular tract to be released shall be determined by the directors, upon application of the owner. (The method of making this determination is set out in detail in the statute.) When the amount is determined, the directors enter in their records a certificate of such determination and the treasurer on receiving a certified copy thereof will accept refunding bonds of any maturity at face value, or cash, in full payment of the final amount so determined. The treasurer issues receipt therefor, which may be filed with the assessor and recorded with the county clerk. After such payment, the particular tract of land is forever released from the lien of the bonds evidencing the particular debt and from all assessments to pay principal and interest thereon.

CONSTRUCTION

Secs. 74 and 75. Bids—Advertising: After adopting the plan and providing for payment for the same, or a part thereof, by assessments or bonds, the directors give notice by publication for 20 days, calling for bids for the construction of said work. If less than a whole, then the portion to be constructed is stated in the notice. The notice sets forth plans and specifications and states that contracts will be let to the lowest responsible bidder. The bids are opened in public. The directors award the contract to the lowest bidder, or they may reject all bids and proceed to construct the work under their own supervision. In the latter case, materials are secured by advertisement and purchased from the lowest bidder. **Sec. 75:** The contractor must give bond for not less than 10 percent of the contract price. All work is done under direction of the engineer employed by the district, subject to the approval of the directors.

Secs. 76 to 80. Eminent domain: The directors have power to construct the works across water courses, streets, highways, railroads, canals, or other ditches. If no agreement can be reached with the owners of such property as to the amounts to be paid therefor, or the points and manner of crossing, then the same shall be determined as provided by law for taking of private property for public uses under the right of eminent domain, the right to the exercise of which is conferred on drainage works. **Sec. 77:** Rights-of-way across state lands are dedicated. (L. 1911, p. 327.) **Sec. 78:** Right of eminent domain is given as to lands outside of the drainage district when needed for its works. (L. 1921, p. 284.) **Sec. 79:** Compensation for condemned property is to be determined by proceedings as provided by law for the exercise of the right of eminent domain. **Sec. 80:** No officer may be interested in a contract of the district, under penalty of being guilty of a felony.

DISSOLUTION

Secs. 116 and 117. Procedure: Whenever a majority of the owners, representing a majority of the total acres, petition the board of directors for a special election to submit to the qualified electors the proposition to dissolve, it is the duty of the directors, upon proof that all indebtedness of the district of every kind has been paid, to call the election. Notice setting forth the objects of the election is posted in six places and published in each county affected for 30 days. No district may be dissolved which has outstanding indebtedness unpaid. (L. 1911, p. 330.) **Sec. 117:** The directors canvass the vote on dissolution, and if a majority is for dissolution, they enter in their records an order declaring the district to be dissolved, in the form prescribed in the statute, and file the same for record in the office of the county clerk and recorder in each county affected. Thereupon the district stands dissolved. (L. 1911, p. 331.) If a majority at the election is not for

dissolution, the directors may make an order to that effect in their record but do not file it with the county recorder.

(NOTE: The Laws of 1939, p. 445, relate to bankruptcy of irrigation and drainage districts and authorize them to take advantage of the provisions of the bankruptcy act and of the Acts of Congress of August 16, 1937, and June 22, 1938, relating to bankruptcy. Districts may issue new bonds if the plan of composition approved by the United States District Court so provides.)

DELAWARE

(Revised Code of 1935; Session Laws)

I—Chapter 105. Article 1—Ditches
 II—Chapter 65. Article 2—Corporations for Draining and Reclamation of Low Lands
 III—Chapter 65. Drainage Districts

I—DITCHES

(Chapter 105, art. 1)

ORGANIZATION—Petition

Sec. 1. Draining lowland: Whenever one or more of the owners of any low ground shall desire to drain same, the superior court, on their petition, will appoint three commissioners to view the premises and, if they deem it proper, lay out ditches for that purpose.

Sec. 2. Commissioners: The commissioners take with them a competent surveyor and specify the courses, distances, and sizes of every ditch laid out. They estimate the cost of constructing the ditches, assess the damages and name the parties to whom payable, and estimate the proportion of cost that each person benefited should pay. They make return in writing, showing the boundary lines of the low grounds and of each taxable's portion thereof, and of all land benefited, and the approximate number of acres. All commissioners must act, but a majority may decide any question. When an old ditch is improved, the commissioners make proper allowance in abatement of taxes to landowners bordering on it for work done on the old ditch whereby the cost of the new ditch is diminished. The commissioners give notice to each person liable to be taxed for the new ditch, of the time and place where they will meet on some part of the lands before final assessment of taxes. Where there are nonresident landowners, it is sufficient to give notice to the tenant upon the lands, and in the absence of a tenant such notice is by posting on the land.

Sec. 3. Damages: The commissioners award damages to all persons injured by the making of such ditch, and such damages must be paid or tendered before the ditch is cut.

ORGANIZATION—Officers

Sec. 7. Election of managers and treasurer: The commissioners making any return that has been confirmed (secs. 5 and 8, post) must, within one month after confirmation, convene the persons liable to contribute to such ditch for the purpose of choosing two managers and treasurer of the ditch to serve for one year and until others are chosen. Notice is by posting. The managers and treasurer are chosen from among the taxables. At that meeting the taxables determine the time and place for holding stated meetings thereafter. It is then the duty of the managers to give notice of such meetings by written or printed handbills signed by them and posted in four public places six days before each meeting. Failure to give the above notice incurs forfeiture of pay by the managers and a fine of \$10. On the death or removal from the county of both managers, the treasurer is charged with giving such notice. At all meetings taxables may vote in person or by proxy, in proportion as each is liable to contribute; that is, each taxable is entitled to one vote for

each dollar of tax paid by him. Wilful disturbance or interference at any meeting constitutes a misdemeanor punishable by fine of from \$5 to \$50.

Sec. 9. Managers—Powers: The managers, or either of the managers and the treasurer, must proceed to make and open ditches according to the return confirmed, or to repair same as may be necessary, and they have all needed powers for that purpose. All payments are by order drawn by them on the treasurer. Any person assessed for a tax may discharge same by work done by direction of the managers, and their certificate of such work done is received by the treasurer as payment of the tax.

Sec. 10. Treasurer: The treasurer collects all sums assessed and has the same power as the collector of county rates. He gives bond in double the amount of the assessments. He settles with the taxables at their annual meeting and retains 5 percent of the amount collected for his services.

ORGANIZATION—Powers

Sec. 11. Cross ditches: A landowner taxed for a ditch that does not pass through his land may at his own expense open and keep open cross ditches into the same; provided, such cross ditches may not cut through the lands of intervening owners without their consent, unless it be laid out and the damages assessed by the commissioners appointed to lay out the main ditch or by three other commissioners appointed by the superior court in the same manner. The persons applying for the cross ditch must pay the costs thereof and must tender the damages awarded, but any person benefited by such cross ditch shall contribute and pay so much of such costs and damages as the commissioners shall determine to be a fair proportion.

Secs. 12 to 18. Obstructing ditches, etc: The wilful breaking or obstruction of a ditch is a misdemeanor, punishable by fine and imprisonment. It is lawful for taxables interested in a public ditch to enter upon the lands of any person through which such ditch may pass and remove obstructions from it. Any person hindering such removal shall forfeit \$100 and costs. Any person through whose fault and neglect a ditch is obstructed so as to hinder and prevent the free passage of water is liable for the expenses and charges to which any of the taxables shall be subject in removing the obstruction.

Sec. 19. Dredges: The taxables of any ditch, canal, or drain, whether organized under special act, general law, or order of the superior court, at any meeting or at any called meeting, may by vote of two-thirds of the taxables of said ditch direct the managers to acquire a barge or dredge, with power equipment, adapted to constructing or improving such canal, ditch, or drain. Each taxable is entitled to one vote for each dollar of his tax paid. A special fund for this purpose is raised in the same manner as the ditch tax.

FINANCING—Assessments

Sec. 4. Contributors—Apportionment: All persons benefited by the ditch are liable to contribute for the costs of making the same, of the damages awarded, and of the proceedings. The commissioners determine who will be benefited, and apportion the costs according to such benefits.

Secs. 5 and 6. Review: The superior court may, before confirmation of the return of the commissioners, grant orders of review on application of any three parties interested, returnable to the first day of the next term of the court. (There is a special exception for Kenton Hundred in Kent County.) **Sec. 6:** If any public road crossed by the ditch will be benefited so that the public should maintain a bridge over it, the commissioners so state in their return and the bridge is built and maintained at public cost.

Sec. 8. Return—How long effective: The return as confirmed by the court remains in force for seven years thereafter as the basis of any subsequent assessment that may be made by the managers for keeping or repairing the ditch, and until another order be granted by the court upon the application of one or more taxables. Commissioners appointed for a new assessment may not employ a new surveyor unless one is asked for in the petition. One or more taxables of a ditch or drainage company laid out under the provisions of a special charter by the legislature, or under the general corporation law, have the right to apply to the superior court for an order for a new assessment as provided for ditches laid out under this section, notwithstanding the charter of such company provides otherwise.

II—DRAINAGE CORPORATIONS

(Chapter 65, art. 2)

ORGANIZATION

Sec. 96. Certificate of incorporation: Any number of persons not less than three, all of whom must be owners of all or part of the lands intended to be drained or reclaimed, may form a corporation with perpetual succession for the purpose of ditching, draining, and bringing such lands into cultivation, and have all of the powers and privileges conferred and be subject to all of the duties and liabilities imposed. For that purpose they make and sign certificates of incorporation in which must be stated: (1) the name of the corporation; (2) the route of the ditches and the lands through which they will run. The certificate may also contain provisions for the conduct of the affairs of the corporation and for regulating its powers and those of its managers, taxables, or officers. The corporation has no capital stock nor directors but is managed by the officers herein provided for.

Before proceeding to accomplish its purposes, such corporation must apply to the superior court of the county in which the lands desired to be drained, or the greater portion of them, are situated, for the appointment of commissioners as provided in section 1 of chapter 105. (See under heading "Ditches.") All of the provisions of chapter 105 are applicable to such corporations; provided, that if any drain heretofore created and laid out under special act or under chapter 105 shall compose the whole or any part of the drains or ditches hereafter to be organized under this section, it is not necessary for the commissioners appointed to view the premises or to have that portion of said drains or ditches surveyed and plotted as provided in section 2 of chapter 105 which refers to the plot and return; and provided further, that the managers and treasurer provided for in chapter 105 shall be the managers and treasurer of the corporation, and there may be as many of such managers as the corporation by vote of its members shall deem proper, but not less than three instead of two as provided in chapter 105. Immediately after the election of such managers, they elect one of their number president of the corporation, and such president and managers possess all of the powers usually vested in such officers and in addition such powers and duties as may be provided for in the certificate of incorporation or the bylaws. The managers and taxables may make such bylaws as they think proper and alter and amend them at pleasure.

Any corporation under the provisions of this section may, when authorized by a majority vote of its taxables, borrow money and issue bonds of the corporation to secure the same. Such bonds are in form and amount as prescribed by the corporation by the vote of its taxables, sealed with the seal of the corporation, and attested by the president and secretary.

No tax for the use of the State may be collected from the corporation provided for under this section, or from corporations created for the drainage and reclamation of low land, for the amendment or renewal of the charter of such corporation. Certificates of incorporation may be amended as provided for in section 26. (L. 1928, ch. 105.)

III—DRAINAGE DISTRICTS

(Chapter 65, art. 2)

ORGANIZATION—Petition

Sec. 97. Jurisdiction to establish—Public benefit: The resident associate judge in any county has jurisdiction to establish levee or drainage districts and to locate drains and improve any drain or watercourse for the purpose of reclaiming wet or overflowed lands. The drainage of swamps and the removal of surface water from agricultural lands and the reclamation of tidal marshes are declared to be a public benefit and conducive to the public health and welfare.

Sec. 98. Petition: A petition signed by a majority of the resident landowners in a proposed district, or by the owners of one-half of all of the lands in acreage that will be affected or assessed for the expense of the improvement, is filed in the office of the prothonotary of any county in which a part of said lands are situated. The petition sets forth the body of lands to be drained; that they are subject to overflow or too wet for cultivation; that the public welfare will be promoted by draining the same or by improving a natural watercourse; and gives the route and termini of the proposed improvement. Bond is filed, not to exceed \$100 per mile of the proposed works, conditioned to pay the costs of the proceedings if the petition is not granted. In case the resident associate judge does not grant the prayer of the petition, he will direct the prothonotary to give notice of a hearing on the same by posting and publication. Upon the return day the judge appoints a disinterested and competent civil and drainage engineer and two resident freeholders of the county or counties affected, not interested nor related to any of the parties, as a board of viewers to examine the land and make preliminary report. In intercounty districts the resident judge of either county has jurisdiction, and venue is in the county in which the petition is first filed. The chief engineer of the highway department is directed, upon application in writing by one or more of the petitioners, to detail a competent engineer of his department to render such service as may be necessary in the establishment of the district.

Sec. 99. Report of viewers: The viewers proceed to make a thorough examination of the lands described in the petition and other lands if necessary to properly locate the improvement, along the route described in the petition or any other route found more practicable. They may make surveys necessary to determine the boundaries and elevations of the several parts of the district, to enable them to make a tentative plan for development. Within 30 days they make return to the resident judge and their report is placed on the public file in the prothonotary's office. The report must set forth: (1) whether the proposed district is practicable; (2) whether it will benefit the public health or any public highway or be conducive to the public welfare; (3) whether the proposed improvement will benefit the lands sufficiently to warrant the cost thereof; (4) whether all lands benefited are included in the proposed district. They file with the report a sketch showing the general location of the ditches and improvements, and estimate of the cost of the same, and a list of the landowners who will be affected thereby so far as can be ascertained.

Sec. 100. Hearing on viewers' report: The resident judge considers the viewers' report within two weeks, with the engineer and two viewers present. If the report is that the drainage is not practicable or not conducive to the public welfare, and the judge approves such findings, the petition is dismissed at the cost of the petitioners. If the viewers' report is favorable to the establishment of the improvement and the resident judge shall so find after hearing all of the evidence, he will direct the viewers to make a complete survey with plans, specifications, and estimates of the cost and will fix a time for filing such final report, not more than 60 days thereafter unless the time be extended by the resident judge.

Sec. 101. Full survey to be made: The engineer and viewers have power to employ assistants to make the complete survey of the district. The courses and distances of each ditch are noted and accurately plotted and mapped. The line of the levels and frequent bench marks are established, recorded in the field books, and shown on the map. A drainage map is prepared showing the location of the ditches and other works and the total cubic yards of excavation or fill in each mile. The map also shows the total yardage of excavation and fill for the entire district and an estimate of the total cost.

Sec. 102. Damages: The engineer and viewers also assess the damages for lands taken or inconvenience imposed because of the improvement, or any other legal damages. Damages are considered separate and apart from the benefit the land would receive because of the proposed work, and must be paid by the drainage commissioners when funds shall come into their hands.

Sec. 105. Hearing on final report of viewers: When the final report is completed and filed, it is examined by the resident judge and if found to be in due form and in accordance with law, it is accepted. Otherwise it is referred back to the engineer and viewers for further information to be reported at a fixed date. When accepted, the resident judge fixes a hearing thereon within 15 days, with notice by publication and posting throughout the district and at the court house door. A copy is filed with the prothonotary, and is open to the inspection of any landowner or interested person.

Secs. 106 and 107. Exceptions to final report: At the hearing any interested party may file written objections to the report. The resident judge considers the report and the objections and makes such changes as may be necessary to render substantial justice to all of the landowners. If in the opinion of the resident judge the cost of construction plus the damages assessed is not greater than the benefits that will accrue to the lands affected, the judge will confirm the report and declare the district established. Finding the contrary, the judge will dismiss the petition at the cost of petitioners. **Sec. 107:** The prothonotary must provide a suitable book to be known as the "drainage record" in which to transcribe every part of the proceeding in order to make a continuous record of the case. One copy of all maps and profiles is attached to the drainage record and one copy is kept on file by the prothonotary and open to inspection.

ORGANIZATION—Officers

Sec. 108. Board of drainage commissioners: After the district is declared established and the survey and plans approved, the court appoints three persons who are designated as the board of drainage commissioners. They must first be elected by the landowners within the district, or a majority of them, in such manner as the court may prescribe. Each owner is entitled to one vote for each acre of land or fractional part thereof owned by him in the district as determined by the engineer and viewers under section 103. The court appoints the three persons

receiving a majority of the votes. If no three receive a majority, the court completes the board by appointing any from among those voted for. Any vacancy is filled in like manner. The three drainage commissioners, when so appointed, automatically become a body corporate under the name of the "Board of Drainage Commissioners of _____ District," with all of the powers usually pertaining to corporations. They elect one of their number as chairman and one as vice-chairman, and elect a secretary who may or may not be a member of the board. The treasurer of the county is *ex officio* treasurer of the drainage commissioners.

Sec. 109. Superintendent of construction: The drainage commissioners appoint a competent superintendent of construction, who gives bond approved by the resident judge in an amount commensurate with the cost and conditioned for the faithful performance of his duties.

ORGANIZATION—Powers

Secs. 114 to 118. Eminent domain: If it is necessary to acquire an outlet or right-of-way over land not affected by the drainage and the same cannot be acquired by purchase, then the right of eminent domain is conferred on drainage districts and the required right-of-way or outlet may be condemned. The procedure is substantially that provided for condemnation of rights-of-way for railroads. **Secs. 115 to 117:** Provision is made for crossing the rights-of-way of railroads and boulevards, the form of notice to be given such corporation, and the method of cooperation between such corporation and the drainage commissioners. **Sec. 118:** Owners of land assessed have the right to use the drains and ditches as an outlet for lateral drains from their lands. If such land is separated from the main ditch by intervening land and the owners of both are unable to agree concerning the crossing ancillary proceedings may be filed and the drainage commissioners will make report thereon to the resident judge, who will approve, alter, or modify the commissioner's finding.

Sec. 121. Control: When an improvement is completed, it is under the control and supervision of the board of drainage commissioners. It is the duty of the board to keep the improvement in good repair, and for repairs and maintenance they may levy assessments on the lands benefited in the same manner and in the same proportion as the original assessment, in amount not to exceed 25 percent of the original assessment. If repair is made necessary by the act or negligence of any landowner through whose land the drain passes, the cost thereof is assessed against and collected from that owner alone. It is a misdemeanor for any person to obstruct or damage any of the works of a drainage district.

Sec. 123. Loans from United States: Drainage districts are empowered to avail themselves of any government aid, and to solicit the cooperation of the United States in the prosecution of drainage and the reclamation of agricultural lands.

Sec. 124. Revolving fund: To encourage the starting of drainage enterprises, a "drainage district fund" is created in the amount of \$2,000, appropriated by the State, from which loans can be made for expenses of organization, not to exceed \$2,000 for any one district. (NOTE: The revolving fund under the heading "Ditches" is \$10,000 with a limit of \$2,000 to be loaned for any one district.) The money is returned to the State treasury through the county treasurer, who collects same from the petitioners' bond if the district is not established, or from the board of drainage commissioners, from the first proceeds of the sale of bonds, if the district is established.

Sec. 125. No increase in tax rate: The assessment of lands in a drainage district for county, school, or municipal purposes shall not be increased by reason of the increased value arising

from better drainage afforded by the construction of the drainage works until the bonds issued by the drainage commissioners shall have been paid in full.

FINANCING—Assessments

Sec. 103. Classification of lands: It is the duty of the engineer and viewers to personally examine the land in the district and classify the same with reference to the benefits that will be received from the construction of the works. The degree of wetness of the land, its proximity to the ditch or natural outlet, and the fertility of the soil shall be considered in determining the amount of the benefit it will receive. Lands are separated into five classes, the highest benefit being Class A; the next, Class B; etc. The holdings of any one owner need not be all in one class. Each owner's total number of acres benefited must be determined, and his number of acres in each class. The total number of acres in each class in the entire district must be prepared in tabular form. The scale of assessments per acre on the different classes is in the ratio of 5-4-3-2-1; so that as often as 5 mills per acre is assessed against Class A, 4 mills per acre is assessed against Class B, etc. This shall form the basis for assessment of benefits to lands for drainage purposes; provided, if the viewers find that by reason of conditions in the district substantial injustice will be done a landowner by strict conformity to the 5-class rule, the classification may be changed by increasing or diminishing the number of classes to conform to such conditions. In this event, explanation is made by the viewers to the judge, indicating the ratio of assessment for such changed classification as compared with the 5-class rule, and in calculating the assessment against any landowner, the judge will follow the classification as changed by the viewers.

Sec. 110. Estimate of costs: After the classification and ratio of assessment have been confirmed by the resident judge at the time of the final hearing and any appeals have been adjudicated, the drainage commissioners ascertain the total cost of the improvement including damages awarded, all costs and incidental expenses, engineer's cost, payment to the superintendent of construction, the necessary expenses of maintenance for three years after completion, and interest on the drainage bonds for three years. Thereupon the drainage commissioners certify to the prothonotary the total estimated costs, and their certificate is recorded in the drainage record and is open to the inspection of landowners.

Sec. 111. Assessment: When the drainage commissioners have made their estimate of the total costs, they immediately prepare in duplicate 10 assessment rolls or drainage tax lists to cover the period of the bond issue, giving the names of the owners of land in the district so far as the records show and a brief description of the several tracts assessed. The first assessment roll provides for the payment of interest on the bond issue to accrue the third year and the installment of principal to fall due at the expiration of the third year after issue, together with handling costs; the second assessment roll makes like provision for the fourth year; etc. Each assessment roll specifies the time when collectible, is numbered in order, and the amounts assessed against each of the several tracts of the land must be in accordance with the benefits received as shown by the classification and ratio of assessment. As each assessment is to be collected, the roll is signed by the chairman and secretary of the board, and the prothonotary appends an order directing collection of it. One copy is filed with the drainage record, and one copy delivered to a suitable person selected by the drainage commissioners who, after giving bond to the commissioners, proceeds to make the collection. For this purpose he has all of

the powers vested in the collector of county taxes or receivers of taxes and county treasurers. Such assessments have the force and effect of liens as in the case of state and county taxes. They constitute a first and paramount lien, second only to state and county taxes. The assessments become due in January, and are delinquent if not paid by April 30th next; and it is the duty of the collector to sell the lands so delinquent. The law relating to the collection of state and county taxes applies to drainage assessments.

FINANCING—Bonds

Sec. 119. Notice of issue: The board of drainage commissioners gives three weeks' notice by posting and publication that they will issue bonds for the total cost of the improvement, giving the amount of the bonds and the rate of interest and date of maturity. Any landowner may, within 30 days, pay to the county treasurer the full amount for which his land is liable, to be ascertained from the classification sheets and the certificate of the board showing the total cost of the improvement, and have his land released from liability to be assessed for such cost. The land continues liable for any future assessment for maintenance or for any increased assessment authorized by law. At the end of three weeks the drainage commissioners may sell the bonds for an amount equal to the total cost less the amount which shall be paid in cash, plus an amount sufficient to pay interest on said bonds for three years next following the date of issue.

Bonds are payable in ten equal annual installments, the first installment to mature at the end of three years from date of issue. Bonds may not be sold at less than par value. The proceeds are devoted to payment for the work as it progresses, the interest on said bonds for the first three years, and other expenses as authorized in this chapter. If any installment of principal or interest is in default for six months, the holders of same have right of action against the district or the drainage commissioners, wherein the court may issue a writ of mandamus against the district and its officers, including the treasurer and tax collector, directing the levying of a tax or special assessment in such sum as may be necessary to meet unpaid installments of principal and interest and court costs. Bondholders may sue officers of the district on their official bonds for failing to perform the duties of their offices.

CONSTRUCTION

Sec. 120. Bids—Advertisement: The drainage commissioners advertise in an engineering and contracting paper of wide circulation for bids for the construction of the improvement, either as a whole or in parts, and the contract is let to the lowest responsible bidder. The board may reject all bids and readvertise the contract. The drainage commissioners make terms of payment and fix the contractor's bond.

FLORIDA

(Compiled General Laws, 1927, and Permanent Supplement, 1940; Vol. 1, p. 495, art. 1, sec. 1451, et. seq.)

(Section 1524 of the compiled general laws provides that the Governor, Comptroller, State Treasurer, Attorney General, and Commissioner of Agriculture shall constitute the Board of Drainage Commissioners of the State of Florida.)

ORGANIZATION—Petition

Sec. 1452. Jurisdiction to establish: The circuit court of the county in which the greater portion of the land to be included in a drainage district is situated has exclusive jurisdiction, coextensive with the boundaries of the district and without regard to county lines, to establish and control drainage districts, upon proper petition therefor.

Sec. 1451. Petition: The State Board of Drainage Commissioners (see sec. 1524 above) or a majority of the owners, in number or in acres, of any contiguous body of land may file a petition with the circuit court, giving the name of the proposed drainage district; the number of years it is to continue; its boundaries; a description of the land; the number of acres owned by each petitioner; a statement that the petitioners obligate their land for the payment of taxes assessed for organization, construction, and maintenance; and praying that such land be organized into a drainage district.

See: *Authority of Court: Municipal Bond & Mtg. Corp. v. Bishop's Harbor Dr. D.*, 133 Fla. 430; 182 So. 794.

Number of petitioners: Idem.

Powers: Halifax Dr. D. of Volusia Co. v. State, 134 Fla. 471; 185 So. 123.

Sec. 1453. Notice: The clerk of the circuit court gives notice by publication of a hearing on the petition, and any landowner who has not signed it may file objections in writing. The objections are heard by the court in a summary manner, and if it be of opinion that formation of the drainage district will be an advantage to the landowners and to the public welfare, objections will be overruled and the court will declare and decree the district to be a public corporation of the state for a term not exceeding the time mentioned in the petition; but no district may be established without approval of the owners of a majority in acres of the land in the district. No person may have the petition dismissed as to him without the consent of a majority in acres of the landowners. A copy of the decree establishing the district is filed with the Secretary of State and with the clerk of the circuit court of each county affected.

ORGANIZATION—Officers

Sec. 1454. Board of Supervisors—Election: Within 20 days the clerk of court, after notice by publication, calls a meeting of the landowners for the purpose of electing a board of 3 supervisors composed of landowners in the district, at least two of whom must be residents of the county or counties in which the district is located or of an adjoining county. At the election each acre represents one share, and each owner is entitled to one vote for each acre owned. The State Board of Drainage Commissioners has the right to vote any state lands. Ownership of a majority of acreage is necessary to constitute a quorum for the purpose of holding an election. In the event of the failure of a quorum, the State Board of Drainage Commissioners will appoint three competent persons as supervisors.

See: *Authority and Legal Existence; Atlantic Land & Improvement Co. v. Peace Creek Dr. D.*, 135 Fla. 694; 185 So. 618.

Sec. 1459. Engineer: Within 30 days after organization, the supervisors appoint a chief engineer who has control of the engineering work of the district. He makes necessary surveys of the lands within the district and of adjoining lands that would be benefited, and prepares maps and profiles and the complete plans and estimates of cost for drainage the lands described in the petition and the lands adjacent thereto that will be benefited. The Chief engineer makes a report in writing once each year, or oftener if required, and upon making his final report the supervisors adopt it or some modification of it and such adopted report is the plan of drainage.

Sec. 1461. Plan of reclamation: Within 20 days after adopting a plan of reclamation, a certified copy is transmitted to the clerk of the court organizing the district; and the supervisors at the same time petition the court to appoint a board of three commissioners to appraise the land within and without the district to be acquired for drainage works, and to assess the

benefits and damages to all lands within the district. The court appoints as such appraisers three persons not interested in the district nor related to landowners therein.

FINANCING—Assessments

Sec. 1463. Appraisal of benefits: The appraisers assess the benefits and damages accruing to each 40-acre tract or other subdivision of the land. They report, in tabular form, prescribed by the statute, an estimate of the cost of the work, including damages and organization and administration expenses. If the report covers assessments on lands not included in the district, the supervisors must file a petition asking that the boundaries of the district be extended to include such land, and the proceedings on such petition are the same as for the original petition.

Exceptions to the report of the appraisers may be filed by any party in interest. If no exceptions are filed, or if upon the hearing on the report it appears to the court that the cost of construction will be less than the estimated benefits, the court will confirm the report after amending it in accordance with any sustained exception. Appeal to the Supreme Court may be had within 30 days. Certified copies of the decree of confirmation are transmitted to the supervisors and to the county clerk of each interested county for permanent record.

Sec. 1460. Cost of organization: The supervisors may levy a uniform tax not to exceed 50 cents per acre, to be used for the expenses incurred before the board is authorized to provide funds for the total cost of the improvement. This assessment is collected in the same manner as drainage taxes and is a lien upon the land assessed. When money is necessary before this assessment can be levied and collected, the supervisors may borrow money and issue notes or bonds therefor, pledging any and all assessments for the refund thereof. When an installment of taxes has been levied for payment of any obligation or of maintenance charges, the supervisors are authorized to borrow 75 percent of such taxes on notes bearing not more than 8 percent interest and payable out of the installments when collected.

See: *Amount of tax: Campbell v. State*, 133 Fla. 638; 183 So. 340.

Judgments: Campbell v. State, 124 Fla. 244; 138 So. 33.

Mandamus: Idem.

Injunction: Atlantic Land & Improvement Co. v. Peace Creek Dr. D., 135 Fla. 694; 185 So. 618.

Secs. 1467 and 1470. Tax levy: When the report of the appraisers is confirmed, the board of supervisors levies a tax of such portion of the benefits assessed as may be found necessary to carry out the plan of reclamation and to provide 10 percent additional for emergencies. The tax must be levied in proportion to the benefits assessed and not in excess thereof. In case bonds are issued, the tax is levied in such sum that the principal of the bonds does not exceed 90 percent of the levy. The total amount of bonds to be issued may not be more than 90 percent of the assessed benefits. State land is taxed in the same manner as other land.

The secretary of the board of supervisors prepares a list of the taxes levied and records it in the drainage tax book. The collector of each county receives the drainage tax book, and collects the taxes listed therein at the same time and in the same manner that he collects state and county taxes. All taxes remaining unpaid after the first Monday in April of the year in which they are levied carry a penalty of 2 percent per month until paid. *Sec. 1470: Drainage taxes are a lien upon lands assessed, equal in dignity to state and county taxes.*

See: *Campbell v. State*, 133 Fla. 638, ante.

Amount of tax: Halifax Dr. D. of Volusia Co. v. State, ante.

Assignment of Certificate: State v. Sloan, 135 Fla. 179; 184 So. 781.

Sec. 1497. Readjustment of benefits: When the owners of 25 percent or more of the acreage in the district file a petition with the circuit court citing that there has been a material change in the values of property in the district since the last assessment of benefits, and asking a readjustment of benefits, the court will hold a hearing on such petition and the procedure is the same as for the original assessment of benefits. If a readjustment of benefits is ordered, the assessment is not limited to the aggregate of the original assessment, but the limitation of 90 percent for maintenance applies to the readjusted assessments. There may not be a readjustment more frequently than once in 5 years.

FINANCING—Bonds

Sec. 1493. Bonds—Taxes: The supervisors may issue bonds of the district when in their judgment it seems best, in an amount not to exceed 90 percent of the taxes levied exclusive of the amount levied for interest. Bonds bear 6 percent interest and they mature in annual intervals within 30 years commencing after a period of not later than 10 years. They may be sold at not less than 95 percent of their face value with accrued interest. A sufficient portion of the drainage taxes is apportioned to and set aside for the payment of bonds when due. If the drainage tax is insufficient to meet bonds issued subsequent to June 1, 1927, additional taxes proportioned to the amount of the drainage taxes may be levied in such amount as may be necessary to pay the bonds. The holder of bonds delinquent for 60 days may apply to any court of competent jurisdiction for a receiver for the district, who will collect the taxes and foreclose liens against the lands, and apply the proceeds first to interest and then to *pro rata* payment of matured bonds. When all obligations are paid in full, the receiver is discharged. No bonds may be issued without the approval of the Board of Drainage Commissioners of the State.

See: *Constitutionality*: Little River Valley Dr. D. v. First State Savings Bank of Morenci, Mich., 123 Fla. 581; 167 So. 376.
Construction: Halifax Dr. D. of Volusia Co. v. State, 134 Fla. 471; 185 So. 123.
Illegal Districts: Municipal Bond & Mtg. Corp. v. Bishop's Harbor Dr. D., 133 Fla. 430; 182 So. 794.
Wardamus: Morgan v. State, 126 Fla. 534; 171 So. 310.

CONSOLIDATION

Sec. 1498. Consolidation: Adjacent districts may be consolidated whether in separate counties or not. The board of supervisors of each district calls an election in the same manner as for the original board of supervisors. If a majority of the acreage voted in each district is in favor of consolidation, the board of supervisors of each district presents a petition to the circuit court of the county in which the greatest amount of land is situated, accompanied by a complete return of such election with the names of the original districts, the dates of incorporation, the names of the owners of the land, and a description of the boundaries of the district. After notice and hearing in the same manner as for the organization of the district, and objections being not sustained, the court makes an order uniting the districts under an appropriate name and they become one district with all the rights and powers conferred by this Act. The new district is subject to the liens, liabilities, and obligations of the original district. A new board of supervisors is elected, and all orders are spread on the minutes of the board and a certified copy thereof is filed in the circuit court of each county and with the Secretary of State.

Sec. 1499. Extending corporate existence: When necessary to extend the corporate existence of a district beyond the period limited in the original petition, the supervisors call a meeting

of the landowners, and if a majority of the acres represented vote in favor of extending the corporate existence the board presents a petition to the circuit court for that purpose. The meeting is conducted in the same manner as in the election of the board of supervisors. If the petition is granted, the clerk of the court transmits a copy of the decree to the board of supervisors, to the Secretary of State, and to the circuit court of each county having land in the district.

Sec. 1472. Subdistricts: If any drainage district organized under this Act be wholly or partly within the boundaries of a district theretofore established, the last organized district is designated a subdistrict of the other, and the lien of the taxes assessed for said subdrainage district is of equal dignity with the taxes assessed for the district first established; provided, that the sale of any land for state and county taxes does not operate to release the land from the lien of subsequent installments of drainage taxes, which lien may be enforced as though no sale had been made.

DISSOLUTION

Sec. 1488. Dissolution: Drainage districts incorporated for a definite term would, in the absence of proceedings to extend their corporate existence, become defunct at the expiration of the stated term.

When objections are filed to the appraisers' report, if the court finds that the estimated cost of the improvement will exceed the benefits it will declare the incorporation of the district to be dissolved as soon as all costs and obligations have been paid. If the uniform tax levy is not sufficient to pay all obligations, the supervisors may levy additional uniform taxes.

GEORGIA

(Annotated Code, Chapter 23; and Cumulative Pocket Part, 1939)

SYSTEM OF COUNTY DRAINAGE

ORGANIZATION—Petition

Sec. 2503. Creation of court to establish drainage systems: The clerk of the superior court together with the Board of Commissioners of Roads and Revenues, or, if there be no such board, with the Ordinary of the county, constitute a court with the power and authority to establish drainage districts in this state. The drainage of swamps and agricultural lands is declared to be a public benefit and conducive to the public health, convenience, and welfare. (L. 1911, p. 108.)

See: *Constitutional*: 85 S.E. 909; 119 S.E. 644.

Sec. 2504. Petition: A petition signed by a majority of the resident landowners of a proposed district or by the owners of three-fifths of all land which will be affected or assessed for benefits, is filed in the office of the clerk of the superior court of any county in which a part of the land is situated. The petition describes the lands to be drained and states that public health, convenience, and welfare will be promoted by draining them. It sets forth, as far as practicable, the starting point, route, and terminus of the drainage ditch and of the laterals if they be necessary. Petitioners must give bond to pay the costs in the event the district is not organized. The clerk issues a summons to all landowners not signing the petition and gets service by publication on those who cannot be personally served.

See: *Evidence*: 103 S.E. 197.
Negligence: 95 S.E. 14.

Secs. 2505, 2506, and 2508 to 2512. Viewers: Upon the return day, the court appoints a disinterested, competent engineer and

two resident freeholders of the county as a board of viewers to examine the land and make a preliminary report. *Sec. 2506:* When the lands are located in two or more counties, the same jurisdiction lies but the venue is in the county where the petition is filed. *Sec. 2508:* The viewers examine the land described in the petition and any other lands along the route of the proposed work, make survey if necessary to determine the boundaries, and make a written report to the clerk within 30 days setting forth: (1) whether the proposed drainage is practicable; (2) whether it will be of benefit to the public health or any public highway or conducive to the general welfare; (3) whether such improvement will benefit the land; (4) whether or not all of the lands which will be benefited are included in the proposed district. They file a map showing the location of the ditch and the land that will be affected. (See Inclusion of lands, 117 S.E. 236.) *Sec. 2509 and 2510:* If the report be that the drainage is not practicable or will not be a public benefit, the court will dismiss the petition at the cost of the petitioners; but the same petitioners may again present the petition after the expiration of 6 months, upon a showing that conditions have changed. *Sec. 2511:* If the viewers report the drainage practicable and of public benefit, the court makes a finding to that effect and fixes a day when the petition may be heard. *Sec. 2512:* Notice is by publication and posting, stating the date on which the court will hear evidence for or against the viewers' report. Nonresident landowners must have written notice at least 30 days before the hearing.

Sec. 2513. Hearing: The court hears any objections presented, and if there appears to be any land which will not be affected by the drainage, it will be excluded. If there is land not within the district but benefited, the boundaries may be changed to include the same, and the owner of such land also must be summoned to the hearing. The viewers may attend the hearing and give information. When the facts and the boundaries of the district have been determined to the satisfaction of the court the district is declared to be established and is given a name or a number.

Secs. 2516 to 2518. Survey—Plan: After the hearing on the report of the viewers and the establishment of the district, the report is referred back to the engineer and viewers for a complete survey with plans and specifications for the work, which must be completed within 60 days. (See 121 S.E. 298.) *Sec. 2517:* The details of the survey are set out in the statute, and among the requirements are profiles of the proposed work and an estimate of the cubic yards in each fill or excavation for each mile or fraction thereof, and an estimate of the cost of the whole work. *Sec. 2518:* The viewers also assess all damages to be occasioned by the works, separate and apart from any benefits to be derived, which damages are paid by the drainage commissioners when funds come into their hands.

Sec. 2519. Benefits: The engineer and viewers personally examine the land in the district and classify it with respect to the benefits it will receive from the construction of the system. In the case of drainage, the degree of the wetness of the land, its proximity to the ditch or canal or a natural outlet, and the fertility of the soil are to be considered in determining the amount of benefit it will receive. Lands are separated into 5 classes, the land receiving the highest benefit being Class A, the next Class B, etc. The holdings of one landowner need not all be in one class, but the number of acres in each class must be shown, though not necessarily marked on the ground or on the map. The total number of acres owned by each person in each class, and the total number benefited, must be determined and presented in tabular form. The scale of

assessments on the various classes are from 5 to 1; that is, as often as 5 mills per acre is assessed against Class A land, 4 mills is assessed against Class B, etc. The viewers keep an accurate account of the cost of the survey.

Secs. 2522, 2523, 2354, and 2355: Report of viewers—Hearing: When the final report of the viewers is completed and accepted by the court, 20 days notice of the hearing thereon is given by publication and posting and a copy is held in the office of the clerk for inspection by any interested party. *Sec. 2523:* At the hearing any landowner may file objections to the report in writing, and the court will review the report and objections and make necessary changes to do substantial justice to all landowners. If, in the opinion of the court, the damages and costs of construction do not exceed the benefits to be derived, it will confirm the report. The contrary appearing, the court dismisses the proceedings at the cost of the petitioners. (119 S.E. 644; 117 S.E. 236.) *Sec. 2354:* Aggrieved parties have the right of appeal within 10 days to the superior court. (84 S.E. 169.) *Sec. 2355:* The clerk of the superior court provides a suitable book known as the "Drainage Record" in which all records and orders are transcribed. He also keeps files of all maps and profiles.

ORGANIZATION—Officers

Secs. 2526 to 2528. Board of Drainage Commissioners: After establishment of the district and approval of the survey and plan, the court appoints three drainage commissioners who must first be elected by a majority of the landowners in the manner prescribed in the Act. The court must appoint those receiving a majority of the votes cast, and as many others from among those voted for in the election as is necessary to obtain three commissioners. Vacancies are filled after election in like manner. (113 S.E. 447; 151 S.E. 369.) *Sec. 2527:* The three drainage commissioners immediately become a body corporate under the name of the Board of Drainage Commissioners of _____ District, and they possess all the powers usually pertaining to corporations. *Sec. 2528:* The board organizes and elects a chairman and vice-chairman from their number, and a secretary who may or may not be a member of the board. The treasurer of the county where the petition was filed becomes *ex officio* treasurer of the district, unless the board selects a bank or trust company in Georgia to act as treasurer.

ORGANIZATION—Powers

Sec. 2514 and 2515. Right-of-way—Eminent domain: The district is granted the power of eminent domain if it becomes necessary to acquire rights-of-way through lands not affected and which cannot be obtained by agreement. Damages or compensation awarded are paid by the drainage commissioners out of the first funds available from the proceeds of bonds or otherwise. (95 S.E. 14.) *Sec. 2515:* Persons owning land within the district that they think will not be benefited and should not be included, may appeal to the Superior Court of the county, giving bond to pay costs if the appeal is not successful.

Sec. 2539. Maintenance: Completed works are under the control and supervision of the drainage commissioners. It is the duty of the commissioners to repair and maintain the works and they may levy an assessment for that purpose in the same manner and in the same proportion as the original assessment. Repairs made necessary by the acts or negligence of any landowner are assessed solely against him, and the cost may be recovered by suit. (116 S.E. 602.)

Sec. 2540. Laterals: Any landowner assessed has the right to use ditches as outlets for lateral drains from his land. If any owner be separated from the main ditch by the lands of

another, he may secure rights-of-way for laterals to the main ditch by agreement or court action. Such laterals become a part of the system and are under the control of the drainage commissioners.

Sec. 2549. Commissioners' duties as to levy and collection: It is the duty of the drainage commissioners to see that executions to enforce payment of all unpaid assessments are issued by the tax collector not later than January 15 of each year, and immediately placed in the hands of the proper levying officers, and to see that the levy of execution is promptly made and followed by advertisement and sale of the land of each person failing to pay in full by February 15 in each year. It is their further duty to see that all county officers promptly and faithfully discharge their respective duties. (L. 1923, p. 84.)

FINANCING—Assessments

Sec. 2541. Assessment for costs: After the classification of the land and the ratio of assessment has been confirmed by the court, the commissioners prepare an assessment roll or drainage tax duplicate showing the description of the land, name of the owner, and the amount of the assessment against each tract. The board ascertains the total cost of the improvement, including damages awarded and incidental expenses, and deducts therefrom any special assessment made against any railroad or highway, and the remainder is the amount to be paid by the lands benefited. The amount assessed against each tract is according to the benefit received as shown by the classification and ratio of assessment. There is appended to the drainage tax roll an order to collect the assessment which order has the force and effect of a judgment. The roll is made in duplicate and one copy filed with the drainage record and one delivered to the Sheriff for collection. During any year in which bonds or interest are due, the levy is 5 percent more than the total of the principal and interest due in that year, for the purpose of meeting contingencies. When this excess assessment accumulates until the aggregate surplus in the hands of the treasurer amounts to more than 10 percent of the total bonds of the district outstanding, such surplus above 10 percent may be available for maintenance and upkeep of the works of the district. Any part of this fund remaining when the final installment of interest and bonds is due shall be applied to payment of the same, and the final assessment proportionately reduced. (L. 1921, p. 185.) (144 S.E. 242; 117 S.E. 329; 121 S.E. 641.)

Sec. 2542. Payment of assessments: If the total cost of the work is less than 25 cents per acre on all of the lands in the district, the assessment is collected in one installment by the same officers and in the same manner as state and county taxes and is payable at the same time. If the total cost exceeds 25 cents per acre, the commissioners give notice by publication and posting that they propose to issue bonds to pay the cost of construction, giving the amount of bonds, rate of interest, and date of maturity. Any landowner may pay the amount of his assessment in full within 30 days, and have his lands released from the lien. (L. 1918, p. 147.)

Sec. 2543. Waiver of defense against assessment: Every person owning land that is assessed for the improvement, who neglects to pay the full amount of his assessment within the time specified, is deemed to consent to the issuance of bonds and, in consideration of the right to pay his assessment in installments, waives his right to any defense against the collection of said assessment because of any defect in the proceedings, except in case of appeal taken. (96 S.E. 418.)

Sec. 2551. Existing liens: No liens existing at the time of the assessment under this Act are affected unless such lien

holder is served with notice like other landowners in the district. When so served, such lien holder is entitled to all the rights of members in the affairs of the district until such lien is discharged. (L. 1925, p. 179.)

Sec. 2552. Reassessment: Where the court has confirmed an assessment and it has been modified by superior jurisdiction, but cannot be collected for some unforeseen reason, the commissioners have power to modify the original assessment to conform to the superior ruling and the cost of any deficit that may be caused is met by a relevy in the same ratio as the original assessment.

Sec. 2565. Additional assessments: Where the cost of completion cannot be met by the original assessment, as from failure to estimate the amount of rock in the district or from other costs unknown at the time of the original assessment, it is the duty of the commissioners to levy an additional assessment to meet the necessary expense in the same manner and in the same proportion as the original assessment, and collect it in the same way. (L. 1919, p. 147.)

Sec. 2566. Borrowing to meet bond payments: The commissioners have the right to borrow money necessary to meet promptly payments of principal and interest on bonds as they mature, and to give their notes secured by the unpaid assessments already levied to pay such bonds or coupons. (L. 1921, p. 185.)

FINANCING—Bonds

Secs. 2544 and 2545. Bonds—How issued—Rate: At the expiration of 30 days after the notice, the commissioners may issue bonds for the full amount of the assessment not paid to the county treasurer, together with interest thereon, cost of collection, and incidental expenses. Bonds bear 6 percent interest and must be paid in 10 equal installments. The first installment of principal matures at the expiration of 3 years, and 1 installment each succeeding year for 9 years. The commissioners may sell bonds at not less than par and pay for the work as it progresses. No bonds may be issued until the tax levy has been made to meet principal and interest at maturity. (L. 1918, p. 147.) (See 120 S.E. 310; 131 S.E. 931.) **Sec. 2545:** The bonds are for the exclusive use of the districts specified on their face, and must be numbered by the commissioners and recorded in the Drainage Record, which record must set out specifically the land in the district on which the taxes have not been paid in full and which is assessed for the payment of bonds and interest.

Secs. 2546 and 2547. Lien—Collection: The assessments constitute a first and paramount lien, second only to State and county taxes. Drainage taxes are collected in the same manner and by the same officers as State and county taxes. Any purchaser at a drainage-tax sale acquires title to the land, subject only to State and county taxes (and city taxes if the land is located in an incorporated town) and the unpaid assessments due or to become due. All executions issued under this Act constitute special liens upon the land within the district, subject to the provisions of this Act. All assessments are due and payable on or before December 20 in each year preceeding the maturity of the installment of principal and interest of bonds or other indebtedness which the assessment is levied to pay. Assessments bear 7 percent interest from December 20 until paid. (L. 1925, p. 179.) (See 118 S.E. 720; 131 S.E. 911; 119 S.E. 644; 121 S.E. 641; 135 S.E. 720; 166 S.E. 664.) **Sec. 2547:** In districts in more than one county, the assessments are payable in the county where levied and the collector in that county issues executions which may be levied by any sheriff or constable in the county where the land is situated. (L. 1925, p. 179.)

Sec. 2548. Remedies of bondholders: If any installment of principal of interest of bonds shall not be paid when due, the holder of such bonds has right of action against the district or the board of commissioners, wherein the court may issue a writ of mandamus against the district and its officers, including the tax collector and treasurer, directing the levy of a tax or special assessment and collection of the same, in such sum as may be necessary to meet unpaid installments of principal, interest, and costs. The right is given the holder of bonds in default to institute suit against any officer on his official bond for failure to perform any duty imposed by this Act. The bonds of officials may be increased by the board of county commissioners. (L. 1921, p. 185.)

Sec. 2561. Interest on bonds: When bonds do not exceed \$100,000, the rate of interest may be fixed by the Board of Commissioners at not more than 8 percent. (L. 1913, p. 85; L. 1917, p. 100; L. 1920, p. 148.)

Sec. 2562. Validity: Bonds may be validated as other bonds are under the provisions of the State laws. (L. 1913, p. 85.) Sections 2568 to 2573 provide in detail the procedure for the validation of bonds.

CONSTRUCTION

Sec. 2529 and 2530. Superintendent of Construction: The Board of Commissioners appoints a competent person as superintendent of construction and he must give an approved bond for \$10,000 conditioned upon the faithful performance of his duties. *Sec. 2530:* The board gives notice by publication in the district, and elsewhere as they deem expedient, of the time and place of letting the contract for construction, specifying the work to be done and the time fixed for its completion. At the appointed time they meet, and with the superintendent of construction let the work to the lowest responsible bidder, either in whole or in sections as they may deem most advantageous. No bid may be entertained that exceeds the estimated cost unless it is shown that the original estimated cost was erroneous. They may reject all bids and again advertise the work if they deem that for the best interest of the district. (See: 120 S. E. 298.)

Secs. 2531 to 2538: The successful bidder enters into a contract with the board and gives bond in an amount equal to 25 percent of the estimated cost. *Sec. 2532:* The superintendent of construction makes monthly estimates of work done, furnishing a copy to the board, and 5 days thereafter the board makes payment to the contractor for not more than 90 percent of the work so estimated to be completed. When the whole work is completed and accepted, the remainder of the contract price is paid. *Sec. 2533:* Upon default in the performance of work by the contractor, he may be sued on his bond in the Superior Court for damages, and recovery may be had against him and his surety. In such event the work is relet in the same manner as originally. *Sec. 2534:* The contractor for any portion of the work has the right of entry upon lands where necessary, and the right to cross private lands and remove private or public bridges or fences, but must replace them. If the right-of-way is through timber, the owner may remove the same before the work begins; otherwise it becomes the property of the contractor and may be removed by him. *Sec. 2535:* Where the work crosses a highway the cost of removing and replacing bridges must be borne by the district. Whenever any highway within the district is benefited, the viewers appointed to classify the land report the amount of benefit. Notice of the amount assessed is sent to the commissioner of roads and revenues or to the ordinary of the county where the road is located, and they have the right to file objections in the same manner as a landowner. *Sec. 2536:* Where the drainage work crosses a railroad,

provision is made for a meeting between officials of the road and the board. If no agreement as to damages can be reached, the viewers determine the place and manner of crossing and fix the amount of damages, if any. The fact that the railroad may be required to build a new bridge or strengthen an old one shall not be considered as damages. The viewers also assess the benefit which will accrue to the railroad right-of-way and other property by reason of better drainage, but no benefits shall be assessed because of increased business that may come to the railroad because of construction. The benefits are assessed in a fixed sum determined solely by the physical benefit that that property will receive, and such sum is reported by the viewers as a special assessment and may be collected as any debt is collected in a court of competent jurisdiction. *Sec. 2537:* A railroad company has the right to file objections to the report of the viewers and to appeal from the findings of the board of commissioners in the same manner as a landowner; but such appeal shall not delay construction. *Sec. 2538:* A specific provision is made for crossing of railroad rights-of-way with dredges in the construction of the works of the district, and for distribution of the cost of such crossing.

IDAHO

(Annotated Code, 1932, and Session Laws;
Chapter 25, secs. 41-2501 to 41-2564)

DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 41-2505. Petition for organization: The petition for organization of a drainage district is presented to the clerk of the district court in the county where the greater portion of the lands is situated, designating the tentative boundary of the district and approximating the number of acres. It contains a description of the proposed work showing the outlet and general route of the main ditch and states that the establishment of such a district will be conducive to the public health, convenience, and welfare or will increase public revenues. The petition must be signed by the owners of not less than one-third of the acreage. Community property may be represented by the record owner.

See: Maxwell v. Terrell, 37 Ida. 767; 220 Pac. 411.
Neal v. Drainage Dist. #2, 42 Ida. 624; 248 Pac. 22.

Sec. 41-2506. Withdrawal of names: Petitioners must file an approved bond in the sum of \$500, conditioned to pay costs if the district is not established. No person is permitted to withdraw his name or lands from the petition without paying into the court his *pro rata* share of all costs to the date of such withdrawal.

Secs. 41-2507 and 41-2508. Hearing: The court gives notice of the hearing on the petition by publication. *Sec. 41-2508:* At the hearing any interested person or corporation may file objections to the organization. Objections are limited to determining whether the organization of such district would be an advantageous method of reclaiming the land, whether there is a reasonable probability that the objects sought will be accomplished, and whether the proposed system would be conducive to public health, welfare, or convenience, or would increase the public revenue. The court hears evidence for or against the petition and makes its findings. If the district is established, the judge enters an order of record, which is filed in each county interested, defining the temporary boundaries of the district and describing the land therein; and such order has the effect of a *lis pendens*. The district may be established even if the outlet for the system is without the county in which the district is located, or without the state, or in a

foreign country. (*Booth v. Groves*, 43 Ida. 703; 255 Pac. 638, and cases *ante*.)

Sec. 41-2509. Decree: If, upon the final hearing on the petition, the judge of the district court of the county wherein the proposed district is situated finds that the district will be to the public benefit or to the benefit of a majority in acreage of the land included in its boundaries, he declares the district organized, gives it a name which includes the name of the county and state, and causes the court clerk to file a certified copy of the order with the Secretary of State. The organization is then deemed to be complete.

ORGANIZATION—Officers

Secs. 41-2510 to 41-2512. Drainage commissioners: The judge of the district court within 10 days appoints three drainage commissioners who reside in the county where the district is located. They qualify as county officers qualify, and give bond in the sum of \$5,000 approved by the judge. The commissioners organize as a board and determine their terms of office by lot, the terms being 1, 2, and 3 years, respectively. Annually thereafter the judge of the district court of the county where the district is situated appoints one drainage commissioner for the district for a term of 3 years. *Sec. 41-2511:* The commissioners appoint one of their number president and one secretary, and they may meet in any county or counties in which the district is located. *Sec. 41-2512:* Vacancies are filled for the unexpired term by the judge of the district court. See: *Constitutional: Elliot v. McCrea*, 23 Ida. 524; 130 Pac. 785.

Secs. 41-2516 to 41-2518. Engineer and surveyor: The commissioners may employ an engineer and other helpers at the expense of the district in making their report to the court. *Sec. 41-2517:* The commissioners are not confined to the plans laid out in the petition, but may locate and lay out the work as in their judgment is best designed to promote the public health or welfare and to drain the land with the least damage and greatest benefit. The court by written order may alter or modify any plan reported by the commissioners. *Sec. 41-2518:* The commissioners may enlarge the boundaries to embrace the lands benefited, or may contract the boundaries to exclude lands not benefited, but not so far as to render the petition dismissible.

ORGANIZATION—Powers

Sec. 41-2501. Corporate powers: Any portion of a county requiring drainage may be organized into a drainage district, and when so organized it shall be designated by a number and the name of the county and state; may sue and be sued in the name of the board of commissioners; and may have perpetual succession. After organization the district is controlled and managed by its commissioners, who have power to conduct its affairs as provided by law.

See: *Constitutional: Elliot v. McCrea*, 23 Ida. 524; 130 Pac. 785. In re: *Drainage Dist. #1*; 30 Ida. 351; 164 Pac. 1018. *Burt v. Farmers Co-op. Irr. Co.*, 30 Ida. 752; 168 Pac. 1078. *Nampa, etc. Irr. Dist. v. Petrie*, 37 Ida. 45; 223 Pac. 531. *Sebern v. Moore*, 44 Ida. 410; 258 Pac. 176.

Sec. 41-2502. Appropriation of water: The commissioners of a drainage district are authorized to file upon and appropriate water created or made available for irrigation purposes by the construction of the drainage works; whenever it can be applied to beneficial use upon land within the district without impairing prior existing rights. Such water must be equitably and ratably distributed to the land in the same proportion that the assessment for drainage of each tract bears to the whole assessment within the district; provided, where lands have adequate water rights and the water made available by the drainage

works may be beneficially used upon other land, the commissioners may supply such other lands with water upon their assuming to pay their proportionate share of the drainage assessment, and credit other lands creating such water supply with their ratable proportion of the actual cost of delivery thereof. (L. 1923, Ch. 14.)

Sec. 41-2503. Appropriating irrigation water: Commissioners are authorized to assess upon land within the district benefited by appropriation of water, a sufficient amount to pay the expenses thereof, to be levied and collected in the same manner as other drainage assessments. (*Booth v. Clark*, 42 Ida. 284; 244 Pac. 1099.)

Secs. 41-2519 to 41-2523. Commissioners' report—Notice of hearing: If the commissioners find that the costs will exceed the benefits, the petition is dismissed. If the commissioners find that the whole cost will be less than the increase in value to accrue, they so report and the court makes an order for a hearing where all interested parties may appear for or against the confirmation of the report. Notice is by publication and personal service or by registered mail to each landowner. *Sec. 41-2520:* Any person affected may appear and remonstrate against confirmation of the report, such remonstrance to be in writing and verified by affidavit and to set forth the grounds for objection. *Sec. 41-2521:* The court gives precedence to the hearing over other civil actions pending, and upon demand may impanel a jury and take its verdict on the question whether damages awarded are adequate or the assessment made is too high, and the court and jury may assess damages and fix assessments. *Sec. 41-2522:* If the finding be against the validity of the proceeding, the same is dismissed. If the finding be in favor of the validity, the court, after modifying the report to conform, confirms the same. The order of confirmation is final and conclusive and the proposed work is established, subject to appeal to the Supreme Court. *Sec. 41-2523:* The court may permit the commissioners to file a supplementary report after reasonable notice to parties in adverse interest.

Secs. 41-2524 to 41-2529. Appeals: Every person feeling himself aggrieved by the judgment for damages or the assessment of damages may appeal to the Supreme Court as in civil cases, within 30 days. No bond is required and no stay may be allowed. *Sec. 41-2525:* When the petition is dismissed, the court renders judgment for costs against the district. In that event the commissioners may appeal. *Sec. 41-2526:* Any person awarded damages may apply for an order directing the payment of same, but no such order will be entered until clear title to the land involved is established. *Sec. 41-2527:* All state, county, and school lands and the lands of other public corporations have the same rights as private persons, and their lands are subject to the rights of eminent domain in the same manner. *Sec. 41-2528:* Benefits assessed against lands of the state or its subdivisions may be paid by the proper authority of such public corporations in the same manner as assessments against private parties. (See sec. 42-724 for lands mortgaged to secure loans of state endowment funds.) *Sec. 41-2529:* When land in a drainage district cannot be assessed because title is in the United States, or lands are not yet proved up, or Indian lands, the commissioners at a future date, when such land is under the jurisdiction of the drainage district, may assess said land for all benefits bestowed as if they were originally assessable. Notice of intent to assess is filed with the recorder of the county and is notice to all subsequent purchasers or incumbrers.

Sec. 41-2539. General powers: All districts have the right of eminent domain. They have the right to survey, plan, locate, and estimate the cost of work necessary, and to construct same.

Natural water courses may be altered and developed for the interests of the district. Commissioners may contract for the necessary works and work may be performed within or without the district, or outside the counties in which it is organized, or outside the state or the United States.

FINANCING—Assessments

Sec. 41-2514. Assessing benefits and damages: As soon after their appointment as may be, or within such time as the court may direct, the commissioners examine the lands to be drained and upon which the works are proposed to be constructed, and determine and report: (1) whether the route and termini of the proposed work are proper and feasible, and if not, what are proper and feasible; (2) the estimated cost of the work, including incidental expenses; (3) the probable cost of keeping the work in repair after construction; (4) what lands will be injured and the aggregate amount of such injury, and award to each tract the damages determined by them; (5) what lands will be benefited and whether the benefit will equal or exceed the aggregate cost of the improvement. They apportion and assess the estimated cost against each tract of land benefited. If any particular part of the proposed work is to be assessed against any particular tract or any municipality or corporation, the commissioners so specify; and if any municipality or corporation should bear a part of the expense or will derive a special benefit from any part of the work, they so report and assess the amount of such benefit. They report whether the proposed district as set out in the petition will embrace all the land benefited or damaged, and what, if any, additional land will be benefited or damaged and the amount thereof, as if the land had been included in the petition.

See: *Constitutionality: Drainage Dist. #2 v. Extension Ditch Co.*, 32 Ida. 314; 182 Pac. 847.

Elements of benefit: Drainage Dist. #1, 29 Ida. 377; 161 Pac. 315.

In re: *Drainage Dist. #3*; 43 Ida. 803; 255 Pac. 411.

Burt v. Farmers Co-op. Irr. Co., 30 Ida. 752; 168 Pac. 1078.

Sec. 41-2515. Assessments against highlands: In determining the amount which each tract will be benefited, the commissioners consider the damage done to lowlands from seepage and saturation by irrigation water from the highlands, and the necessity of carrying off the waste water. The highlands are considered benefited to the extent and in the amount that they are responsible for damage to the lowlands from seepage and saturation from irrigation water. (In re: *Drainage Dist. #1 and Burt v. Farmers Co-op. Irr. Dist.*, ante.)

Secs. 41-2530, 41-2531, and 41-2533. Additional levy: In the event that the amount levied is not sufficient to complete the contemplated works, the board may levy an additional assessment sufficient to complete them and to pay all additional costs in connection therewith. The additional assessment is made in the same proportion as the original assessment and collected in the same manner. *Sec. 41-2531:* Where the work set out in the plans is found insufficient, a new estimate of benefits may be made, based on the new work proposed; and an additional assessment may be made in proportion to the estimated benefits accruing to such land because of additional work. *Sec. 41-2533:* The District Court may, upon proper application, compel the performance of any duty imposed by this chapter by mandatory injunction.

Sec. 41-2534. Assessments incontestible: Collection of assessments made and confirmed by the court may not be restrained nor obstructed because of any defect in the prior proceedings, but such order is conclusive as to the regularity of all proceedings unless there be an appeal within 30 days.

Sec. 41-2535. Assessment roll: Upon the entering of the order confirming the apportionment of costs and awarding damages, the

clerk of the court immediately prepares a transcript containing a list of all lands so assessed and awarded damages and certifies the same to the recorder of the county in which the lands are situated. Such list specifies the amount of the assessment upon each tract and describes all easements required by the district and the amount of damages awarded to the owners thereof. The recorder enters such order of record, which is notice of the lien of said assessment and establishes the right of the district to such easements upon payment of the damages awarded.

Sec. 41-2536. Assessment liens: A similar transcript is filed by the court clerk with the auditor of each county, who enters it upon the tax rolls like other taxes. The drainage tax is subject to the same interest and penalties as other taxes and to the same rights of redemption. Such drainage taxes, however, do not become due and payable except at such times and in such amounts as may be designated by the drainage commissioners of the district, which is done by written notice to the auditor. Such assessments then become due at the same time as general taxes and are added by the auditor to the tax roll; provided, no one call for assessments may be in excess of 20 percent of the amount necessary to establish and complete the drainage system.

See: *Elliot v. McCrea*, 23 Ida. 524; 130 Pac. 785.
Booth v. Clark, 42 Ida. 284; 244 Pac. 1099.

Sec. 41-2537. Assessment to pay judgment of dismissal: Upon dismissal of the proceedings, the commissioners levy a tax on all of the real estate in the district based on the last equalized assessment roll to pay the costs of the proceedings and of levying the tax. If such tax is not paid within one year the court upon application of any interested party will cause the land to be sold in payment in the same manner as provided for other taxes, with the same right of redemption.

FINANCING—Bonds

Secs. 41-2549 to 41-2551. Warrants: The commissioners may issue warrants in payment of the indebtedness of the district in the same form as county warrants. They draw legal interest from the date of presentation for payment. No warrant may be issued for less than its face or par value. *Sec. 41-2550:* The county treasurer endorses the date of presentation on warrants when presented, and if there be not sufficient funds to pay them, they immediately begin to bear interest. When the treasurer has funds and there are warrants outstanding, he must advertise for the presentation of as many warrants as he has funds to meet. Thirty days after the first publication of such advertisement, the warrants cease to bear interest. Warrants are to be paid in the order of their endorsement. *Sec. 41-2551:* This section legalizes all warrants issued by districts theretofore organized, provided they are reported to the District Court by the commissioners who incurred the indebtedness and issued the warrants; and they must be certified as correct by the district judge of the county where the district was organized. After certification the district must order a levy made for payment of the warrants, and the levy is collected in the same way as general taxes. There are certain restrictions as to assessing land in districts organized under a subsequent drainage law and embracing more than the original acreage.

Sec. 41-2552. Bonds: Upon the establishment of a district and system of drainage, the commissioners are authorized to issue bonds to pay for the total cost of the work or a part thereof, together with the cost of organization including damages assessed and expenses for rights-of-way. Bonds are payable in not less than 5 years nor more than 20 years from their date. No bond may be sold for less than par and the total amount of

bonds may not exceed 90 percent of the assessments levied against the lands of the district.

Secs. 41-2553 to 41-2555. Funding bonds: The commissioners may issue bonds for the purpose of funding outstanding warrants or obligations of the district. Immediately after money from the bonds is received by the treasurer, he issues call by publication for the outstanding obligations that are to be refunded, and they cease to bear interest at the end of 30 days from such publication. *Sec. 41-2554:* Bonds are numbered consecutively and in denominations of not less than \$100 nor more than \$1,000. They are negotiable and bear interest at not to exceed 7 percent. The board fixes the maturity of bonds at not exceeding 20 years, and an amortizing period which may not be less than three-fourths of the maximum maturity. In the discretion of the board, provision may be made for the payment of interest only during the first one-fourth of the period covered by the last maturities. Maturities must be so arranged that, during at least the latter three-fourths of the period covered by the last maturity, the principal shall be amortized in annual or semiannual installments so arranged that the combined principal and interest payments during the amortization period shall be approximately the same each year. *Sec. 41-2555:* Such bonds may be exchanged at not less than par for an equal amount of warrants of the district.

Sec. 41-2556. Sinking fund: At least 5 years before the bonds are due the commissioners are required annually to levy an assessment sufficient to liquidate the bonds at maturity. Such levy is kept as a separate fund for the sole purpose of liquidating said bonds.

Sec. 41-2557. Calling of bonds: It is the duty of the treasurer, whenever he has on hand \$5,000 of the special fund for the payment of bonds and when said bonds shall have run for a period of 3 years, to advertise in the newspaper doing the county printing for the presentation to him for payment of as many bonds as he is able to pay with the funds on hand, to be paid in numerical order. After 30 days from the first publication of said notice, said bonds cease to bear interest. (*Sebern v. Cobb*, 41 Ida. 386; 238 Pac. 1023.)

Secs. 41-2558 and 41-2559. Levy for interest: The commissioners must levy annually an assessment sufficient to pay the interest coupons on the bonds as they fall due. Said coupons are considered for all purposes as warrants drawn on the funds of the district. When they are presented to the county treasurer and no funds are available to pay same, he endorses them in the same manner as other warrants and thereafter the coupons bear interest at the same rate as other warrants so presented and unpaid. *Sec. 41-2559:* The county treasurer must register all bonds in a book kept for that purpose. He must enter the number of the bond, date of issuance, date of maturity, amount and rate of interest, and to whom and where payable.

CONSTRUCTION

Sec. 41-2538. Construction and maintenance: The board of drainage commissioners has exclusive charge of the construction and maintenance of all drainage systems of the district and are the executive officers thereof with power to bind the district.

Secs. 41-2540 to 41-2544. Contracts for construction: Commissioners have the power to construct the works and acquire all assistance and material necessary therefor. They may let any or all of the work to responsible contractors and enter into agreements for construction. *Sec. 41-2541:* Contractors must give bond to the amount of 50 percent of the contract price for the faithful performance of the work and payment of all just claims for material, labor, and services in connection therewith. *Sec. 41-2542:* The work is to be conducted expeditiously

and neither the commissioners nor the contractor may change the route or the conditions of the work so as to effect any radical change in the plan without written consent of all of the landowners benefited and damaged thereby. *Sec. 41-2543:* Any substantial change in the system of improvements deemed necessary by the board during the progress of the work must have the written consent of all of the landowners; otherwise, the board must file a petition therefor with the District Court, setting forth the proposed changes and praying to be permitted to make them. Thereafter the proceeding is practically the same as that for the confirmation of the original report of the commissioners. (*Field v. Drainage Dist. #1*, 46 Ida. 248; 267 Pac. 443.) *Sec. 41-2544:* Payment of not more than 90 percent of the amount due for work actually completed may be made from time to time during the period of construction; 10 percent is retained until completion and acceptance.

Sec. 41-2545. Private drains: Landowners within the district have the right to connect their private drains with the system, and may acquire rights-of-way over the lands of others for that purpose by petition addressed through the commissioners to the court, where the proceedings are similar to those for organization. Provision is made for connecting the system with that of a lower drainage district by petition and court action, such connection to be at the expense of the upper district.

Secs. 41-2560 and 41-2561. Maintenance: No drainage system may be operated for profit, but solely for the benefit and welfare of the property owners. *Sec. 41-2561:* The board annually estimates the cost of maintenance including repairs for the succeeding year, and certifies the amount to the auditor of the county on or before the third Monday in September. Such amount is apportioned to the landowners in proportion to the benefits originally assessed, and added to the general taxes and collected therewith.

Sec. 41-2562. Levy and limitation of assessments: The commissioners may levy assessments for necessary expenses incurred by them, and add thereto sufficient to pay any deficiency of the preceding year or to pay outstanding warrants, provided any assessment to pay warrants shall not exceed 20 percent of the original cost of organization and construction in addition to the assessments which may be levied under section 41-2536, and such assessments must be apportioned and collected in the same manner as other assessments.

ILLINOIS

[*Annotated Statutes of Illinois (Smith and Hurd) 1935, and Cumulative Pocket Part, 1939, Chapter 42*]

DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 2. Petition: Whenever a majority of the owners of the lands in a district, who are of legal age and represent one-third in area of said lands, or when one-third of such owners representing a majority of the area desire to construct works for drainage across the lands of others for agricultural, sanitary, or mining purposes, or desire to maintain and repair a drain already constructed, or desire to establish a combined system of drainage for such purposes, they may file in the county court of the county in which the greater portion of the lands are situated a petition setting forth the proposed name of the district; the necessity for the drainage; a description of the starting point, route and terminus of the drain; a general description of the lands that will be affected, with the names of the owners thereof where known; and a prayer for the

appointment of commissioners under this Act. (L. 1879, p. 120 as amended by L. 1913, p. 260.)

See: *Nature of drainage districts*: Corcoran v. Mud Creek D.D., 336 Ill. 211; 168 N.E. 509.

Turner v. Hunt D.D., 87 F. (2d) 167.

Eldred Dr. & Levee D. v. Wilcoxson, 365 Ill. 249; 6 N.E. (2d) 149.

Prange v. Omeara, 368 Ill. 362; 14 N.E. (2d) 220.

Richmond v. Dr. Comrs. of Union Dist. #1, 295 Ill. App. 338; 15 N.E. (2d) 6.

Sec. 3. Notice—Evidence: The clerk of the county court gives three weeks' notice of the filing of the petition by posting and publication, stating when and in what court the petition was filed, the salient features of the petition including names and boundaries, and the date set for a hearing thereon. If there are nonresident owners whose addresses are unknown, an affidavit stating that upon diligent inquiry their residences have not been found is sufficient. A copy of the notice is sent to each nonresident whose address is known, within 3 days after publication. (L. 1933, p. 5074.)

See: *Necessity of notice*: Hickey v. Spring Creek D.D., 356 Ill. 204; 190 N.E. 282.

People v. Zoller, 337 Ill. 362; 169 N.E. 228.

Sufficiency of notice: People v. Ehler, 338 Ill. 67; 170 N.E. 1.

Sec. 4. Jurisdiction—Amendment—Withdrawal: The county court in which the petition was filed holds a hearing thereon on the date set in the notice, and determines all matters and all subsequent proceedings. Adjournment may be had from time to time for good cause. Upon application of the petitioners, the court will permit amendment of the petition; but no petitioners. (L. 1933, p. 507.)

See: *Jurisdiction*: Okaw Valley Outlet D.D. v. Springman, 345 Ill. 400; 178 N.E. 64.

People v. Ehler, 338 Ill. 67; 170 N.E. 1.

People v. North Fork Irr. D., 331 Ill. 68; 162 N.E. 184.

Amendments: Soldier Creek Dr. & Sanitary Co. v. Ill. Cen. R.R. Co., 323 Ill. 350; 154 N.E. 153.

Sec. 5. Hearings—Findings: Any party whose lands are affected may appear for or against the petition and may present evidence in regard thereto. The court hears all objections and determines whether the petition is sufficient as to signatures and ownership of land. The affidavit of 3 petitioners who are acquainted with the locality, stating that the requisite signatures and the requisite acreage are represented in the petition, will be sufficient evidence for the court. Deeds made for the purpose of establishing or defeating the petition are fraudulent and will not establish ownership. If the court finds the petition is properly signed, such finding is conclusive upon the landowners that they have assented to the petition. If it further appears to the court that the proposed work will be beneficial in the drainage of land, the court appoints three competent persons as commissioners, not more than two of whom are to be from the same county for an intercounty district. The commissioners lay out and construct the proposed work. If the court dismisses the petition, the costs must be paid by the petitioners. (L. 1909, p. 182.) (Danaher v. Phillips, 318 Ill. 204; 149 N.E. 302.)

Secs. 7, 8, and 9. Commissioners: The commissioners take oath, elect one of their members chairman, and may elect a member as secretary. A majority of their number is a quorum for all purposes.

Sec. 10. Commissioners' report: The commissioners immediately examine the land to be drained and the lands over which the works are to be constructed and report: (1) Whether the route and termini of the proposed drainage works are feasible and

proper and, if they are not, what route will be feasible and proper; (2) the probable cost, including incidental expenses and the costs of the proceedings; (3) the probable annual cost of upkeep; (4) what lands will be damaged and the probable aggregate amount of such damage; (5) what lands will be benefited and whether the aggregate amount of benefit will equal or exceed the cost of construction; (6) whether the proposed district set out in the petition will embrace all of the lands damaged or benefited and, if it does not, what additional lands will be so affected. In the event the petition is for the purpose of repairing and maintaining drainage works already constructed, the commissioners report whether said work, with proper repair, can be made adequate, as well as the probable maintenance cost and aggregate of benefits. They report also whether the annual benefits will equal or exceed the annual costs and expenses, and whether the proposed district will embrace all benefited lands. The report is filed with the clerk of court. (L. 1909, p. 182.)

See: *Construction*: England Pond Dr. D. v. Hurst, 344 Ill. 610; 176 N.E. 733.

Sec. 11. Dismissal of proceedings: If the commissioners find that the costs, expenses, and damages will more than equal the benefits, proceedings are dismissed at the cost of the petitioners.

Sec. 12. Survey: Finding that the benefits will exceed the costs and expenses, the commissioners have surveys, plans, and specifications made and report the starting point, route, and terminus of the works and the portion, if any, which should be tiled. They file their report and conclusions thereon with the court.

Sec. 13. Plan—Boundaries—Inclusion: The commissioners are not confined to the location, extent, or manner of construction proposed in the petition, but may locate and plan the works in such manner as to cause the least damage and the greatest benefit to the lands affected. Any plans may be altered upon application of an interested party or of the commissioners, and additional work may be established by order of the court. If the commissioners find that the plans will not embrace all of the land which will be benefited, or that they will include lands not benefited and not necessary, they may extend or contract the boundaries so as to include or exclude such land; and the boundaries may be altered at any time before the adoption of the plan by the court; provided that such change must not result in changing the majority of landowners holding the required acreage. Any person owning land contiguous to the district may apply in writing to have his land annexed. The court will hear the application, and if it is made after the general assessment of benefits the court will hear evidence and assess benefits or award damages and may order the assessments paid in installments corresponding as nearly as possible to the time of the payment of general assessments. Such assessments are liens like the general assessment. (L. 1913, p. 260.)

See: People v. North Fork D.D., 331 Ill. 68; 162 N.E. 184.

Comrs. of Sangamon & Drummer D.D. v. Houston, 284 Ill. 406; 120 N.E. 253.

Sec. 14. Filing report—Contesting confirmation: After the appointment of the commissioners, the matter is adjourned until the day fixed for the filing of their report. There may be further continuances to a day certain, of which all interested parties must take notice. Upon filing of the report, the court fixes a day not less than 10 days nor more than 4 weeks thereafter for a hearing thereon. If the commissioners have recommended that additional lands be included in the district, the owners of said lands are given notice by the commissioners in accordance with section 3 of this Act. At the hearing all

persons may appear and contest the confirmation of the report or show that additional drains or other works should be constructed or that the report should be modified in any particular. They may offer competent evidence in support of their contentions. The report of the commissioners is *prima facie* evidence of the facts therein set forth. (L. 1909, p. 182.)

See: *Sproul v. Springman*, 316 Ill. 271; 147 N.E. 131.
People v. Darst, 285 Ill. 533; 121 N.E. 159.
Burroughs v. Donner, 282 Ill. 299; 118 N.E. 400.

Sec. 15. Confirmation of report: If the court be of opinion that the objections are not well taken or if no objections are made, it will order the report to be confirmed. Otherwise the court will modify the report to conform to the equities. The court may make specific directions as to the manner in which a report must be revised and may make all necessary orders in the premises. If the report is referred back to the commissioners for amendments, it must be for a certain day on which the amended report must be filed.

Sec. 17. Order of confirmation—Appeal: If after hearing all objections and all applications for the annexation of other lands, the court finds that the drainage or levee district should be organized, then an order is entered in the form set forth in the statute, organizing the district. Upon entering such order the district becomes organized by the name set forth in the petition and the boundaries fixed by the order confirming the commissioners' report, and it is thereafter a body politic and corporate with perpetual succession. Appeal may be taken from the order to the supreme court by any party affected. The reversal of such order on appeal does not impair nor invalidate the organization as to those other persons not appealing, nor may the appeal delay the work insofar as it affects their lands. Other owners may thereafter be brought into the district and assessed under sections 58, 60 and 61, when their lands should properly be included in the district. (L. 1935, p. 706.)

See: *Construction and application: Maulding v. Skillet Fork River Outlet Union Drain D.*, 313 Ill. 216; 145 N.E. 227.

Jurisdiction: Okaw Valley D.D. v. Springman, 345 Ill. 400; 178 N.E. 64.
People v. Ehler, 338 Ill. 67; 170 N.E. 1.

Appeals: Seger v. Beardsworth, 348 Ill. 619; 181 N.E. 351.
People v. Zoller, 337 Ill. 362; 169 N.E. 228.

Secs. 17-a to 17-e. Consolidation—Petition: Any two or more districts organized under any act may consolidate and organize as a single district in the following manner: Whenever one-tenth of the adult owners of lands within the proposed consolidated district, and who in the aggregate own one-fifth in area of the lands in each of the existing districts that are to be included in the consolidation, they sign a petition and file it with the county clerk of the county in which a majority of the land of the proposed consolidated district is situated. The petition sets out the name of the districts to be consolidated, the reasons for the consolidation, the boundaries of the proposed consolidated district, and a general description of the works proposed to be constructed and maintained. The petition also requests the appointment of commissioners for the consolidated districts. (L. 1929, p. 371.) **Sec. 17-b:** Notice is given in the same manner as for the organization of the original districts, and names the districts to be consolidated and describes the works to be constructed, repaired, or maintained. **Sec. 17-c:** The court holds a hearing in the same manner as for original organization under section 4. The court determines whether the petition is properly signed under section 17-a; whether adult landowners owning in the aggregate more than one-half the total acres of land in the proposed consolidated district favor the

consolidation; whether the districts to be included in the consolidation are contiguous; and whether the consolidation will be beneficial to a majority of the landowners in such consolidated district. Failing to find any of these requisites, the court will dismiss the petition at the cost of the petitioners. Finding all of the requirements met, the court enters an order dissolving the several existing districts and consolidating them into a single district having the name prayed for in the petition for consolidation. The court then appoints three commissioners and the consolidated district thereupon becomes organized as a district with the rights and duties of any other district. (L. 1929, p. 271.) **Sec. 17-d:** If any of the districts merged in the consolidated district have outstanding bonded or other indebtedness, any funds in its treasury must be used to retire such indebtedness. If such funds be insufficient, the indebtedness is paid from funds derived from any special assessment theretofore made. If the funds are still insufficient, the court may authorize the commissioners of the consolidated district to make a special assessment against the lands of the debtor district to be used only for the payment of such indebtedness. **Sec. 17-e:** Consolidation does not affect the bonds, contracts, nor assessments of a district, all of which are taken over by the consolidated district; and all assessments collected are paid over to the consolidated district for the payment of such obligations of the debtor district.

ORGANIZATION—Officers

Sec. 61. Commissioners appointed: On the first Monday in September in districts heretofore or hereafter organized, the county court appoints three commissioners for each district, one commissioner to serve one year, one to serve two years, and one to serve three years from the date of the first appointment under this section. Thereafter the court appoints one commissioner for each district each year to serve three years and until his successor is appointed. However, the court must appoint only such persons as have been petitioned for by adult landowners representing a majority of the acreage in the district; provided, that the petition is filed on or before the first day of September. If the petition is not filed, the court, within 10 days after September 1, will appoint some suitable person as commissioner without any petition. After the works have been fully completed, the court may appoint just one commissioner for the district for a term of three years, who will have all of the powers of the three commissioners provided for. Whenever, upon petition of landowners, it appears that additional work is needed in the district, the court may again appoint three commissioners. (L. 1913, p. 260.)

ORGANIZATION—Powers

Secs. 26 to 28. Powers of commissioners: Upon organization, the district in its corporate name by its commissioners may sue and be sued, make contracts, and perform all acts necessary for the purposes of this statute. **Sec. 27:** After confirmation of the assessment roll and before any collections are made, the commissioners appoint a treasurer who may not be one of their number. He gives bond to the state, for the use of all interested persons, in a sum not less than twice the amount of the assessments that may be in his hands during his term of office. **Sec. 28:** The treasurer's term is for two years. He may be removed by the court upon application of a majority of the commissioners. The commissioners fix his compensation before appointment. The treasurer may pay out no money except upon order of the commissioners, and must keep proper books and records.

See: *Powers in general: Turner v. Hunt D.D.*, 87 F. (2d) 167.

Sec. 36. Letting contracts: The commissioners are empowered to do all necessary acts in the construction of the district works or in enlarging, cleaning, and maintaining same. Where the work is the construction of a principal work costing more than \$500, contract must be let to the lowest responsible bidder after advertisement. The commissioners may not be interested in any contract. No work constructed hereunder may impair the usefulness of any bay or harbor connected with a navigable stream.

Sec. 37. Powers of commissioners: The commissioners may use money collected from assessments for the purpose of compromising suits arising under this act and may employ necessary agents and attorneys for conducting other proceedings. They may also use such assessments for construction, maintenance, and repair, with approval of the court. Additional assessments may be levied when it appears to the court that previous assessments have been inadequate. When it becomes necessary to raise funds in order that any district may avail itself of financial assistance from the United States, it may be done on petition from a majority of the landowners representing at least one-third in area or from one-third of the adult landowners representing a major portion in area. Or the commissioners may file petition to the court in the manner prescribed in section 3 and the court will impanel a jury to make the additional assessment necessary. (L. 1917, p. 367.)

See: Eldred Dr. & Levee D. v. Wilcoxson, 365 Ill. 249, 6 N.E. (2d) 149.

In re Meredosia Levee & D.D., 301 Ill. App. 619, 22 N.E. (2d) 774.

Farrow v. Edred Dr. & Levee D., 359 Ill. 347, 194 N.E. 515.
Turner v. Hunt D.D. (U.S.C.C.A., Ill.) 87 F. (2d) 167.

Sec. 40. Removal of commissioners: The court may for good cause remove any commissioner appointed by it, and fill the vacancy. (L. 1885, p. 108.)

Sec. 41. Report by commissioners: The commissioners, when required by the court and at least once a year, make a report showing collections and disbursements. The court sets the time; not more than 3 weeks after the report is filed and gives 10 days notice thereof, for a hearing on the report at which time objections thereto may be presented. The court may require the commissioners to present evidence in support of the report. Upon failure of the commissioners or the commissioner to make such report, the court, upon application of an interested party or on its own motion, may remove such commissioners from office. (L. 1885, p. 108.)

Sec. 42. Commissioners' meetings: The commissioners hold their meetings in the county or counties where the district is situated. They receive \$5.00 per day traveling expense while on the business of the district.

Sec. 46. Entry upon lands: The commissioners from the time of their appointment may go upon any lands in the district for the purpose of making surveys and drainage plans and for constructing the proposed works. Any person preventing them is subject to fine.

Sec. 49. Justice of the Peace's jurisdiction: When the cost of the proposed work will not exceed \$2,000, the petition may, if the petitioners so elect, be filed with a Justice of the Peace in the county where the land to be affected or the major portion thereof is situated. All proceedings may be had before the Justice of the Peace, who performs all the duties prescribed for the county clerk in case the petition is filed before the court. The Justice of the Peace does not have jurisdiction to hear objections to the assessment roll confirmed by the jury. Such objections are filed within 10 days by the Justice of the Peace or the commissioners with the clerk of the county court. (L. 1885, p. 108.)

Sec. 57-a. Exclusion: When contiguous lands which cannot be benefited by the system of drainage are included in an organized district, such lands may be detached from the district. The landowner or the commissioners may file a petition in the county court where the district was organized, giving a description of the land and stating that it is to the best interests of the district or the owner that the said land be detached. The petition must be sworn to and have two affidavits of credible persons attached, and must give the name of all owners of lands to be detached who are not residents of the county in which the petition is filed. It must also be accompanied by a map showing all lands in the district and the lands which it is sought to detach. The court, after notice, holds a hearing on the petition and interested parties may appear and present objections thereto. If the court finds that the lands are within the boundaries of the district, that they are contiguous, lie wholly outside of the lands in such district which are benefited, and that the land cannot be benefited by the system of drainage, it will enter an order detaching same from the district. All changes so made must be shown upon a map and recorded in the drainage record. (L. 1925, p. 359.)

Sec. 58. Subdistricts: If, after construction, the commissioners find that portions of the district need more complete drainage, they make a special report thereon and organize a subdistrict without the necessity of a petition by landowners. Upon written application of affected landowners who are a majority in number and own more than one-third of the land, or who own a major portion of the land and constitute one-third or more of the landowners affected, it is the duty of the commissioners to examine such lands and make a special report thereon. The commissioners may pay necessary expenses not to exceed \$500 from district funds. Hearing is had on the special report after notice, and if it is approved by the court, a special assessment of benefits and damages to said land is made in the same manner as the original assessment; provided, if the district does not own a pumping plant, the annual benefit assessed may not be more than 30 cents per acre. Special assessments are kept in a separate fund. Bonds may be issued against them. (L. 1929, p. 375.)

See: North Wichert D.D. v. Chamberlain, 340 Ill. 644, 173 N.E. 90.

Subdistrict #1 of Feehanville D.D. v. Katz, 342 Ill. 395, 174 N.E. 384.

Village of Mt. Prospect v. Reese, 342 Ill. 216, 174 N.E. 48.

Sec. 65. Outlet districts: When any river or stream constitutes a common outlet for two or more organized drainage districts and also the outlet for the drainage of lands not organized, and when it will benefit both kinds of land, an outlet drainage district may be organized under this Act to deepen, widen, straighten, or improve such stream or water course, and all lands benefited may be included in such district. Any allegation that such lands are already included in a drainage district is not a valid objection to their inclusion. Commissioners may be appointed with like powers as other drainage commissioners. Such assessments may be levied on the land benefited, but solely for the purpose of widening, deepening, straightening, or improving the channel of said stream or water course. The outlet district may acquire rights-of-way for its improvement in the same manner as drainage districts. Such district must pay just compensation for any of the works of an organized drainage district that they may damage or appropriate. (L. 1917, p. 365.)

See: Maulding v. Skillet Fork River Outlet Union D.D., 313 Ill. 216; 145 N.E. 227.

Sproul v. Springman, 316 Ill. 271; 147 N.E. 131.

People v. Holmes, 348 Ill. 204; 180 N.E. 780.

Sec. 74. Districts by mutual agreement: Owners of land requiring combined drainage and protection from overflow may form drainage and levee districts by mutual agreement of their own, by an instrument in writing acknowledged and recorded in the drainage record. They may also ask the county court to appoint three commissioners whose powers will be the same as the commissioners of organized drainage districts, and the agreement may include the names of the desired commissioners. (L. 1927, p. 422.) (*Fautch v. Zempel*, 332 Ill. 192; 163 N.E. 546.)

Sec. 75. Inclusion of benefited lands: Drainage districts under this act, where the works included the construction of levees and the installation of pumps, may include within their boundaries all lands protected by reason of the levees and pumping plants regardless of whether any of the lands are included in any other organized district, the works of which consist only of ditches and drains and do not include levees and pumping plants. (L. 1919, p. 455.)

FINANCING—Assessments

Sec. 18. Assessment of benefits and damages—Assessment roll: After the order provided for in section 17 has been signed, the commissioners proceed to acquire rights-of-way and releases of damages by agreement as far as possible. They prepare the Commissioners' Roll of Assessments and Benefits, which shows the amount of benefits assessed against each tract, the number of acres therein, the amount of any damages allowed to each tract; and, if directed by the court, an assessment of the "annual amount of benefits" that each tract will receive by the maintenance and operation of the works. All railways, highways, and municipal corporations are included.

See: *Sangamon & Drummer D.D. v. Houston*, 284 Ill. 406; 120 N.E. 253.

Comrs. of McGee Creek etc. v. Wabash Ry. Co., 319 Ill. 379; 150 N.E. 259.

North Michert D.D. v. Chamberlain, 340 Ill. 644; 173 N.E. 90.

People v. Ch. & E.I. Ry. Co., 315 Ill. 536; 146 N.E. 440.
Cache River D.D. v. Douglas, 337 Ill. 540; 169 N.E. 726.

Sec. 19. Filing roll—Hearing: Upon filing the roll with the clerk of court, the commissioners give 10 days notice of the time and place where they will appear before the same court in which the petition was filed for the purpose of having a jury impaneled in accordance with section 6 of an act entitled "An Act to Provide for the Exercise of the Right of Eminent Domain," of April, 1872, and for a hearing before the jury of all questions of benefit and damage.

Upon the hearing the commissioners and all other interested persons have the same right to challenge jurors as parties in other civil cases in the county courts. The jury being properly sworn, the commissioners present and file the assessment roll as their claim against the several tracts of land in the district and such filing makes out a *prima facie* case. All parties to the proceedings are permitted to present competent evidence as to the benefits or damages. Thereupon the court instructs the jury as to the law and the form of their verdict.

See: *Evidence: Beaver Pond D.D. v. Gray*, 341 Ill. 66, 173 N.E. 115.

Jury: Indian Creek D.D. #2 v. C.B. & Q. Ry. Co., 295 Ill. 339, 129 N.E. 105.

Sec. 20. Organization of jury—Verdict: The jury, if requested so to do, examines the land and ascertains the benefits which will accrue and the damages which will be sustained by each tract. When directed by the court, they ascertain the "annual amount of benefits" to each tract by reason of the maintenance and operation of the proposed works. The jury make out their verdict showing the name of the owner, description of the

premises, number of acres, and amount of benefit assessed or damages allowed against each tract and each railroad, highway, or municipal corporation. Thereupon the court confirms the verdict and enters judgment thereon, which judgment is a lien upon such lands until paid. Appeal is allowed to the county court as in appeals from writs of error in proceedings for the sale of land for taxes. The granting of an appeal to any one or more persons does not operate to defer the collection of the judgment in other cases. When the appeal is decided in favor of the district, the court orders the judgment so rendered to be made a part of the original judgment.

See: *Hunt D.D. v. Harness*, 317 Ill. 292, 148 N.E. 44.

Bay Bottoms D.D. v. Cache River D.D., 295 Ill. 301, 129 N.E. 152.

People v. North Fork Outlet D.D., 331 Ill. 68, 162 N.E. 184.
Gray v. Beaver Pond D.D., 334 Ill. 383, 166 N.E. 90.

Sec. 21. Assessment on benefits for repair: The amount assessed for keeping the works in repair in any one year may not in the aggregate be greater than the amount that would be produced by 30 cents per acre on all of the land in the district. In case such assessment is not made at the time of organization, it may be made thereafter in the same manner as additional assessments are made. Where the amount of benefits assessed and the assessments for repair are insufficient to complete the work, the "annual amount of benefits" assessed, after all necessary expenses of maintenance for any year, may be applied to complete the works when required for protection from overflow, or to pay interest on notes or bonds issued under this act. (*Brooks v. Hatch*, 261 Ill. 179, 103 N.E. 745.)

Sec. 22. Assessment of benefits and damages: The jury must award and assess the benefits and damages against each tract separately in the proportion in which such tract will be benefited or damaged. No land may be assessed for benefits greater than its proportionate share of the cost of the work and the expenses of the proceedings, nor in any greater amount than it will be benefited. When directed by the commissioners or the court impaneling the jury for the assessment of any additional benefit or damage, or to make assessments in favor of or against any one or more tracts, the jury may consider prior assessments that have been voided by omission or error or irregularity of the proceedings and may include them with other assessments.

See: *Assessment in General: People v. North Fork Outlet D.D.*, 331 Ill. 68, 162 N.E. 184.

Objections to Assessments: People v. Allen, 330 Ill. 433, 161 N.E. 867.

Sec. 23. Payment in installments—Bonds—Lien: At the time of confirming the assessments, it is competent for the court to order their payment in installments in such amounts and at such times as will be convenient in the construction of the works or for the payment of bonds issued. Otherwise the assessments become due within 30 days after the confirmation. The installments bear interest not to exceed 6 percent from 30 days after confirmation. Landowners may anticipate payment of the assessments and interest; provided that, in case bonds have been issued, satisfactory arrangements can be made with bondholders for premature retirement of a corresponding amount thereof; and that such payment will not cause a shortage of funds for the payment of interest or principal on maturing bonds. The court may direct that interest on deferred installments shall be collected yearly in advance.

Assessments are a lien upon the land assessed the same as other taxes, which lien continues until paid. The proceedings in the court are sufficient notice of such lien. When all assessments are paid, the treasurer of the county issues a release

in full discharge from all further liability, which release may be recorded in the county where the lands are situated.

See: *Lincoln Lansing D.D. v. Stone*, 364 Ill. 41; 2 N.E. (2d) 885, [L. 1939 (July 22) p. 527.]
Prange v. O'Meara, 368 Ill. 362, 14 N.E. (2d) 220.
Turner v. Hunt D.D. (U.S.C.C.A., Ill.) 87 Fed. (2d) 167.

Sec. 24. Amount of annual benefits—When payable—Proceedings: Annual benefits assessed for repairs are due September 1 of each year and are a lien from and after confirmation of the report. The court requests a report from the commissioners as of July 1 each year on the condition of the works and an estimate of the amount necessary to keep the works in repair and pay expenses for the coming year. If the entire annual assessed benefit is not needed, then the court fixes the amount to be paid and the excess is remitted and may not thereafter be collected. The amount fixed by the court must not in the aggregate amount in any one year to more than a levy of 30 cents per acre on agricultural lands, \$3.00 on lands of industrial or public nature, \$1.00 on lots or improved land with buildings, and 25 cents per lot on vacant lots plotted as subdivisions. In case the land is in danger from overflow, if any part of the annual benefits has been remitted as above, the commissioners may borrow money to be used for protective purposes on the "annual amount of benefits" to become due the first of September following, and may give notes of the district therefor at 6 percent interest and running not more than one year. The report and estimates of the commissioners as to the amount necessary for the coming year must be made by the first Monday in July. (L. 1923, p. 507.)

See: *People v. Candy*, 296 Ill. 263, 129 N.E. 728.
Brooks v. Hatch, 265 Ill. 346, 106 N.E. 956.

Sec. 29. Interest on assessment installments: When assessments are payable in installments, they bear interest from 30 days after confirmation of the assessment roll until paid. Such interest may be collected as part of the assessment. Where no bonds have yet been issued, the commissioners may, under the direction of the court, apply the collected interest to construction and maintenance or other expenses and indebtedness. (L. 1939, p. 527.)

Sec. 31. Notice of assessment: After receiving a certified copy of the assessment roll, the commissioners or the treasurer immediately give notice by publication for three weeks in the manner required in section 3. The form of the notice is set out in the Act. Where the assessments are paid in installments, similar notice is given after each installment becomes due. In the case of the "annual amount of benefits," notice must be given immediately after the first day of September in each year. Notice may also be given by mail in the form prescribed in the Act. (L. 1933, p. 498.)

See: *Sufficiency of notice: Stack v. People*, 217 Ill. 220, 75 N.E. 347.

Sec. 32. Delinquent assessments: Assessments not paid on or before the date given in the notice become delinquent, and the treasurer will certify same to the collector before the 10th of the next March. A separate return is made for each county in the district. The collector then proceeds to collect same by sale of the property in the same manner as for delinquent county and state taxes.

Secs. 33 to 33-b-1,2,3. Enforcement of payment: On failure to pay any assessment or installment thereof, before the annual sale of delinquent lands for taxes, the commissioners may file a petition in the circuit court of the county in which the lands are situated for a foreclosure of the lien thereof in the same manner as mortgages are foreclosed. Any decrees of the court may be enforced and collected as other judgments of the same court. The right of redemption exists for two years. Statutory

notice must be given by the purchaser of such property to interested parties. (L. 1931, p. 527.) **Sec. 33-b:** The drainage district itself may be the purchaser at a foreclosure sale or they may purchase lands on which taxes are delinquent at any general tax sale. Lands so purchased or deeded by the owner may be rented or sold by the commissioners of the district under order of court. (L. 1933, p. 506.) **Sec. 33-b-1,2,3:** When assessments have remained delinquent for six months, the commissioners may apply for appointment of a receiver to collect the returns from the delinquent lands for the purpose of paying the delinquent assessment with penalties and costs. The form of the procedure is set out in the statute in detail. (L. 1935, p. 759.) [*Hunt D.D. v. Schwerer*, 369 Ill. 330, 16 N.E. (2d) 737.]

Sec. 39. Damages: Damages over and above benefits are payable out of the amount assessed against other lands and must be paid or tendered before entry upon the damaged land for the purpose of construction of the works.

Sec. 43. Petition to be relieved of assessments: Upon petition by a landowner to be relieved of any assessment for the reason that his land has never been subject to overflow and has never been overflowed by the highest known water, or that the assessment is too high and that no bonds have been issued which are a lien on such assessment, and praying to be released from the assessment, the court, after 10 days notice, hears such application and amends the assessment roll in conformity with the facts found. A copy of the order is referred to the commissioners for correction of their copy of the assessment roll to conform. The petition must be filed within one year after confirmation of the assessment. This section does not apply to districts organized to establish a combined system of drainage independent of levees. (L. 1933, p. 507.)

See: *Wissler v. Mud Creek D.D.*, 300 Ill. 350, 133 N.E. 331.
Akker v. Cat Tail D.D., 349 Ill. 433, 182 N.E. 630.

Sec. 53. Roads, street, etc.—Assessment: Affected roads, streets, railroads, bridges, and culverts may have assessments of benefits or damages as provided in this chapter. (L. 1909, p. 182.) [*Lincoln-Lansing D.D. v. Stone*, 364 Ill. 41, 2 N.E. (2d) 885.]

Sec. 56. Assessing benefited lands outside of district: When the owner of lands lying outside an organized district makes connection with the drains within said district, he is deemed to have made voluntary application to be included within the district. The commissioners may file a complaint with the county court or Justice of the Peace, describing the connection of said land with the system. Thereupon, after notice, the court or Justice of the Peace hears the complaint and if judgment be rendered in favor of the district, such lands shall be considered a part of the district and thereafter be assessed.

See: *People v. North Fork Outlet D.D.*, 331 Ill. 68, 162 N.E. 184.
Minnie Creek D.D. v. Streeter, 327 Ill. 236, 158 N.E. 383.

Sec. 59. Void assessments: Where assessments are voided by error, omission, or lack of proper notice, the commissioners may file a petition with the court against the owner of the land irregularly assessed and have the defects cured in the resulting action and the assessment made valid. (L. 1885, p. 108.) (*Hayes Branch D.D. v. Ill. Cen. Ry. Co.*, 290 Ill. 124, 124 N.E. 819.)

FINANCING—Bonds

Sec. 38. Power to borrow money: The commissioners may borrow money not exceeding 90 percent of the assessments unpaid at the time of borrowing, for the purpose of construction or of payment of lawful indebtedness, and may secure the same by notes or bonds bearing interest at not exceeding 6 percent and running not more than one year after the last installment of the assessments on account of which the money is borrowed shall become

due. Such notes or bonds constitute a lien on the assessments. The court may, upon petition of the commissioners and after notice and hearing, authorize the borrowing of money in excess of 90 percent of the unpaid assessments. (L. 1927, p. 425.) (*Broadway Bank v. McGee Creek Levee & D.D.*, 292 Ill. 560, 127 N.E. 165.)

Sec. 38-a. Power to borrow money: The court having jurisdiction is authorized to extend the time of payment of assessments or any installment, and to refund the bonds of the district. Bonds not due may be refunded only when the owners thereof agree to surrender same for refunding bonds or to accept payment in cash at not more than par and interest to date of payment. When less than all of the bonds are to be refunded, only the proportionate part of the assessment out of which the refunded bonds are to be paid may be extended. The court may change the number of installments into a greater or less number than was originally provided in the order of confirmation, but may not extend the time of payment of any assessment or installment thereof beyond forty years from the date of the order providing for the refunding. The commissioners on their own motion may, or upon petition of owners assessed at least 25 percent of all the then unpaid assessments shall, file a petition with the court asking extension of payment of assessments. Elaborate details of the petition are set out in the statute. The court holds a hearing on the petition after notice, and makes such order of extension of payment as the circumstances require. The delivery of any refunding bond must be simultaneous with the surrender of a like amount of old bonds. Provision is made in detail for withdrawal of assessments theretofore certified as delinquent when the time of payment has been extended by the order of the court. The commissioners are authorized to obtain loans from the United States subject to court approval. (L. 1934, 3rd Special Session, p. 185.)

Sec. 38-b. Mortgaging district property: The commissioners are authorized to mortgage real estate and pumping equipment to the Federal government or to any individual or corporation for securing a loan to be used for reconstructing, enlarging, or improving such pumping or other works. (L. 1934, p. 198.)

DRAINAGE FOR AGRICULTURAL PURPOSES

(Act of June 27, 1885)

- I—Township Drains
- II—Special Drainage Districts

I—TOWNSHIP DRAINS

ORGANIZATION—Petition

Secs. 82 and 83. Highway commissioners as drainage commissioners: The commissioners of highways in each town in the several counties under township organization are the drainage commissioners for all drainage districts in their respective towns. They are known as the Drainage Commissioners of District No. ___ in the Town of ____, County of ____, State of Illinois, and by that name a body politic. (L. 1885, p. 77.) **Sec. 83:** The town clerk is the clerk of the commissioners of all districts lying wholly within the town, and of all union drainage districts of which the major portions lie within the town. He keeps the "drainage record." All elections, notice of which is required to be given to the landowners, must be held within the district. (*People v. Carr*, 231 Ill. 502, 83 N.E. 269.)

Sec. 84: The supervisor of the town is treasurer of the district. When the district is in two towns, the supervisor of the one designated by the commissioners is the treasurer. In all special drainage districts the county treasurer is the treasurer of the district. The treasurer of the district, except when he

is the county treasurer, gives bond for double the amount of money likely to come into his hands. (L. 1885, p. 77.)

Secs. 85 to 90. Owners may drain: This section declares the right of landowners to drain their lands in the general course of natural drainage, and when such drainage is wholly upon the owner's land he is not liable for damage therefrom. (*Inlet Swamp D.D. v. Mehlhausen*, 291 Ill. 459, 126 N.E. 113.)

Sec. 86: When necessary to continue drainage through the lands of others by properly constructed works, and an agreement cannot be had with the other owners, a summons will issue from any Justice of the Peace and proceedings will be had thereon as in other civil suits before Justices of the Peace. **Sec. 87:** The Justice of the Peace or a jury, if one is impaneled, hears the evidence, and if the water would be carried into a natural water course, they find for the plaintiff, assessing only the damage which would be occasioned by entering the premises to construct the drain. **Sec. 88:** If after judgment the plaintiff wishes to abandon the proceedings, he enters that fact on the docket and pays all costs. **Sec. 89:** Bond must be given when the action is commenced to pay all costs and damages awarded. **Sec. 90:** At the time of entering the suit the plaintiff must file a map or sketch of lands to be drained and through which the drain has to pass. If judgment is in favor of the plaintiff, the plat and all papers are recorded by the town clerk in the "drainage record."

Secs. 92 and 93. Combined drainage: When a system of combined drainage in a single town is involved, a petition is presented to the town clerk, signed by a majority in number of the adult owners of lands affected who must be the owners in the aggregate of more than one-third of the land, or by the owners of a major part of the land who constitute one-third or more of the owners, setting forth the boundaries. The petition states that combined drainage is necessary to protection from overflow as well as to drain. The names of the owners and the amount of the land owned by each must be stated. **Sec. 93:** The petition is filed with the town clerk, who, within five days, gives notice in writing to the commissioner of highways of the town. If there are only two parties, they both are notified. If more, notice is by posting in three public places in or near the district. The notice states that a meeting will be held not less than 8 nor more than 15 days after said notice, for the purpose of organizing the district. (L. 1888, p. 77.)

Sec. 94. Hearing: At the hearing the commissioners determine whether the proceeding is in proper form as to signatures to the petition. The affidavits of two or more credible signers of the petition are *prima facie* evidence that the petition is in proper form. All persons signing the petition have thereby acknowledged the necessity for organizing the district. Any landowner not signing the petition may appeal and contest any statement therein. Any landowner may sign the petition at any time.

Sec. 95. Commissioners view premises—Survey: If the commissioners find in favor of the petition, they adjourn the meeting for not less than 8 nor more than 15 days and make public announcement thereof. In the meantime they go upon the lands and personally examine them, and they have power to employ a civil engineer to prepare for them a report with plat and estimates of cost. (L. 1885, p. 77.)

Sec. 96. Organization: At the adjourned meeting the commissioners examine the report of the civil engineer. They have power to change the boundaries so as to include or exclude land as may be proper. They may permit additional signatures to the petition to the end that a majority of the owners who own one-third or more of the land, or the owners of the major part of the land who constitute one-third or more of the owners, shall

have signed the petition. The commissioners make findings of facts in writing, which findings are recorded by the clerk and are conclusive. If it appears that the lands of the district will be benefited for agricultural and sanitary purposes by the construction of a drain or a combined system of drainage, they so find unless the cost will exceed the benefits. If two-thirds of the landowners owning more than one-half of the land still desire to form the district and so indicate by not withdrawing their names from the petition, the commissioners enter on their record an order in writing organizing the district. Each district is designated by a number and the name of the township and county and the State of Illinois. The commissioners then cause a map of said district to be made showing the boundaries, which map is filed with the drainage papers.

Sec. 97. Effect of organization—Election: Upon organization, the duties of the commissioners of highways cease as soon as a drainage commissioner has been elected and qualified. The town clerk calls an election in each district in his township by giving 10 days notice by posting. Elections are held on the second Saturday of March in each year. Should the town clerk fail in this duty, election shall be held upon demand of the drainage commissioners (commissioners of highways) or any interested party. In the first election three commissioners are elected for one, two, and three-year terms respectively. Every adult owner of land within the district is a qualified voter, and is eligible for commissioner if he is a resident of a county in which any part of the district lies. Drainage district elections are conducted like school elections. Commissioners of highways act as judges and clerk of the first election, and thereafter the drainage commissioner acts in those capacities. In the absence of the commissioners the electors present may select judges and clerks. The vote is canvassed immediately after closing the polls and specific directions therefor are set out in the statute. The return is made to the town clerk, who records the same. Commissioners take oath of office and must be known by the name of the district; that is, Commissioner of District No. _____ in Township _____, in the County of _____, and State of Illinois, and by that name are a body politic and corporate with the usual powers of corporations. Vacancies in the office of commissioner are filled at an election called by the remaining commissioners. (L. 1935, p. 755.)

Sec. 99. Outlets: Upon organization, the drainage commissioners go on the land and determine the system of drainage. Preference is given to tile drains where feasible. If open drains are necessary, they follow the boundary lines of separate tracts at right angles or parallel as the case may be unless drainage would be impaired thereby. An engineer is employed to report in writing with maps and profiles and estimates of cost, unless the district is very small. These papers are recorded in the "drainage record" in the clerk's office. (L. 1885, p. 77.)

Secs. 100 to 102. Right-of-way: The commissioners procure rights-of-way by agreement if possible, with releases in writing which are a perpetual bar to the grantor for damages on account of the construction of the works. However, if the commissioners must pay damages by virtue of a verdict of a jury, other owners must receive equitable damages notwithstanding any release they may have signed. Releases are recorded in the "drainage record." **Sec. 101:** Failing to acquire rights-of-way by agreement, the commissioners apply to a Justice of the Peace for a *venire* for a jury to assess the damages. The Justice of the Peace issues a *venire* for six disinterested landowners to appear at his office at a stated time not less than 5 nor more than 15 days from the filing of the application. The case is con-

ducted like civil cases. Service is made by the constable, but where owners are unknown or nonresident the notice is by publication. The commissioners have the right to commence the proceedings in the county court at any term. **Sec. 102:** The jury hear the evidence and return their verdict for the amount of damages found. If in favor of the owners, the Justice of the Peace or county judge enters judgment therefor, which judgment is conclusive. A certified transcript of the proceedings is recorded in the "drainage record."

Sec. 103. Classification of lands: As soon as the plans for the works have been determined, the commissioners make special assessment of benefits by classifying the lands in 40-acre tracts according to the legally recognized subdivisions, on a graduated scale and to be numbered according to the benefits that will be received. The tract of land that will receive the most benefit is marked 100 and that receiving less benefit is marked with a less number, denoting its percentage of benefits. This classification remains the basis for the levying of taxes in the district. The districts theretofore formed, already having made assessments, are classified on the graduated scale, conforming as nearly as possible to the former proportionate assessment; provided, when the commissioners believe the former classification unjust, they make a new classification. The classification is tabulated and filed in the clerk's office for inspection. (L. 1891, p. 102.)

See: *People v. Gibson*, 293 Ill. 80, 127 N.E. 360.
People v. Candy, 296 Ill. 263, 129 N.E. 728.
Swartz v. Comrs. Big Lake Spl. D.D., 307 Ill. 209, 138 N.E. 665.
People v. Allen, 330 Ill. 433, 161 N.E. 867
People v. Bradshaw, 303 Ill. 558, 136 N.E. 466.

Sec. 105. Objections to classification—Meeting: The commissioners fix a time for the hearing of objections to the classification, and the clerk gives two weeks notice of such hearing by publication and posting in the district and by mail to each landowner. Failure to give proper notice does not affect the assessment except as to the land of the owner not properly notified. (L. 1919, p. 443.) (*Olmsted v. Prather*, 322 Ill. 280, 153 N.E. 382.)

Sec. 106. Hearing: At the time fixed the commissioners hear all objections from interested persons and correct the classification in accordance with justice and right, and thereupon confirm it. All orders of correction or confirmation are filed in the office of the clerk of the district within 5 days, and any interested person dissatisfied with the classification may appeal to the county court within 10 days after filing an approved bond conditioned for the payment of the taxes levied and all costs in case the order of the commissioners is affirmed. (L. 1919, p. 443.)

See: *People v. Prather*, 322 Ill. 280, 153 N.E. 382.
People v. Bradshaw, 303 Ill. 558, 136 N.E. 466.
People v. Allen, 317 Ill. 92, 147 N.E. 479.

Sec. 107. Appeal—Jury—Hearing: Appeal may be heard by the court at any time after the expiration of 10 days. At the discretion of the court, the costs may be divided between the district and the landowner appealing. The court summons 12 disinterested landowners to meet at the courthouse at a time set, to hear the appeals. These 12 men must have practical knowledge of the costs and benefits of farm drainage, and they are sworn as a special jury to try the appeals. The court lays before the jury the classifications made by the commissioners, and hears testimony in support and in opposition thereto. If requested by either party, the jury view the land. If they find no injustice done they confirm the classification in writing and file

it with the court records. Their verdict is recorded in the "drainage record." (L. 1933, p. 495.)

See: *Thoenmg v. Hawkins*, 294 Ill. 30, 128 N.E. 314.
Kikapoo D.D. v. City of Mattoon, 284 Ill. 393, 120 N.E. 256.

Sec. 108. Assessment—Tax list: The commissioners by resolution order such amount as may be necessary to be raised by special assessment apportioned among the several tracts of land according to the acreage of each and its figure of classification on the graduated scale. They make out a special assessment roll known as the tax list, setting out in tabulated form the amount of taxes against each tract and the damages and credits if any. The balance due is set forth in the final column. If any landowners or road commissioners have not been properly notified of the hearing on classification, that fact does not affect the validity of the special assessment except as to the particular land or road not receiving such proper notice. (L. 1919, p. 443.)

See: *People v. Please*, 344 Ill. 43, 175 N.E. 769.
Lake Forest Dist. v. Highway Comrs., 292 Ill. 340, 127 N.E. 109.
Comrs. of Boones Pond Mut. D.D. v. O'Daniel, 291 Ill. 528, 126 N.E. 198.
Inlet Swamp D.D. v. Anderson, 257 Ill. 214; 100 N.E. 909.
D.D. #1, St. Clair Co. v. Soucy, 292 Ill. 584, 127 N.E. 140.

Secs. 110 and 111. Appeal to the country court—Trial: Any person against whose land a tax has been levied may, within 10 days after the tax list has been filed with the clerk, appeal to the county court by filing a bond in double the amount of the taxes appealed from, but the appeal must be on the sole ground that the tax is greater than the benefit to accrue to the land. Appeals may be heard within 10 days and the trial is conducted as in other appeal cases. Parties are entitled to jury trial, and if it is found that the tax exceeds the benefits to accrue the court will modify the tax to equal the benefits, and the costs may be apportioned. *Sec. 111:* Appeal does not delay the collection of taxes not appealed from. (*People v. Bradshaw*, 303 Ill. 558, 136 N.E. 466.)

Sec. 109. Abandonment: Before entering into a construction contract for which an assessment has been made, upon petition therefor by not less than three-fourths of the adult landowners representing one-half of the area, filed with the clerk of the district; the commissioners may abandon the works or any part thereof and set aside any assessment made; provided, the commissioners must pay all debts and expenses incurred in levying the assessment. If the assessment has been paid, proper refunding is made. If it is necessary to levy an assessment to pay such debts and expenses, the commissioners will do so. (L. 1921, p. 406.)

Sec. 112. Payment of tax—Lien: The commissioners may permit the tax to be paid in convenient installments. Otherwise the whole tax is payable 30 days after confirmation and, upon a certified copy of the tax list being filed with the recorder of deeds of the county, becomes a lien upon the land assessed. Taxes draw interest until paid. The payment of an installment or judgment therefor estops any objection to succeeding installments against the same land. No writ of error to review any judgment under this act may be brought after six months. Neither the organization of the district nor its jurisdiction over the land therein may be attacked by *quo warranto* or otherwise after the confirmation of any assessment thereon. (L. 1919, p. 443.)

See: *D. #1, St. Clair Co. v. Soucy*, 292 Ill. 584; 127 N.E. 140.
People v. Allen, 317 Ill. 122; 86 N.E. 666.

Secs. 113 and 114. Treasurer: The tax list is certified to the treasurer of the county and he gives bond in twice the amount thereof for the faithful performance of his duties as

treasurer of the district. *Sec. 114:* The treasurer must keep proper books and disburse only on order of a majority of the commissioners.

Sec. 115. Delinquent tax list: It is the duty of the district treasurer to certify to the collector of the county on or before the 10th of March of each year a list of all delinquent lands upon which any drainage tax or installment thereof is due. The collector proceeds as in ordinary collection of state and county taxes, and if necessary sells the land to satisfy such taxes. The commissioners of the district may become the purchaser at the sale of any land in the district for delinquent drainage taxes. (L. 1885, p. 77.)

See: *People v. Allen*, 317, Ill. 92; 147 N.E. 479.
People v. Fisher, 341 Ill. 621; 174 N.E. 33.
People v. Welch, 252 Ill. 167; 96 N.E. 991.
Lake Fork Spl. D.D. v. Comrs. of Highways, 292 Ill, 340; 127 N.E. 109.

Sec. 116. Bond of collector: The collector gives bond in double the amount of the delinquency, which bond is filed with the clerk and recorded in the "drainage record." The treasurer of the district may receive payment of assessments, interest, and costs, and must keep account thereof and present the same to the clerk before the lands are sold.

Sec. 117. Construction: When the commissioners have secured rights-of-way they may divide the ditches into sections one-quarter mile in length, or they may let the entire work in one or more contracts. In case of work on the land of two parties only, the owners have preference where the bids are equal to construct that part on the land of each. This rule may be applied to a large number when the commissioners unanimously agree thereto. (See section 118 following.)

Secs. 118 and 122. Contract—Bid: The commissioners give notice by publication of the time and place of letting contracts for construction. Bids are submitted under seal, and the commissioners may reject any or all of them. If the cost will not exceed \$500, contract may be let or construction obtained in such manner as the commissioners deem best. A commissioner may not have interest in any contract for construction, repair, or maintenance of the district works. Payment for work is made by the treasurer upon order of the commissioners. (L. 1931, p. 469.) *Sec. 122:* The commissioners have the right of entry for themselves and their agents for making surveys, and after tender of payment of damages they may authorize contractors and their equipment to enter upon the land for the purpose of construction. (L. 1885, p. 77.)

Sec. 123. Assessment of highways, etc.: The commissioners have the right to use public rights-of-way for purposes of the district works, and if a public highway or railroad is benefited by said works the commissioners may assess it a just and equitable share of the cost in proportion to the benefits conferred. Assessments of public highways are paid out of the road and bridge tax of the towns or districts in which the benefited highways are situated.

See: *People ex rel Urch v. Ryan*, 353 Ill. 437; 187 N.E. 431.
Maulding v. Williams, 330 Ill. 599, 162 N.E. 131.

Sec. 125. Repair: The commissioners must maintain the works and use the funds of the district to achieve the contemplated benefits to all of the lands so far as practicable. Commissioners have the power to enlarge and improve the outlets beyond and below the boundaries of the district, and to collect a fair compensation for the benefit bestowed upon the land affected by reason of such works, whether private land or land in an organized drainage district. (L. 1901, p. 147.)

See: *People v. Barnes*, 324 Ill. 93, 154 N.E. 437.
Maulding v. Williams, *ante*.

Sec. 126. Inclusion: Landowners in the district may connect lateral drains to the common drain of the district, and landowners outside of the district may connect with the ditches of the district upon payment of such amount as they would have been assessed if originally included in the district. When such connection is made by individual landowners outside of the district it is presumed to be a voluntary application to be included in the district. Commissioners may enlarge the district at any time by attaching new area involved in the same system of drainage, upon petition of as great a portion of landowners in the area to be added as is required for the original district. Lands outside of the district which will be benefited by the works of the district and which are not in any other district, may be presumed to have voluntarily applied for inclusion, and the commissioners may prepare a petition for such inclusion and present same to the county court where the district was organized. The procedure is the same as for original organization, and the owners of land annexed may appeal to the circuit court within 10 days. Land so annexed is classified and assessed in proportion to the established classification of the district. (L. 1919, p. 443.)

Sec. 127. Subdistricts: Subdistricts may be formed for more complete drainage in the same manner as main districts. They have the right to use the ditches of the main district for outlets. The commissioners may divide a drainage district into subdistricts for the purpose of making assessments of benefits for work to be done in such subdistricts. Formation of a subdistrict does not operate to release the land therein from assessment by the main district, nor does it give the subdistrict any claim on the funds of the main district for local use. Subdistricts are managed by the commissioners of the drainage district in which situated, except that any such containing not less than five sections of land may, upon petition by a majority of the landowners, elect commissioners in the same manner as provided for the election of commissioners of the main district. (McGee Creek etc. Dist. v. Wabash Ry. Co., 319 Ill. 379, 150 N.E. 259.)

II—SPECIAL DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 134. Organization: When the proposed district lies in three or more towns in the same or different counties, or in any county not under township organization, the petition under section 92 *ante* is presented to the county court of the county in which the greater portion of the lands lie and accompanied by a bond of three or more responsible parties, conditioned to pay all the costs in the event the district is not established. When formed, such districts are known as "_____ Special District of _____ County." (L. 1885, p. 77.)

See: *People v. Please*, 344 Ill. 43; 175 N.E. 769.
Comrs. Lake Fork Special Dr. D. v. Comrs. of Highways, 292 Ill. 340; 127 N.E. 109.

Sec. 135. Notice of hearing on petition: The court clerk gives at least twenty days notice of the hearing on the petition by posting in each township and by publication. Specific provision is made for the form of the notice. (L. 1933, p. 495.) (*People v. Allen*, 317 Ill. 92; 147 N.E. 479.)

Secs. 136 and 137. Hearing: At the hearing the court determines the formality and validity of the petition, and if regular it so finds. The affidavits of three creditable signers to the effect that the petition is valid is *prima facie* evidence against all landowners and conclusive evidence against all signers of the petition. Any landowner not signing may appeal and controvert any material statement of the petition. (L. 1885,

p. 77.) **Sec. 137:** If the court finds against the petitioners, the petition is dismissed at their cost. Otherwise the court enters an order appointing three commissioners for the district. They go upon the land and view same, and may appoint a competent surveyor to assist them. They report to the court on or before the day set for the completion of the organization of the district. At a hearing on the commissioners' report any interested party may file objections in writing, or an alternative plan of improvement, and be heard upon same. The court hears witnesses, and if of the opinion that the lands would be benefited for agricultural and sanitary purposes will so find and enter an order declaring the district organized, unless it finds that the cost will exceed the benefits, in which case the petition is dismissed. However, if the landowners owning more than one-half of the aggregate lands still desire to form the district, evidenced by a failure to withdraw their names from the petition, the court will order the district organized. The commissioners are the corporate authority of the district and are a body politic and corporate under their corporate name. (L. 1919, p. 443.)

ORGANIZATION—Officers

Secs. 138 to 140. Election: As soon as a special drainage district has been organized containing 15 or more landowners, the county clerk of the county where the proceedings were instituted, who is *ex officio* clerk of the commissioners of said district, gives notice by posting of an election for the purpose of selecting three drainage commissioners for the district. The commissioners select a regular voting place within the county. Upon petition of a majority of landowners, approved by the court after notice and hearing, the commissioners may establish a voting place outside of the district. (L. 1919, p. 467.) **Sec. 139:** The method of holding the election is set out in detail in the statute. Every adult owner of land in the district may vote, and if a resident of any county in the district is eligible to be elected commissioner. When a commissioner during his term ceases to be a landowner or ceases to be a resident of an interested county, his office becomes vacant. The first annual meeting is held on the third Tuesday in November and commissioners are elected for one, two, and three years, respectively, and thereafter one is elected each year for a term of three years. **Sec. 140:** In special districts with less than 15 landowners, the court appoints three drainage commissioners not interested nor kin to any landowner, and it is arranged that one vacancy will occur each year.

Secs. 141 and 142: The drainage commissioners view the land and determine on a system of drainage. They may employ an engineer to report in writing with maps, profiles, and estimates of cost. Their report is filed in the clerk's office and recorded in the "drainage record." **Sec. 142:** The commissioners then proceed to procure the rights-of-way, and if they cannot acquire same by agreement they petition the court for a jury to assess damages. After notice and hearing as fully provided in the statute, a jury trial is conducted as in other civil cases. The jury may view the premises at the request of either party. If their verdict is in favor of the owners it is a judgment against the district, in the absence of new trial for cause. Upon disagreement, a new jury is impaneled. (L. 1933, p. 495.) [*Crosby v. DeLand Special D.D.*, 367 Ill. 462; 11 N.E. (2d) 937.]

FINANCING—Assessments

Sec. 144. Benefits assessed: At the earliest practicable date the commissioners make special assessments of benefits as provided in sections 103 and 104 of the Act so that each tract shall bear its proportionate share of the cost.

Sec. 145. Classification of lands: The commissioners without delay file in the office of the clerk of the district a classification of the lands in the district, and give notice thereof in the same manner as provided for districts in a single town. (L. 1919, p. 443.) (People v. Allen, 317 Ill. 92; 147 N.E. 479.)

Sec. 146. Appeals: Appeal is to the county and circuit court of the county in which the land is situated, as provided in sections 106 and 107 of this Act. The decision of the special jury in the last court of appeal is conclusive. The classification so arrived at is entered on the "drainage record" and is the basis for the levying of assessments for the purpose of drainage in the class of districts to which such lands belong. (L. 1901, p. 147.)

Sec. 147. Special assessments: As soon as the classification has been confirmed by the commissioners or the court on appeal, it is competent for the commissioners to order a special assessment upon the land in the amount necessary according to their best judgment, and certify the same to the clerk of the court for recording in the "drainage record." The form of the certificate is set out in the statute. The clerk apportions the amount levied among the tracts of land according to acreage and each tract's figure of classification under the graduated scale. The commissioners make out a tax list to conform to the provisions of section 108 of the statute, sign it, and file it with the clerk. Any interested party may appeal to the county court in the same manner as provided in section 110. Where the lands are in two or more counties, the clerk of the county in which the proceedings are had sends a copy of the assessment to the circuit court clerk or the recorder, as the case may be, of the other county, which list is for record in his office. (L. 1925, p. 365.)

See: People v. Please, 344 Ill. 43; 175 N.E. 769.
People v. Fisher, 341 Ill. 621; 174 N.E. 33.
People v. Dixon, 346 Ill. 454; 178 N.E. 914.

Sec. 148. Additional levy—Payment of assessments—Bonds: If the commissioners find that the assessment is inadequate to complete the work, they make necessary additional levies on the original classification and in the same manner. The commissioners may order all levies paid in convenient installments, otherwise the whole amount becomes payable 30 days after confirmation and is a lien upon the land until paid, drawing 6 percent interest. Where immediate payment of the whole cost will work a hardship on the landowners, the commissioners may borrow money for construction of the work, not to exceed 90 percent of any levy unpaid at the time of borrowing, and secure payment by notes or bonds of the district bearing interest not to exceed 6 percent. Bonds may not run for more than 15 years. Such bonds constitute a lien upon the assessments on account of which they were issued. (L. 1901, p. 147.)

Sec. 155. Tax levy—Assessments: It is the duty of the commissioners of every special drainage district to file with the county clerk of the county where the district was organized, on December 1 of each year, a statement of the unpaid bonds and interest and the amount necessary to be levied to meet payments due, and of the amount necessary for maintenance and repair of the drainage works for the ensuing year. The clerk computes the *pro rata* share of each tract of land in the same proportion as for construction. No tract may be assessed for more than the benefits received. This amount is extended on the collector's books and collected like state and county taxes. Money collected for the payment of bonds and interest may not be used for any other purpose. Where the state auditor has filed a levy for the payment of registered bonds, the commissioners make

their levy so as to meet the bonds not registered. (L. 1925, p. 365.)

See: Beardsworth v. Whiteside & Rock I. Spl. D.D., 356 Ill. 158; 190 N.E. 310.
People v. Fisher, 341 Ill. 621; 174 N.E. 33.

Sec. 157. Assessments—Lien: All assessments levied hereunder are a lien on the respective tracts of land to the proportionate share of such tract in the benefits. The commissioners may file a petition for foreclosure of such liens when same are unpaid and judgment may be collected as any other judgment of the same court. (Dr. Comms. Dist. #2 of Havana v. Mansfield, 348 Ill. 59; 180 N.E. 630.)

FINANCING—Bonds

Sec. 149. Bonds: Where commissioners of special drainage districts have issued bonds under this Act, and the payment thereof at maturity would in their judgment work an unreasonable burden on the landowners assessed, the commissioners have the right and power to fund such notes or bonds to the amount of the unpaid assessment upon which such bonds were issued. Such new notes or bonds may bear interest at not to exceed 6 percent. The commissioners may, by order duly signed and filed with the clerk and recorded, extend the time for the payment of assessments or installments thereof to a fixed later date. Such notes or bonds may not run more than one year beyond the time fixed for the payment of the assessments or installments against which issued. (L. 1901, p. 147.)

Secs. 150 to 153. To extend payment: When a petition is presented, signed by adult owners of lands assessed who are a majority in number and own in the aggregate at least one-third of the lands assessed, asking an extension of the time for the payment of assessments and that bonds be issued in an amount not exceeding the unpaid assessments, the commissioners will issue an order extending the payment for not to exceed 10 years, and may issue bonds of the district to the amount thus extended. No bonds may be sold for less than par. (L. 1901, p. 147.)
Sec. 151: It is provided that a detailed record of all bonds be kept in the "drainage record." **Sec. 152:** Such bonds may be registered by the auditor of public accounts. **Sec. 153:** When bonds are so registered, the auditor together with the state treasurer makes annually an estimate of the money required to pay interest on the bonds and the cost of handling, and transmits it to the county clerk where the district was organized to be recorded in the "drainage record" and extended *pro rata* against each tract of land and collected in the same manner as state taxes. (L. 1885, p. 77.)

UNION DISTRICTS

Sec. 133. Formation: When lands proposed to be organized into a drainage district lie in two towns, when same are in different counties both under township organization, such districts are designated as "Union District No.—of the Town of —, County of —, State of Illinois." A petition is filed with the clerk of the town where the greater portion of the district lands are situated, and the clerk selects three commissioners for said district from the commissioners of highways of the two towns, taking a part from each town. The clerk notifies the highway commissioners of their appointment as drainage commissioners, and to meet at his office as provided in section 93 or 98 of this Act. The clerk and commissioners have the same powers as the commissioners in one town. A separate delinquent tax list is made for the part that lies in each county. (L. 1885, p. 77.)

See: *Special assessments:* People v. Please, 344 Ill. 43; 175 N.E. 769.
People v. Fulton, 280 Ill. 415; 117 N.E. 605.
People v. McDonald, 264 Ill. 514; 106 N.E. 501.

DISTRICTS BY USER

Sec. 161. Petition for formation: Where two or more parties owning adjoining lands which require a system of combined drainage have by voluntary action constructed ditches which form a continuous line and branch, the several parties are liable for their just proportion of such repairs and improvements as may be needed therefor, the amount thereof to be determined as nearly as may be on the same principles as if the ditch were in an organized district. Whenever improvements are not made by voluntary agreement, it is competent for any one or more owners to petition for the formation of a drainage district to include the lands affected. The petitioner must show that his land is damaged through lack of proper repair or improvement of the drainage systems. The form of procedure is as nearly as practicable the same as prescribed by this act. Open ditches shall be made tile drains where practicable. (L. 1905, p. 195.)

See: *Molohan v. Cashin*, 258 Ill. 86; 101 N.E. 264.
People v. Baldrige, 267 Ill. 190; 108 N.E. 49.
People v. Prather, 343 Ill. 443; 175 N.E. 658.
People v. Miller, 331 Ill. 395; 163 N.E. 139.

DISTRICTS BY MUTUAL AGREEMENT

Sec. 162. Formation: Owners of lands requiring combined drainage may form a district by mutual agreement in writing that embraces all the elements of a drainage district including the appointment of commissioners. A majority of the landowners may discontinue the district by vote at any regular meeting. The powers and duties of the commissioners in such a district are the same as exercised by the commissioners of other districts organized under this Act. (L. 1885, p. 77.)

ABANDONMENT AND DISSOLUTION

Sec. 44. Abandonment: At any time before a contract has been let for the construction of any works provided for in the report of the commissioners, or before the order of the court is made in pursuance thereof, the county court may, upon petition of a majority of the adult landowners representing one-third of the area and after inquiry, direct the commissioners to abandon such work or any part thereof. Upon filing of the petition, notice is given of a hearing thereon and interested parties may file objections. The court after full hearing makes such order as may be just. It determines what portion of the work shall be abandoned and to what extent the cost will be diminished thereby. Reduction of assessments is made in uniform proportion to the extent of such diminished costs. Proportionate refund will be made of assessments already collected.

At any time before the contract for construction is made, upon presentation to the county court of a petition signed by a majority in number of all the landowners, who shall own more than half of the lands assessed for benefits and whose aggregate assessments amount to not less than half of the cost of the proposed work, praying that the whole system of works be abandoned, the court will enter an order granting the petition conditioned upon the payment of all costs by the petitioners within 30 days. Assessments already collected are refunded. Petitioners have the right to withdraw from the petition in the same manner as under section 4 of this Act. This section is not retroactive. (L. 1927, p. 408.)

See: *Marshall v. Comrs. Upper Cache D.D.*, 313 Ill. 11; 144 N.E. 321.
Bossert v. Granery Creek Union D.D. #1, 307 Ill. 425; 138 N.E. 726.
Birds D.D. of Lawrence & Crawford Co. v. Pinkstaff, 323 Ill. 120; 153 N.E. 673.
Warren v. Lower Salt Creek D.D., 316 Ill. 345; 147 N.E. 248.

Sec. 132. Dissolution: When two-thirds of the landowners owning not less than two-thirds of all of the land in a drainage district lying wholly within the limits of a single township present a petition to the commissioners asking that the district be dissolved, the commissioners will endorse on the petition an order dissolving the district if they are satisfied on the due form of the petition and that there are no debts owing by the district and no litigation in which it is involved. When such petition so indorsed is filed with the town clerk and recorded in the "drainage record," the dissolution is complete. Such dissolution, however, does not prevent the commissioners from collecting unpaid assessments nor impair any obligation of the district. At any time within one year after dissolution the district may be restored by a similar petition to the commissioners and a similar procedure. (L. 1885, p. 12.)

Sec. 198. Dissolution: Any drainage district may be dissolved by order of the county court that organized it, upon hearing on a verified petition signed by not less than four-fifths of the adult landowners who own in the aggregate not less than three-fourths in area of the assessed lands. Not less than six weeks' notice of the hearing must be given by posting and publication. It must be shown that no indebtedness exists and that the costs of dissolution have been advanced. The waterways and other improvements of a dissolved district remain for the common use of the landowners. (L. 1889, p. 117.)

INDIANA

(*Baldwin's Indiana Statutes Annotated, 1934, Chapter 32, secs. 5737-5854*)

DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 5740. Petition: The owners of 10 percent in acreage of a body of land lying outside of the corporate limits of any city or town, where drainage cannot be effected in the best and cheapest manner without affecting the land of another person, may apply for new drainage by a petition addressed to the board of county commissioners or to the circuit or the superior court of the county and filed with the auditor or the clerk of the circuit court of the county in which the lands are situated. The petition describes the land of such owners by the legal description in the tax duplicate. The petition must state that the public health will be improved or a public highway will be improved or the drainage will be a public utility. It must also state generally the method by which such drainage can be accomplished and the belief of the petitioners that the cost will be less than the benefits accruing. (L. 1933, ch. 264, sec. 4. Effective Mar. 11, 1933.)

See: *Princeton v. Williams*, 190 Ind. 281; 128 N.E. 601; 130 N.E. 122.
Land Co. v. Carlin, 189 Ind. 324; 127 N.E. 197.

Sec. 5741. Petition—Bond—Jurisdiction: The petitioners must give bond conditioned to pay the costs in the event that the drain is not established. Each petition for a drain must describe an area of land to be benefited equal to four-fifths or more in area of all of the lands that will be affected, and must describe the route of the proposed drain so that the length as described shall be equal to four-fifths or more of the aggregate length of the work to be constructed, not, however, including branches that may be recommended in the surveyor's report. Whenever the ditch is intercounty, the circuit or superior court of the county having the greatest length of ditch as set forth in the petition shall have jurisdiction. When the ditch

runs into two or more counties, the county surveyor of the adjoining county must be appointed one of the viewers.

See: *McCleery v. Zintsmaster*, 187 Ind. 37; 114 N.E. 625.
Agricultural Co. v. Brown, 186 Ind. 30; 114 N.E. 755.

Sec. 5742. Notice: When the petition is filed, there is noted thereon the date for docketing and the clerk gives notice, either written or printed, to all interested parties who will be affected by the proposed work, which notice may be served by leaving a copy at the last usual place of residence or business. Proof of service is by affidavit of the person serving notice. Notice must also be given by posting, at three public places near the line of the proposed work in each township where any of the land described in the petition is situated, and on the door of the court house in each county affected. Non-residents are notified by registered mail. Notice must be given at least ten days prior to the date set for docketing, and the court being satisfied that such notice has been given will docket the petition as a cause pending. When the action is docketed the court appoints two viewers, to act with the county surveyor, who must be reputable, disinterested freeholders not related to any land owner affected, and must be residents of some townships into which the proposed ditch will extend, if such qualified freeholders can be found; otherwise the court may appoint any disinterested qualified resident of the county.

See: *Reed v. Kalfsbeck*, 147 Ind. 148.
Smith v. Smith, 97 Ind. 273.
McCollum v. Uhl, 128 Ind. 304.
Bonbow v. Gray, 193 Ind. 269; 128 N.E. 607; 139 N.E. 658.

Sec. 5737. County surveyor: The county surveyor has charge of all ditch construction, and superintends the maintenance of ditches already constructed. When petitions are filed, they must be referred to him and he makes the necessary surveys and reports back to the court.

Secs. 5743 and 5744. Objections to petition: Any person named in the petition has ten days, exclusive of Sundays and the docketing date, to file any objection or remonstrance thereto as to the form thereof or the qualifications of the viewers appointed. The court hears the remonstrance, and if the petition is found defective it will be dismissed at the cost of the petitioners unless amended within a time set. **Sec. 5744:** If within 20 days, exclusive of Sundays, from the date set for the docketing of said petition, the owners of two-thirds in area of the acreage named in the petition, or who may be affected by an assessment of benefits or damages, shall remonstrate in writing against the construction of such ditch, the petition shall be dismissed at the cost of the petitioners.

See: *Cleck v. Arnold*, 197 Ind. 350; 149 N.E. 178.
Howeisen v. Chapman, 195 Ind. 381; 145 N.E. 487.
Paperbrook v. White, 194 Ind. 17; 141 N.E. 804.

Sec. 5745. Surveyor Viewers: If no remonstrance is filed and the court deems the petition sufficient, it orders the latter referred to the surveyor and viewers, or if objections are not made within ten days the petition is deemed to be sufficient. The court fixes the time when the surveyor and viewers shall report. They make a personal inspection of all land that would be affected and report as to: (1) whether the drainage proposed is practicable; (2) whether when accomplished it will improve the public health or any public highway or be a public utility; (3) whether the cost and damages will be less than the benefits to the owners of the lands expected to be benefited. If they find any of these inquiries in the negative, they so report to the court and the petition is dismissed at the petitioners' cost. If they find favorably, the surveyor alone determines the cheapest and best method of drainage, estimates the cost,

divides the ditch into sections of 100-foot length, assesses the benefits and damages to each tract, and makes a report to the court under oath. The surveyor has discretionary power to fix the termini and route of the ditch as well as its outlet. He may determine the method of drainage. The term "ditch" or "drain" is defined to mean any natural or artificial channel for carrying off surplus water from the land regardless of its width or length.

See: *Byers v. Hoskinson*, 196 Ind. 225; 147 N.E. 810.
Snyder v. Hursey, 190 Ind. 473; 130 N.E. 854.
Thompson v. Ryan, 183 Ind. 232; 108 N.E. 226.
Rig v. Clough, 182 Ind. 178; 104 N.E. 975; 105 N.E. 905.

Sec. 5746. Lakes—Timber—Tile: All timber within 25 feet of any public tile drain must be cut or removed or deadened. In open ditches, in the discretion of the surveyor, timber must be removed 25 feet from the top of each bank. A drain may not be located nearer than 60 rods from the high-water mark of any lake except where it drains into such lake.

Sec. 5747. Dimensions: The surveyor locates and fixes the size and dimensions of all ditches and provides ample drainage or protection from overflow, having in view future contingencies. He includes in his report an itemized account of the cost and expenses incurred in making the survey and assessment.

Sec. 5765. Supplemental proceedings: Any person may file a supplemental petition showing that land not mentioned in the original petition will be affected. He may file such petition for an arm or branch ditch. The procedure thereafter is the same as for the original ditch unless the court shall order the two petitions consolidated and heard together. This act is to be construed liberally, and the collection of assessments shall not be defeated by any defect in the procedure prior to the final judgment of the court; but such judgment is conclusive and final insofar as all prior proceedings are held to be legal and according to law. Only a person directly affected may take advantage of any error, defect, or informality in the proceedings.

See: *Williams v. Osborne*, 181 Ind. 670; 104 N.E. 27.
Stockton v. Ham, 180 Ind. 628; 102 N.E. 378; 103 N.E. 482.

FINANCING—Assessments

Sec. 5748. Assessments and damages—Surveyor's report—Hearing: Upon the filing of the surveyor's report the court sets a date for hearing thereon, not less than 30 nor more than 40 days thereafter. Upon the date being fixed the surveyor within 5 days notifies all persons affected by mail. If the schedule of assessments contains the names of others not named in the petition, they are notified by registered mail with return card. The notice gives the location of the drain, the amount of the assessments, and the date of the hearing. On failure to reach affected parties by mail, notice is given by publication at least 15 days before the hearing. The surveyor furnishes a certificate showing the giving of such notice. (L. 1933, ch. 264, sec. 12.)

See: *Seybold v. Rehwald*, 177 Ind. 301, 95 N.E. 235.
Snyder v. Hursey, 190 Ind. 473, 130 N.E. 854.

Sec. 5749. Hearing Surveyor: At the date of the hearing the surveyor, (or the surveyors in the case of intercounty drains) must be present at the clerk's office of the court of the county in which the proceedings are pending, and hear and determine all objections made to such apportionments and assessments. The hearing may be adjourned from time to time until all objections are heard. Objections must be verified and in writing. The surveyor confirms or changes the assessments and apportionments as may be just, and reports his (or their) action to the court.

See: *Ginni v. Hinton*, 174 Ind. 296, 91 N.W. 1093.
Shields v. Pyles, 180 Ind. 71, 99 N.E. 742.

Sec. 5750. Assessments—Damages: Any party may remonstrate against the surveyor's report to the court within 10 days, on the ground (1) that the report is not in accordance with the law; (2) that the damages awarded are excessive; (3) that the assessment is insufficient in comparison with other lands specifically named; (4) that other tracts are assessed too low; (5) that the lands will not be benefited to the extent of the assessment; (6) that the damages are inadequate; (7) that land assessed benefits will actually be damaged; (8) that the expense will exceed the benefits; (9) that the improvement will not benefit the public health or any highway or be a public utility; or (10) that the work as proposed will not be sufficient to drain the land.

See: *Thorn v. Silver*, 174 Ind. 504, 89 N.E. 943, 92 N.E. 161.
Stroup v. Ferguson, 200 Ind. 139, 161 N.E. 628.
Click v. Arnold, 197 Ind. 350, 149 N.E. 178.

Sec. 5751. Laterals: If within 10 days the owners of two-thirds in area of the acreage of land affected by the construction of any lateral, arm, or branch to the main ditch, which lateral is described in the report of the surveyor but was not described in the original petition, remonstrate against the construction of such lateral, the court must strike the lateral from the report and set aside the assessment for the same. (*Land Co. v. Carlin*, 189 Ind. 324, 127 N.E. 197.)

Sec. 5752. Court—Hearing: At the hearing of the remonstrances the court may refer the report back to the surveyor for further report; may adjust the assessment and damages as may be right and proper, and confirm the assessments; or may dismiss the petition if the remonstrances are upheld, with entire cost to the petitioners. If after 10 days there is no appeal and the finding is against the remonstrance, the court makes an order declaring the proposed work established and approving the assessments as made by the surveyor or as modified by the court. The court then assigns the work to the county surveyor for construction. If the assessments or benefits remonstrated against are not changed 10 percent in favor of the remonstrant, he must pay the costs occasioned by the remonstrance. In other cases the costs are paid by the surveyor out of the ditch fund. There may be no change of venue.

See: *Papenbrook v. White*, 194 Ind. 17, 141 N.E. 804.
Comr's. v. Summy, 193 Ind. 456, 140 N.E. 911.
Anson v. Thorn, 180 Ind. 695, 103 N.E. 800.

Sec. 5753. Appeals—Bond: The order of the court establishing the work is conclusive unless appeal is taken to the superior or circuit court within 30 days. Appellant must file bond to pay all costs in the event of a decision against him. Further appeal may be taken from the superior or circuit court to the supreme court or the appellate court of the state within 30 days. After the appeal is determined, the matter is remanded to the court of original jurisdiction for proceedings in accordance with the judgment on appeal.

See: *William v. Dexter*, 175 Ind. 659, 95 N.E. 113.
Kosta v. Zickmund, 200 Ind. 605, 165 N.E. 433.
In re Gilbert, 195 Ind. 278, 144 N.E. 551.
Ry. v. Mosher, 193 Ind. 577, 141 N.E. 322.

Sec. 5758. Surveyor—Increased assessments: In the event the surveyor is unable to construct or repair the ditch for the estimated cost of construction, he may increase the assessments under such estimate but not in excess of the estimated benefits. If unable to complete within the assessed benefits, he reports that fact to the court, which immediately orders a new assessment of benefits and damages. The proceedings then become the same as for the original assessment of benefits with the same right of remonstrance and appeal.

Sec. 5759. Intercounty ditch: The surveyor charged with the execution of an improvement which affects land in more than one county shall govern himself as if the ditch were all in his county. After he has apportioned the costs between the counties, he certifies the same to the surveyor of each other county concerned, who thereupon issues a voucher upon his ditch improvement fund payable to the auditor of the county in which the ditch was established for credit of the ditch improvement fund of that county. Assessments in each county are paid to the county treasurer of that county, and placed in the ditch improvement fund of that county. The Board of Commissioners of each county has the right to issue bonds for such ditch assessment in the same manner as for ditches wholly within one county.

See: *Watkins v. State*, 151 Ind. 123.
Crook v. State, 126 Ind. 572.
Watkins v. Van Auken, 151 Ind. 123.

Secs. 5767 and 5768. General ditch fund: The Board of County Commissioners of each county within 90 days after the passage of this act (March 1933) may provide and establish a General Ditch Improvement Fund of not to exceed \$10,000, which is to be used as a sinking fund for all bonds issued for construction and maintenance.

If the board shall deem it inadvisable to establish such fund, all payments from and reversions to such fund shall be paid from and shall revert to the county general fund. The General Ditch Improvement Fund shall consist of all money in any ditch fund not otherwise appropriated at the time this act goes into effect, taxes then or thereafter collected for ditch purposes, the proceeds of bonds issued and sold for the construction of the specifically named ditch; and from the collection of all special payments and benefits to property as provided in this Act. **Sec. 5768:** The Board of County Commissioners provides a budget sufficient to take care of allotments and cleanout work upon which no regular assessment is made. They need not provide a General Ditch Improvement Fund if they decide to use the general fund in lieu of such separate ditch fund.

Sec. 5769. Costs—Expenses: The costs and expenses of any improvement petitioned for under this act are paid out of the general ditch improvement fund. (See sec. 4768 also.) No payment may be made except upon verified bill approved by the surveyor, filed with the auditor, and allowed by the commissioners. Attorney's fees paid may not exceed 3 percent of the cost up to \$10,000 and 1 percent of the amount in excess thereof. No payment in excess of 80 percent of the work actually completed may be made to any contractor before final settlement.

Sec. 5770. Costs—Assessments—Lien: Within 10 days after letting the contract for construction of the improvement, the surveyor in charge computes the entire cost including attorney's fees allowed by the court and interest at 6 percent on the funds paid out of the ditch improvement fund, and apportions such cost and expenses to the several tracts of land in proportion to the benefits assessed. The apportionment to any parcel shall not exceed the benefits assessed against it. The assessment, apportionment, and time to make payment are certified by the surveyor to the county auditor. If the ditch is inter-county, the surveyor's certificate is made to the auditor of each county affected. The auditor gives 30 days' notice by publication of the day named for the payment of such assessment, stating that the same has been placed in the hands of the county treasurer for collection. The auditor then extends such assessment on the ditch duplicate. The extension on the duplicate is for the full period of the payment of all assessments as fixed by the surveyor except that assessments of less than \$25 shall be

limited to payment within one year. The auditor calculates and adds to each successive installment interest at 6 percent until the time fixed for payment thereof.

Liens: Drainage assessments constitute a lien upon the lands and are collected in the same manner and at the same time as general taxes. The money collected is deposited in the ditch improvement fund. Assessments not paid when due become delinquent the same as general taxes, and are subject to the same penalties. Delinquent lands may be placed on the list of lands to be sold at tax sale and are sold in the same manner and at the same time as provided for tax sales under the general law. The same penalties and rights attach as provided for property sold at tax sales. Personal property and real estate other than that assessed shall not be sold therefor. Unpaid assessments against municipal corporations may be enforced by suit in the name of the state in the relationship of the county treasurer on behalf of the county.

See: *Loan & Invest. Co. v. Hauchins*, 195 Ind. 256, 144 N.E. 879.

State v. Allen, 71 App. 160; 124 N.E. 684.

Sec. 5771. Liens—Priority—Lands affected: The amount of the assessment as made or as approved and confirmed by the court is a lien upon the land assessed from the time it is confirmed, and in order of priority follows all other improvement liens upon the affected real estate in the order as to date of attachment. The surveyor must have in his office a complete copy of the assessment which may be examined by any interested party. Owners desiring to transfer land clear of the incumbrance of the assessment may deposit the full amount of benefits assessed, which will be credited to the ditch improvement fund. The surplus, if any, over the actual assessment is returned when the surveyor has made a final computation. The lien automatically terminates when such deposit is made.

See: *Twp. v. Cook*, 160 Ind. 533; 67 N.E. 262.

Ry. Co. v. Jackson, 176 Ind. 487; 96 N.E. 466.

Sec. 5793. Benefits to highways, streets, etc.: Benefits to highways, streets, and alleys are assessed against the state if supervised by the state, or against the county if supervised by the county. Benefits to streets and alleys are assessed against the town in which the same are located. Assessments are paid out of the highway fund or street fund of the State, county, city or town as the case may be.

FINANCING—Bonds

Sec. 5772. Commissioners—Bonds—Sale: The Board of County Commissioners in its discretion may issue bonds to reimburse the ditch improvement fund for money advanced from such fund, including all sums owing on all ditches, in one bond issue. The commissioners may declare by resolution its determination to issue such bonds and the amount, rate, maturity, and denominations thereof. Bonds may be for 2, 5, 10, or 20 years, arranged to mature as assessments become available for their retirement, and must show on their face the ditch or ditches for which they are issued. The regulations as to sale of other county bonds apply. When sold, the proceeds become a part of the ditch improvement fund and must be used exclusively to reimburse such fund. The commissioners in their discretion may issue bonds at any time for the unpaid balance due for any ditch or ditches. Whether bonds are issued or not, the landowners must pay their assessments at the time and in the installments fixed by the surveyor in his report to the auditor. (L. 1933, ch. 264, sec. 36.)

Sec. 5773. Security for bonds: Bonds so issued by the commissioners are not an obligation of the county but are liens

against each parcel of real estate described as assessed for benefits in each of such ditches so bonded, to the full extent of the unpaid assessment thereon. As interest or principal becomes delinquent, the county must make payment out of the ditch fund and be subrogated to the rights of the bondholder in the delinquent property.

CONSTRUCTION

Secs. 5754 and 5755. Contracts—Plans: The surveyor gives 10 days' notice by publication calling for sealed bids for furnishing labor and material to construct the work. The work is let to the lowest bidder, and may be divided into separate contracts in the best judgment of the surveyor. **Sec. 5755:** The contractor must give bond to the state for the faithful performance of his work and is liable on his bond to the persons damaged by his failure to complete within the time limit. The surveyor may bring suit on a contractor's bond to recover any additional expense or cost due to failure of the contractor to complete, and any sum recovered is paid into the drainage fund. All contracts must have the approval of the court.

See: *Ritenour v. Shoemaker*, 195 Ind. 52, 144 N.E. 550.

State v. Jacobs, 194 Ind. 327; 142 N.E. 715.

Prather v. Latshaw, 188 Ind. 204, 122 N.E. 721.

Sec. 5756. Repair of drains: The owner or owners of 5 percent in acreage of the land affected by and assessed for any public drain have the right to file a petition alleging that the drain is out of repair and not sufficient to properly drain the land. They may suggest how the drain should be repaired as to tile or open ditch but may not contemplate a change greater than 10 percent of the original plans and specifications. The proceedings thereafter are the same as for the original establishment of the drain. No such petition shall be denied by reason of the filing of a remonstrance signed by the owners of two-thirds of the acreage of land named as such in the petition, unless the signers of such remonstrance shall likewise be the owners of the lands abutting on more than one-half of the total length of the ditch. Where the petition is for cleaning and the ditch has not been cleaned within 10 years, then the right to remonstrate is denied. Where within 1 year the ditch has been permanently improved by a landowner, such improvement shall be taken into consideration by the surveyor in estimating the cost; and such improvement will be allowed the landowner as a reduction on the benefits assessed against him. The cost and repairs are apportioned according to the benefits derived and the proceeding is the same as for a new ditch.

See: *Rockey v. Hershman*, 193 Ind. 168; 138 N.E. 339.

Kitty v. Michael, 190 Ind. 374; 130 N.E. 531.

Huffman v. Newlee, 189 Ind. 14; 124 N.E. 731.

Sec. 5757. Branch drains: Whenever a landowner, who has been assessed for the construction of a drain under any law of this state, finds that his lands are not adequately drained and such adequate drainage cannot be obtained without the construction of a branch or tributary drain to the main ditch, and his lands are so situated that it is necessary for such branch drain to cross the lands of not more than two other persons whose lands intervene, such landowner has the right to enter into an agreement with the intervening landowners to construct such drain. The landowners may call on the county surveyor to construct such drain, designate the size of the tile, and fix the amount that each interested landowner shall pay toward the construction, or the appropriate share that each shall construct and maintain. Any aggrieved landowner may appeal to the Board of County Commissioners, whose decision is final in the absence of appeal to the circuit or superior court within 10 days. After a ditch is constructed in accordance with the adjustment made, the surveyor

enters the same in his record as if it had been a regularly petitioned county ditch, and it is maintained as such. On failure or refusal of a landowner to construct the drain allotted to him, then on written notice by any interested landowner the surveyor will proceed to have such ditch constructed. The delinquent landowner is notified of the cost, which may be certified to the county auditor for collection as other delinquent taxes.

Secs. 5760 to 5764. Constructing a drain into a lake: When 10 or more persons, owning land within 440 yards of the high-water mark of a lake of glacial origin that has no flowing surface outlet, petition the superior or circuit court of the county in which the lake in whole or in part, is situated, for construction of a surface drain or drainage system into the lake, the court proceeds in all respects as provided for establishing other drains. *Sec. 5761:* Provision is made for drainage into lakes wholly or partly within the corporate limits of a town or city. *Sec. 5762:* The court, when necessary to establish a drain, may order it constructed across swamp land owned by the state. *Sec. 5763:* In the case of a joint state ditch, when the surveyor or surveyors find swamp land owned by the state will be beneficially or injuriously affected, they include in their report the amount of benefit or damage. Upon filing such report, the state has the same right to remonstrate as any landowner. Upon final hearing, the court determines the benefits or damages accruing to such land. *Sec. 5764:* The auditor of the state is authorized to pay out of the swamp land fund such benefits as may be so allowed, and if necessary he may sell so much of the swamp land as is necessary to pay the assessment. Upon appropriation by legislature, the benefits may be paid out of the state treasury.

Sec. 5774: Subcontractors—Lien: Subcontractors have a lien for labor and materials upon the fund raised for the payment for a ditch upon notice in writing to the surveyor within 60 days of furnishing such labor or material, stating the amount due and describing the work or material furnished. The surveyor withholds payment to the contractor in an amount sufficient to satisfy such lien until same is adjusted and paid. In case of disagreement the matter may be determined by the court, and payment by the surveyor of the amount so determined releases him from any liability thereon. Otherwise the surveyor is liable on his bond for the amount paid over to the contractor. (*Construction Co. v. Com'r*, 77 App. 305; 131 N.E. 536.)

Art. 7, Sec. 5843. Tributary tile drains: When a landowner has been assessed for the construction of any tile drains pursuant to any law, and it appears that such owner's land will not be adequately drained and such drainage cannot be obtained without constructing tributary drains to the existing drain, and when other lands intervene, such landowner is entitled to a right-of-way for such tributary tile drain having the most advantageous and economical route through such contiguous or intervening lands. It is lawful for him to enter the said lands for that purpose. Such proposed lateral must in all cases be a tile drain, and must be constructed with as little damage as possible to the intervening land; and any person constructing such drain is liable for damage to growing crops and other necessary damage caused to the owner of the land through which the tributary drain is built. The damages are assessed by three disinterested parties. (L. 1913, p. 948.)

Secs. 5775 to 5777. Maintenance: The supervision and maintenance of all public ditches or parts thereof is under the exclusive charge of the surveyor of the county in which located, whether established and constructed under the same or another county. It is the surveyor's duty to see that the said ditches

in his county are kept in proper repair and free from obstruction in conformity with the original specifications, and in such manner that they completely discharge the functions for which they were designed. *Sec. 5776:* It is the duty of the surveyor to see that the ditches are cleaned biennially, except that tile ditches are cleaned and repaired in accordance with section 5784. The ditches are divided into two classes, and each class is cleaned in alternate years. *Sec. 5777:* The surveyor determines the portion of the ditch which the party benefited shall repair and clean biennially. Where drainage ditches have a bottom greater than six feet in width the surveyor fixes the number of feet from which each affected property owner shall annually remove weeds, willows, and obstructions, unless the owners of 20 percent of the land shall petition that the surveyor allot such ditch for biennial cleaning as for the ditches of less width of bottom.

See: *Quick v. Parrott*, 167 Ind. 31; 78 N.E. 232.
Ballard v. Bagwell, 83 App. 331; 147 N.E. 311.

Secs. 5778 and 5779: The surveyor reduces the allotment to writing and records it in the cleanout record. Allotments are posted for 10 days, with notice of time and place where the surveyor will hear objections. Service of notice is by mail. *Sec. 5779:* After the hearing, the surveyor confirms or changes the allotment as justice may require and enters his order, which is final in the absence of appeal within 10 days to the circuit or superior court.

See: *Stockton v. Osborne*, 181 Ind. 440; 104 N.E. 756.
O'Toole v. Tudor, 175 Ind. 227; 93 N.E. 276.

Sec. 5780: The surveyor fixes the time for completing each allotment of cleaning, beginning with the allotment nearest the mouth of the ditch, records the same in a book kept for that purpose, and notifies the parties affected. Thereafter the owners must clean the ditch biennially at the same time of year, and further notice is not necessary unless ownership of the land is changed.

See: *Beery v. Driner*, 167 Ind. 127; 76 N.E. 967.
Zimmerman v. Savage, 145 Ind. 124.

Sec. 5780. Streams—Abutting landowners: The owners of 20 percent of the land abutting on any stream that is not navigable and does not exceed an average width of 90 feet between banks, whose lands are subject to overflow caused by obstructions in such stream, may petition the surveyor to allot a portion of said stream to each abutting landowner; and on order of the surveyor each such owner shall keep the allotted portion clean and free from obstruction. The procedure is the same as that under section 5775 *et seq.*

Sec. 5782 and 5783. Tiling—Exemption: When an owner has converted a portion of an open ditch allotted to him into a blind ditch by putting in tile of sufficient dimensions to serve the purpose of drainage, such tile being continuous from the head or beginning of such ditch, thus obviating the necessity of cleaning that part of the ditch so tiled, such owner becomes exempt from allotment in that particular ditch. Such exemption applies only to that particular drain, and that owner continues responsible for his allotted share of cleaning the ditch into which such tile drain has outlet. Persons converting their allotment into blind tile ditch are responsible for the adequacy thereof and for obstructions caused by defects therein, but the cost of removing ordinary accumulations in such tile drain are paid out of the general ditch improvement fund. *Sec. 5783:* A landowner allowing an allotment of ditch to become obstructed through negligence must repair and clean the same at his own expense. Upon failure so to do, after 15 days' notice from the surveyor by registered mail, the surveyor will have the repairs

made, and collect from said owner the cost thereof including his own per diem and expenses. If the owner fails to pay within 30 days, the cost is paid from the ditch improvement fund and then is placed upon the books of the auditor with a 10 percent penalty added, and becomes collectible as other taxes are collected. In townships where live-stock is permitted to run at large upon the highway, it is the duty of the highway superintendent to repair damages to drains caused by such stock.

Secs. 5784, 5785, and 5792. Public tile drains: Public tile drains are repaired under direction of the surveyor and are classified for biennial repair. The surveyor may make repairs not exceeding \$50 in cost without advertising, and pay for same out of the general ditch improvement fund. When such drain is intercounty, the surveyor of the county having the larger portion of the drain performs this duty and each county bears its proportionate share of the expense. Where the cost will exceed \$50, the surveyor advertises for bids and lets contract for the work in the same manner as provided for other contracts. The surveyor pays the cost out of the ditch improvement fund and assesses the same proportionately on the lands that are benefited and in proportion to the original assessment for construction. Such assessments are collected in the same manner as other assessments, and must be paid at the first taxpaying time thereafter. **Sec. 5785:** This section provides the manner in which repairs and cleaning shall be done. **Sec. 5792:** This section provides for repairs to continuous tile drains of adjoining landowners where one landowner refuses or neglects to repair, the work to be done by the surveyor.

Secs. 5787 and 5788. Inspection: Surveyors may not accept allotments as complete until after inspection, and the surveyor is not required to make any inspection until the amount of work completed will require at least one-half day to complete such inspection. **Sec. 5788:** Provides penalties for failure of the surveyor to perform his duties.

Sec. 5789. Unfair allotments: If, after 2 years from the time any allotment is made, a petition is filed by one or more affected parties asking a new allotment, the county surveyor examines the ditch and, if he finds the allotment unfair, proceeds to reapportion the ditch as if no allotment had theretofore been made. If he finds no cause for complaint, costs are taxed against the petitioners and collected as other taxes are collected.

Secs. 5790 and 5791. County drainage map: The surveyor is required to make a drainage map of his county, except that for a county having less than 100 miles of ditch such map need not be made unless required by the county council. The surveyor must, however, provide the data for all new or all reconstructed works. **Sec. 5791:** All cleanout work must be let by contract and not by yardage.

Sec. 5795. Boundary line drains: Where drains mark boundaries between lands of adjoining owners, the right-of-way for cleanouts must alternate on the right and left of such ditch in the biennial cleanout.

Art. 5, Sec. 5825. Subdivisions: This article provides for allocating benefits to lands that have been subdivided subsequent to the first assessment for ditch purposes.

IOWA

(Iowa Code of 1935, Chapters 353 to 361)

ORGANIZATION—Petition

Ch. 353, secs. 7421, 7422, and 7425. Jurisdiction to establish: The board of supervisors of any county at any regular, special, or adjourned meeting may establish drainage districts and locate levees and cause them to be constructed as herein

provided. They may straighten, widen, or deepen any natural water course whenever the same shall be of public utility or conducive to the public health, convenience, or welfare. **Sec. 7422:** The drainage of surface water from agricultural lands or the protection of the same from overflow shall be presumed to be a public benefit and conducive to the public welfare, health, and convenience. **Sec. 7425:** So far as practicable the works must be located along the general course of natural drainage, but where it is more economical or practicable the works need not follow the natural course of drainage but may shorten or change the courses of natural streams.

See: Mitchell Co. v. Odden, 219-793; 259 N. W. 774.
Marsden v. Kirpatrick, 214-1388; 243 N. W. 145.

Ch. 353, secs. 7427 to 7431. Petitioners: The owners of at least 25 percent of the land described in the petition may file a petition for the establishment of a levee or drainage district with the county auditor. In the case of a sub-district, one or more owners may petition for same. **Sec. 7428:** Where the proposed drainage district involves only the straightening of a water course, the board will not consider the petition unless signed by at least 35 percent of the owners of the acreage affected or assessed. This does not affect the draining of swamps not in the congressional 40-acre tracts abutting upon such water course. **Sec. 7429:** The petition must set forth: (1) a description of the land by congressional divisions or otherwise; (2) that the lands are subject to overflow or are too wet for cultivation; (3) that public utility, health, convenience, or welfare will be promoted by the proposed works; and (4) the termini, route, and lateral branches of the proposed improvement. **Sec. 7430:** Bond approved by the auditor must accompany the petition, conditioned to pay the costs if the district is not established. **Sec. 7431:** The board may not incur expense in excess of the amount of the bond in preliminary work until an additional bond approved by the auditor has been filed.

Ch. 353, secs. 7432 and 7438. Procedure of the board: The board at its first session appoints a competent and disinterested engineer, who gives bond for the faithful performance of his duties. He examines the land described and any other that would be benefited by the proposed work, locates the works and makes a survey, and reports on the improvement necessary to carry out the petition and which will be of benefit to the public convenience, health, and welfare. **Sec. 7438:** The engineer makes full written report to the auditor showing: (1) the route and termini of all ditches and levees and the location and character of all other improvements; (2) detailed profile and map showing how the works will affect each 40-acre tract, and the name of the owner thereof; (3) the boundaries of the district, the land that will be benefited or affected, and the location and size of ponds and depressions; (4) a plan for the most practical method of securing equipment and materials on the ground; and (5) the probable cost of the improvements, and such other recommendations as he deems material.

Ch. 353, secs. 7439 and 7440. Hearing: The board examines the report at its next meeting after the filing thereof, and if not satisfied with the plan presented may employ the same or another engineer to make an additional or new plan. The board may amend the plan at any time before final adoption, but such final adoption is conclusive in the absence of appeal. **Sec. 7440:** When the plan has been approved by the board, it is recorded as a tentative plan for the improvement. The board then enters an order for a hearing on the petition and engineer's report so approved, to be held in not less than 40 days, and directs the auditor to give notice thereof to each owner of land affected and to each lien holder or encumbrancer as well as to the actual

occupants of the lands affected. Objections must be in writing, and be filed with the auditor before the date of the hearing. (*Whisenand v. Van Clark*, 227-800; 288 N.W. 915.)

Ch. 353, sec. 7447. Hearing on petition: At the hearing the board determines the sufficiency of the petition as to form and substance, as well as all objections filed, and the board may view the lands included within the proposed district. Finding that there is no material benefit to the land or no public benefit, the board must dismiss the petition. Finding that the petition complies with the law in form and substance, that the improvement would be conducive to the public welfare, that the cost is not excessive, and that no claim has been filed for damages, the board will locate and establish the district in accordance with the engineer's report and the tentative plan. The board may refuse to establish the district and have a further survey and new plan made, and fix the date of a further hearing of which all parties must take notice. (*Christensen v. Agan*, 209-1315; 230 N.W. 800.)

Ch. 353, secs. 7449 to 7453. Appraisers—Damages: When the board has determined that the district should be established and there are claims for damages filed, it will adjourn to await the report of 3 appraisers whom the auditor shall appoint to assess damages. One appraiser shall be an engineer and 2 shall be freeholders of the county, who are not interested nor related to any interested party to the proceedings. **Sec. 7450:** The appraisers view the land and fix the damages to which each claimant is entitled, and place separate valuations upon rights-of-way or land to be used for settling basins, as shown by the plat. They file their report with the county auditor. **Sec. 7451:** The board examines the appraisers' report and may hold a hearing thereon and they may increase or diminish the amount of damages awarded. **Sec. 7452:** At such hearing the board considers the cost as reported by the engineer and the damages awarded all claimants, and if the cost of construction and damages awarded creates a greater burden than should justly be borne by the land benefited, they will dismiss the petition at the cost of the petitioner. Finding otherwise, they finally and permanently locate and establish the district. **Sec. 7453:** If at or before the final hearing there is a remonstrance filed with the county auditor, signed by a majority of the landowners in the district who own in the aggregate 70 percent or more of the land assessed, the board will dismiss the proceedings after the costs have been paid by one or both parties as the board may determine.

Ch. 354, secs. 7599 to 7611. Intercounty districts: When a proposed drainage district embraces land in more than one county, a duplicate of the petition is filed in each county with the auditor. Duplicate bond is filed in an amount approved by the auditor of the county having the largest acreage, which bond runs in favor of the several counties in which it is filed. **Sec. 7600:** The county board of each county appoints one commissioner, and they meet and appoint a competent engineer who also acts as a commissioner. **Sec. 7601:** The board of commissioners, including the engineer, file a detailed report of the required drainage works and a duplicate in the office of the auditor of each county interested. **Sec. 7602:** The engineer also files his plat, profiles, and papers in each county. **Sec. 7603:** If the report is favorable, notice is given by the auditor of each county to the landowners in his county and also to the actual occupants of the land and leaseholders and encumbrancers. **Secs. 7604 to 7611:** Notice is similar in all respects to that for a district wholly in one county. Claimants for damages file their claims with the auditor of the county in which their lands are situated. At the hearing the county boards of the several counties meet in joint session and organize and elect a chairman and

secretary. They sit jointly in considering the petition in the same manner as if the district were in one county. The joint board may reject the petition or tentatively adopt the plan of the engineer. If they approve the plan, the board of each county selects an appraiser and the several boards by joint action employ an engineer; and the appraisers and engineer constitute the appraisers of damages and value of rights-of-way. The procedure is then the same as if the district were in a single county. The joint board may meet in any of the counties. When county boards are of unequal membership, the vote is equalized and the smallest board casts one vote for each member and the larger boards a fractional part of a vote resulting from dividing the number of members in the smaller county by the number in the larger.

Ch. 354, secs. 7612 to 7622. Joint meetings: If the boards acting jointly establish a district, they appoint one commissioner from each county and a competent engineer, who within 20 days inspect and classify the lands, fixing the percentage of benefits and the apportionment of costs. This procedure is in all respects similar to that for a single county district. **Sec. 7613 to 7621:** After the amount to be assessed and levied has been determined, the several boards, acting separately and within their own counties, levy and collect the taxes in that county. They issue warrants, improvement certificates, or bonds within their own county, with the same rights of landowners to pay in cash without interest as if the district were in one county only. The joint board elects a supervising engineer to construct the work, make monthly estimates of payments for work done, and make final settlement substantially as if the district were in one county. **Sec. 7622:** Upon failure of any board to act or if the boards disagree, the petitioners may transfer the proceedings to the district court of any of the counties involved by serving notice on the auditor within 10 days after the expiration of the 20 days allowed for inspection and classification under section 7612, or within 10 days after failure to agree.

ORGANIZATION—Powers

Ch. 353, secs. 7514, 7522, 7523, and 7527. Appeals in inter-county districts: When districts extend into two counties, appeal from the final order of the joint board of supervisors or the order of the trustees, may be taken to the District Court of any county into which the district extends. **Sec. 7522:** Appeals from orders fixing compensation for lands taken for rights-of-way or the amount of damages awarded shall be tried as ordinary proceedings. All other appeals are triable in equity, and the court may order the consolidation of two or more equity cases. **Sec. 7523:** On appeal it is not competent to show that any lands in the district are not benefited to some degree. **Sec. 7527:** The right of appeal is exclusive of all other remedies.

Ch. 353, secs. 7549 to 7551. Annexation of additional lands: When, after the establishment of a district, the board becomes convinced that additional lands are benefited and should have been included, it will adopt a resolution of necessity for annexation and appoint an engineer to make survey and report as in the original proceedings. **Sec. 7550:** If the engineer's report is favorable, the board proceeds as in the original undertaking as to notice, hearing, assessment of benefits and damages, etc. **Sec. 7551:** Lands may be annexed upon petition of their owners.

Ch. 354-a-1, secs. 7626-a-1 to a-5. Converting intracounty districts into intercounty districts: Whenever one or more districts in one county outlet into a common carrying outlet for one or more districts in another county, the boards of supervisors of such counties, acting jointly by resolution and on

petition of the trustees of any one of such districts or of one or more landowners therein, accompanied by bond, must initiate proceedings for the establishment of an intercounty district by appointing commissioners as provided in section 7600 and proceeding as provided in chapter 354, and all provisions of that chapter are applicable. *Sec. 7626-a-2:* Neither any land nor any previously organized district may be included or assessed unless the land or the district shall receive special benefit from the improvements in the proposed intercounty district. *Sec. 7626-a-3:* Any landowner affected may appeal to the district court of the county where his land is situated. *Sec. 7626-a-4:* The proceeding on appeal is the same as provided in chapter 353. *Sec. 7626-a-5:* The trustees or boards of supervisors having charge of any previously organized district which is to be included in whole or in part in the proposed intercounty district have the same right of appeal under the same procedure.

Ch. 358, sec. 7674 et seq. Management by trustees: Any district in which the original construction has been completed and paid for by bond issue or otherwise may be placed under the control of a board of three trustees to be elected by the landowners assessed for benefits. The petition is filed with the auditor and is signed by a majority of persons, including corporations, owning lands assessed for benefits. The board canvasses the petition, and if it is in proper form orders an election thereon in not less than 40 nor more than 60 days to elect three trustees for the district. If it be an inter-county district, a duplicate petition is filed with the auditor of each county. The boards of supervisors of the several counties meet in joint session and canvass the petition. If in due form, the boards by joint action call an election and appoint judges and clerks for the same. When the petition is for trustees to manage a district of 3,000 acres or more, the board or boards divide the district into three election districts having substantially equal voting power. One trustee is then elected from each election district, but all of the qualified voters for the entire district are entitled to vote for each trustee. Each trustee must be an adult citizen of the United States, a resident of the county, and the owner of land in the election district for which he is elected. Notice is by publication in all of the counties. The right to vote is determined by a certificate from the auditor of the classification and assessment of each tract of land in the district in the name of the present owner. The latest owner is entitled to vote upon proof of title. Each adult owner, without regard to sex, and each railroad is entitled to one vote only. When the petition filed with the county board is signed by a majority of the landowners owning lands assessed for benefits and asks for the right to vote in proportion to the assessment of benefits; and filed with the board, then each landowner assessed is entitled to one vote for each \$10 or fraction thereof of his original assessment. The voter must write his name on the ballot. The vote must be cast in person. *Secs. 7686 to 7698* provide machinery for conducting the election in detail.

Ch. 385, sec. 7700. Trustees' duties: The trustees have control and management of the district, and for that district have all of the power conferred on the board of supervisors, including the issuance of improvement certificates and bonds. Any reclassification or important change in the district is submitted to an election and the details of the manner of conducting the same are set out in the statute. Upon petition of a majority of the landowners assessed, including corporations, owning more than one-half of the acreage, the district may change back from the trustee form of management to the control of the board of supervisors after due notice and hearing.

FINANCING—Assessments

Ch. 353, sec. 7464. Classification—Assessment: When the district is established and the contracts for construction are let, the board appoints three commissioners to assess benefits and to classify the lands affected. One must be a competent civil engineer and two must be freeholders of the county not interested in the district nor related to any interested party.

Ch. 353, sec. 7465. Scale of benefits: The commissioners fix the time within which the classification and assessment must be made. The commissioners within 20 days begin to classify all the land within the district, including any changes, extensions, or enlargements, in tracts of 40 acres or less according to legal subdivision, in a graduated scale according to the benefits to be received. When this is completed the commissioners make a full and detailed report thereof and file it with the auditor. Each tract is numbered, the lands receiving greatest benefit being marked 100 and those benefited in less degree marked in proportion. The commissioners also make an equitable apportionment of the costs and damages computed on the basis of the percentages fixed.

Ch. 353, sec. 7467. Rules of classification: In their report the appraisers specify each tract by its proper description and the ownership thereof as appears on the auditor's transfer books. They will not take into consideration any benefit to be derived from other works than those of the districts.

Ch. 353, secs. 7468 to 7470: The commissioners must fix the benefits derived from lateral drains in the same manner as for subdistricts, and report separately (1) the percentage of benefit to each 40 acres derived from the main ditch and works and (2) the percentage of benefit on account of the laterals. *Sec. 7469:* Railroad property may be assessed by the commissioners, the proceedings being the same as for individual property. *Sec. 7470:* Assessment may be made against public roads in the district.

Ch. 353, sec. 7471. Report of commissioners: The commissioners file in the auditor's office a verified report in tabulated form as to each 40-acre tract, setting forth: (1) name of the owner as shown by the transfer books; (2) the amount of benefit to each railroad and highway, the percentage of benefit to each other tract, and the apportionment and amount of assessments of costs and expenses against each tract (a) for main ditch and settling-basin, (b) for laterals, (c) for levees and pumps; and (3) the aggregate amount of all assessments.

Ch. 353, secs. 7472 to 7475. Hearing—Notice: The county board fixes the time for hearing on the report of the commissioners and the auditor serves notice to each landowner and each actual occupant of the lands, stating the amount of cost and construction expense apportioned to each 40 acres or less. Any objections must be filed in writing before the date set for the hearing. *Sec. 7473:* At the hearing the board determines all objections filed to the said report and may affirm, increase, or diminish the percentage of benefits or apportionment of costs and benefits as may be just and equitable. *Sec. 7474:* The board may hear evidence both for and against said report, but it is not competent to show that any of the land will not be benefited in some degree. *Sec. 7475:* The board gives notice to the owners of any tract on which it is proposed to increase the assessment, and requires him to appear between 10 and 20 days after service and show cause why the assessment should not be increased.

Ch. 353, secs. 7476 and 7477. Classification as basis of future assessments: The classification when finally adopted remains the basis of all future assessments unless revised by the board in the manner provided for reclassification, except that lands lost by erosion or taken for rights-of-way will not

thereafter be assessed. Any resulting deficiency is spread over the remainder of the land in the same ratio as the original classification. *Sec. 7477:* When the board has finally determined the matter of assessment of benefits and the apportionment, it levies such assessment as a tax which bears interest from that date.

Ch. 353, secs. 7478 to 7480. Lien: Such taxes are a lien on all premises against which they are assessed, as fully as state and county taxes. *Sec. 7479:* If the first assessment for the original cost of any improvement is insufficient, the board makes an additional assessment and levies it in the same ratio as the first assessment. *Sec. 7480:* All drainage or levee assessments are set out in the drainage record of each district and also on the tax records of each county.

Ch. 353, secs. 7481 to 7483. Funds: The taxes when collected are kept in a separate fund known as the drainage and levee fund, and are paid out only on order of the board for the purposes of the district. *Sec. 7482:* Drainage and levee taxes become due at the same time as other taxes and are collected in the same manner. *Sec. 7483:* All assessments are levied at one time and each interested party has the right within 20 days to pay such assessments in full without interest and before any improvement certificates or bonds have been issued against such assessments.

Ch. 353, secs. 7484, 7486 and 7488. Installments: Any owner who has been assessed more than \$20 may within 30 days file an agreement or endorse same on any improvement certificate to the effect that in consideration of paying the assessment in installments, he will not make any objection to the legality of his assessment for benefits or the levy of taxes. He may then pay one-third of his assessment at the time of filing the agreement, one-third in 20 days after the improvement is certified by the engineer to be one-half completed, and the remaining one-third within 20 days after the work is completed and accepted. Installments paid as thus agreed do not bear interest. Otherwise interest is collected in the same manner as taxes and with the same penalty. Landowners may pay such assessments in not less than 10 nor more than 20 installments with interest as fixed by the board, one installment to be paid at the March tax-paying period each year. The county treasurer may require payment of only a sufficient amount of the first assessment to meet bonds and interest maturing prior to the regular time for payment of the second installment; but the remainder must be paid with such second installment, without penalty. *Sec. 7486:* In case of appeal from assessments, the option to pay in installments continues provided the party appealing within 20 days after final determination files with the auditor in writing his election to pay in installments and pays all installments matured prior to that time with interest. *Sec. 7488:* When the cost of construction is less than the estimated cost, leaving a surplus fund, and when one-half or more of all assessments have been paid in, the board is authorized to apply not over 50 percent of the surplus upon the assessments due the following year. Proper refund may be made to property owners who have paid their assessments in full. There is the same general provision as to the construction of laterals. (*Sec. 7489.*)

Ch. 353, secs. 7490 and 7491. Subdistricts: Any party desiring further drainage across intervening lands to the main ditch, and being unable to agree with the intervening owners on terms and conditions, may file a petition for a subdistrict and the proceeding is the same as for the establishment of the original district. *Sec. 7491:* Such subdistricts are to be presumed to be conducive to the public welfare, and when established become a part of the drainage district as if a part of the original district.

Ch. 353, secs. 7492 and 7495 to 7495-e-1. Reclassification: After a district is established and the improvements constructed, if the commissioners find that the original classification is not equitable as a basis for enlargement or extension they make a reclassification in the same manner as the original classification. *Sec. 7495 to 7495-e-1:* Generally, bonds and warrants of the district issued against the construction and maintenance funds may be accepted at par upon assessments levied to create the fund against which such bonds or warrants were drawn or issued.

Ch. 353, secs. 7499 to 7502. Improvement certificates: The board may, by resolution, provide for improvement certificates to be issued in full or partial payment for construction of any part of the improvement, which certificates may be made payable to the bearer or to named contractors. *Sec. 7500:* Each certificate states the amount of one or more drainage assessments made against certain property, and designates the owner thereof, who is liable for the payment of such assessment. Improvement certificates are negotiable, and transfer to the bearer all right to the taxes on every such assessment or part thereof described in the certificate; and the bearer may collect in any manner provided by law as the same may mature. *Sec. 7501:* Such certificates bear interest at 6 percent and must be paid to the county treasurer, who credits same on the certificate. *Sec. 7502:* Any person has the right to pay at any time the amount of his assessment represented by any outstanding improvement certificate, with interest. No certificate may be issued nor negotiated for the use of the drainage district for less than par with accrued interest to date of transfer.

FINANCING—Bonds

Ch. 353, secs. 7503 to 7508. Drainage bonds: When a drainage district has been established, or the making of any improvement determined upon, if the board finds that the cost will create assessments greater than should be levied in a single year, they may, instead of issuing improvement certificates (*sec. 7499-7502*), fix the amount that should be levied and collected each year and issue drainage bonds of the county, covering all assessments exclusive of assessments of \$20 and less. *Sec. 7504:* The bonds are numbered, have the words "drainage bonds" printed on the face, and that the bond is in pursuance of a resolution of the board of supervisors and is to be paid only from taxes levied and collected on the lands assessed for benefits within the district for which the bond is issued. *Sec. 7505:* The aggregate amount of bonds may not exceed the benefits assessed; they may not bear maturity greater than 20 years nor interest more than 5 percent. *Sec. 7506:* The board fixes maturities and interest, and determines the amount of assessments on highways covered by such bond issue. Taxes against highways are payable at the same time and in the same manner as those against individuals. *Secs. 7507 and 7508:* Bonds may be applied at par and accrued interest to payment for work as it progresses, or may be sold through the county treasurer at not less than par with accrued interest. Any premium realized is credited to the drainage fund of the district.

Ch. 353, secs. 7509, 7509-a-1, and 7512. Deficiency levy: If any levy is not sufficient to meet the principal and interest of the outstanding bonds, additional assessments may be made on the same classification as the previous assessment. Additional bond issues may be made to complete full payment for improvements, by the same proceedings as the previous issue. *Sec. 7509-a-1:* Districts may fund or refund any issue of bonds in the same manner prescribed in section 7663. All assessments of \$20 or less must be paid in cash. *Sec. 7512:* The board fixes the time within which assessments of more than \$20 may be paid in

cash. Thereafter payment may be made only in the manner fixed and prescribed by the board. Appeal is to the district court of the county in which the proceeding was had.

Ch. 358-b-1, sec. 7714-b-1. Refunding bonds: The board of supervisors may extend the time of the payment of any outstanding drainage bonds issued in anticipation of the collection of drainage assessments levied upon property within a drainage district, and may extend the time of payment of any unpaid assessment or installment thereof, and may issue drainage refunding bonds in the manner hereinafter provided.

Ch. 358-b-1, sec. 7714-b-2. Petition: Before the payment of any installment may be extended and before the board proceeds to issue refunding bonds, the owners of not less than 15 percent of the land within the district as shown by the transfer books of the auditor, upon which drainage assessments are unpaid, must file a petition with the board requesting the extension of time for payment, setting forth the date the assessments were levied, the amount paid, and requesting the issuance of refunding bonds.

Ch. 358-b-1, sec. 7714-b-4. Hearing: The board determines the sufficiency of the petition and gives 10 days notice of a hearing thereon, in the same manner as required in relation to the issuance of bonds under chapter 23.

Ch. 358-b-1, sec. 7714-b-5. Notice: The notice is directed to each landowner whose assessments are unpaid, naming him, and to the actual occupant of the land, stating the amount of the assessment due on each 40 acres or less. It states that all of the unpaid assessments proposed to be extended may be paid on or before the hearing date, and thereafter they may be paid only in the manner fixed by the board in the resolution authorizing the issuance of refunding bonds.

Ch. 358-b-1, sec. 7714-b-6. Extending payment of assessments: If no appeal is taken (as provided in chapter 23), the board may extend the time of payment of the assessments as requested in the petition and may issue drainage refunding bonds. In case of appeal the board may issue such bonds in accordance with the decision of the state comptroller provided such assessments have not been entered on the delinquent tax lists and have not been previously extended.

Ch. 358-b-1, secs. 7714-b-7 to b-9. Appeal: Any aggrieved person may appeal to the District Court of the county in which such action was taken. *Sec. 7714-b-8:* Appeals must be taken within 10 days in the manner provided in section 7515. *Sec. 7714-b-9:* The extension of the payments may not be for more than 40 years from the time the assessments become due. The board fixes the amount to be levied each year and may issue refunding bonds covering all such assessments.

Ch. 358-b-1, sec. 7714-b-10. Bonds—Form: The bonds must be in substantially the form of drainage bonds and may not run for more than 40 years.

Ch. 358-b-1, secs. 7714-b-12 to b-16, 7714-f-1, and 7714-b-17. Resolution of Board: Refunding bonds must be issued in conformity with the resolution of the board of supervisors. The resolution must state the amount of the bonds and the purpose, as well as the amount of the assessments and due dates and rates of interest, etc. *Sec. 7714-b-13:* The resolution must be spread on the minutes of the board and constitutes a contract between the district and the holders of the bonds, and is full authority for the revision of the tax roll to conform thereto. *Sec. 7714-b-14:* The bonds must be delivered to the county treasurer to be registered by him. *Sec. 7714-b-15:* The treasurer makes monthly report under oath of the sale or exchange of such bonds. *Sec. 7714-b-16:* He sells the bonds for cash on the best available terms, or exchanges them on the best available terms for the legal indebtedness of the district evidenced

by outstanding bonds authorized to be refunded by the resolution. The proceeds of the bonds must be used exclusively for the purposes for which the bonds were issued. They may not be sold or exchanged for less than face value plus accrued interest. *Sec. 7714-f-1:* When lands have been sold at a tax sale for failing to pay drainage assessments and before the tax deed has been issued, on application of the owner the board may redeem the lands out of the proceeds of the refunding bonds and add the cost to the unpaid assessments against such land, payment to be extended in the manner and as a part of the remaining unpaid assessments thereon. *Sec. 7714-b-17:* Extension of the time of payment of any assessment in no way effects the lien thereof as originally levied nor the priority thereof.

Ch. 358-b-1, secs. 7714-b-18 to b-22: If the assessment for any reason is insufficient to meet payment of the principal and interest on refunding bonds, additional assessments must be made to meet such payments. *Sec. 7714-b-19:* All special assessments applicable to payment of the indebtedness refunded must be applied to the payment of the refunding bonds and interest. *Sec. 7714-b-20:* The special assessments must be held separate and apart in trust for the repayment of refunding bonds. *Sec. 7714-b-21:* The issuance of refunding bonds does not in any way impair the lien of unpaid drainage assessments in the district, the time of payment of which is not extended, nor the priority of such lien, nor the power of the officers to levy, collect, and apply the proceeds to the payment of the outstanding drainage bonds. *Sec. 7714-b-22:* No action may be brought questioning the validity of any refunding bond after three months from the date when they were ordered to be issued.

Ch. 358-b-1, sec. 7714-g-1-2-3: These sections authorize refinancing and loans from R.F.C. or other agencies.

Ch. 358-f-1, sec. 7714-f-2. Defaulted drainage bonds: When bonds issued in anticipation of assessments on real estate are in default as to principal or interest, and funds are not available for payment within 30 days, 10 land owners of the district or the owners of not less than 10 percent in amount of the outstanding bonds may make application to the district court of the county asking an extension of time for payment and a reamortization of assessments on real estate within the district which was in default, and for a new schedule of payment of bonds and other indebtedness and the issuance of new bonds as provided in this chapter.

Ch. 358-f-1, secs. 7714-f-3 to f-5. Petition: Ten owners of real estate in the district or the owners of 10 percent in amount of the outstanding bonds may file a petition setting forth names and addresses of the petitioners and that said bonds are in default and that said default cannot be removed by payments under the existing schedule, and asking a determination by the court. *Sec. 7714-f-4:* The court orders a hearing to be had at least four weeks subsequently. *Sec. 7714-f-5:* The supervisors must be served with notice in the same manner as in civil actions; and the owners of each tract of land, each lien-holder or encumbrancer, all persons holding claims against the district as shown by the county records, bondholders, and actual occupants of the land (without naming them) must be served by publication for two weeks in the county, such publication to be completed not less than two weeks prior to the hearing on the petition.

Ch. 358-f-1, sec. 7714-f-6. Jurisdiction: The District Court has power and jurisdiction to adjudicate all the rights of the interested parties, taking into consideration the schedule of classification of the land, the assessment on the real estate, the gross amount required to retire the bonds, and the current financial condition of the taxpayers.

Ch. 358-f-1, sec. 7714-f-7. Conservator: If the court finds the petition to be in proper form and that the parties to the proceedings have had proper notice and that the district is in default in the payment of installment assessments or interest, the court enters an order appointing the county auditor of the county in which the greater portion of the lands of the district are situated as receiver for the district, he being thereafter termed "conservator" and being under the court's direction.

Ch. 358-f-1, sec. 7714-f-8. Report: Within 30 days the conservator files with the clerk of the District Court a full report of the bonded indebtedness of the district, the interest thereon, and all other indebtedness of the district. He also files a schedule of all lands sold at tax sales and the amount of the drainage assessment against them, and a list of all real estate showing the unpaid assessments thereon. He furnishes a schedule under which the bonded indebtedness of the district may be reamortized and a similar schedule as to all other indebtedness. The court sets the date for hearing on this report between 10 and 15 days following.

Ch. 358-f-1, sec. 7714-f-9. Adjudication: Under this section it is the duty of the court to strike a balance sheet for the district, and if it is shown that the assessments as levied are insufficient to pay the indebtedness of the district the court may order the board to levy a new assessment to pay the same. It is provided, however, that no assessment may be levied against a landowner not delinquent; that the reassessment shall be in direct proportion to the amount of unpaid assessments on the particular piece of land; that no levy shall be made where the owner has previously paid all of his assessments. The assessment must be levied in the same proportion as the original assessment. The order is filed with the county auditor, recorded in the drainage record, and spread upon the tax records of the county. The reassessment becomes due at the same time and is collected in the same manner as ordinary taxes and with the same penalties. The court may apportion the cost between the district and the creditors.

Ch. 358-f-1, sec. 7714-f-10. Refunding bonds: The court will direct the board of supervisors to issue bonds in lieu of the outstanding bonds, and additional bonds for accrued interest and other indebtedness of the district. The bonds are payable as directed in the order of the court and known as "conservator's drainage district bonds." The rate of interest may not be less than $\frac{3}{8}$ percent and the bonds are to be paid only from taxes collected on land within the district. The conservator may sell the bonds at not less than par and accrued interest, or he may exchange the bonds with the creditors of the district in amounts as fixed and determined by the court, cancelling all evidences of indebtedness received by him in lieu of conservator's bonds.

Ch. 358-f-1, secs. 7714-f-11 to f-13. Lien: When conservator's drainage bonds are issued, nothing in the statute is to be construed as impairing the lien of all unpaid assessments upon the real estate in the district, nor the priority of such lien, nor the right and power of any officer authorized by law to collect assessments and apply the proceeds to the payment of outstanding drainage bonds issued in anticipation of the collection thereof. **Sec. 7714-f-12:** Where a district in default is managed by trustees, they must be made parties defendant. **Sec. 7714-f-13:** No action questioning the validity of any conservator's bond may be brought after three months from the date of the order.

CONSTRUCTION

Ch. 353, sec. 7455. Permanent survey: When the improvement is finally established, the board has a permanent survey made showing the levels and elevations of each 40-acre tract and

files a report and plat of the same with the county auditor. The damages awarded to claimants are paid in the first instance by the party benefited, or are secured by bond approved by the auditor. After the payment or securing of such damages, the board divides the improvement into suitable sections, numbering them consecutively from the outlet to the beginning and prescribing a time within which the improvement shall be completed. The board appoints a competent engineer to have charge of construction and advertises for bids, stating the amount of work to be done in each section and the date for completion. All bids must be accompanied by certified check for 10 percent of the bid, but not to exceed \$10,000. The successful bidder gives bond for not less than 75 percent of the contract price.

Ch. 353, sec. 7531. Monthly estimate: The engineer furnishes monthly estimates of the work done on each section to the contractor and to the auditor. The auditor draws warrants in favor of the contractor, or an order on the county treasurer for improvement certificates or drainage bonds as the case may be, for 80 percent of the estimate of work done. Upon completion of the work, the engineer certifies same to the board, which proceeds after notice by publication to hold a hearing thereon where interested parties may file objections to the report. If the board finds the work to be completed and accepts the same, it directs the auditor to draw warrants for the full amount or deliver to the contractor improvement certificates or bonds, as the case may be.

Ch. 353, secs. 7537 and 7538 provide for construction on highway rights-of-way when necessary, building bridges, construction across railroads, and passage of equipment across highways and railroads and other public utilities.

Ch. 353, sec. 7556. Repairs: It is the duty of the board or of the trustees to keep the works in repair. They may enlarge, reopen, deepen, or widen ditches, or convert them into closed drains when to the best interests of the public. If the cost exceeds 10 percent of the original cost of the improvement, the board orders a new apportionment and assessment against the land in the same manner as for original construction. Separate assessments are made for the main ditch and for laterals, open or tile. The main ditch cost is assessed to the whole district and the laterals or tile to the land benefited specifically.

DISSOLUTION

Ch. 353, sec. 7454. Dissolution: When, after two years from the establishment of a district or the final determination of an appeal, no contract shall have been let nor work done nor bonds issued, a petition signed by a majority of the landowners who in the aggregate own 70 percent of the land affected may be filed, stating these facts and that provision has been made for all costs and expenses. If the board finds the facts as stated, it will dissolve and vacate the district by resolution entered on its records and recorded by the auditor in the drainage record.

Ch. 353-g-1, sec. 7598-g-1. Jurisdiction to dissolve: When a district is free from indebtedness and it appears that the necessity therefor no longer exists, or that the expense of maintenance is more than the benefit derived, the board upon the petition of a majority of the landowners who in the aggregate own 60 percent of the land may dissolve and discontinue such district. The board gives notice of a hearing on the petition in the same manner as for the formation of a district, and if at such hearing it finds that such district is free from debt and that the necessity no longer exists or that the expense of upkeep is not commensurate with the benefits received, it enters an order abandoning and dissolving the district, which order is filed with the auditor of each interested county and recorded

in the drainage record. Appeal may be had to the district court in any county into which the district extends. The cost is paid by the district where tax funds are sufficient or unpaid assessments sufficient; otherwise the board will assess the cost against the lands of the district in the same proportion as the original assessment. Any excess remaining after the payment of all debts is prorated back to the landowners in the proportion of their assessment. When a district is dissolved, all rights-of-way are deemed to be abandoned.

KANSAS

(General Statutes of Kansas, Annotated, 1935, Supplement to General Statutes, 1939, Chapter 24)

DRAINAGE AND LEVEES

Article 4—Drainage Districts within Counties or Cities, Sec. 24-401 to 24-493.

Article 6—Drainage in one or more Counties, Sec. 24-601 to 24-653.

(NOTE: Kansas statutes relating directly and indirectly to drainage are so voluminous that space will not permit this brief synopsis to refer to more than articles 4 and 6 above. Sec. 24-104 specifically provides that nothing in this article shall be construed as affecting or repealing any of the provisions of chapter 215, Laws of 1905.)

ARTICLE 4—DRAINAGE DISTRICTS WITHIN COUNTIES OR CITIES

(Drainage Act of 1905)

ORGANIZATION—Petition

Secs. 24-401 and 24-402. County Commissioners to organize:

The Boards of County Commissioners have the power, and it is their duty, upon proper petition, to incorporate and organize drainage districts as herein provided. (R.S. 1903, sec. 24-401.)

Sec. 24-402: Lands within cities may be included in drainage districts if subject to overflow from the same natural watercourse. (L. 1905, ch. 215.)

Sec. 24-403. **Petition:** A petition must be addressed to the Board of County Commissioners of the county in which the land to be embraced in the district is situated. It must describe the territory by sections and subsections as shown on the Government survey, or by metes and bounds. It must state that the lands are subject to damage from overflow of some natural watercourse, naming it; that the proposed improvements are necessary to prevent such overflow; and that such works would be conducive to the public health, welfare, or convenience. The petition prays that all of the land within the boundaries defined shall be incorporated as a drainage district under a corporate name therein designated. If any of the lands are within a city or town, they are described by their lot and block numbers.

See: *Description of lands: Jensen v. Buffalo Dr. D.*, 148 K. 712; 84 Pac. (2d) 58.

Sec. 24-404. **Notice—Hearing:** When such a petition is signed by not less than two-fifths of the taxpayers residing within the boundaries of the proposed district, and presented to the Board of County Commissioners, the Board forthwith fixes a time for hearing thereon and the county clerk gives notice of such hearing by publication.

Secs. 24-405 and 24-406. **Hearing:** At the hearing the Board ascertains whether proper notice has been given, and so finding declares that fact and enters the same on the journal. They hear all persons for and against such petition, and such other evidence as they may desire, to ascertain whether the petition contains the proper number of qualified signers and whether the statements of the petition are true. Finding these facts in the affirmative, the commissioners declare the territory described to constitute a public corporation and the territory within

those bounds to be incorporated as a drainage district, giving it a name. Thereafter such territory and its inhabitants constitute a body politic and corporate under the name given, and have perpetual succession. Sec. 24-406: It is the duty of the Board of County Commissioners to enter on their records all findings and decisions and to define the limits of the district to be incorporated, and to fix the time and place of the first election of officers of the district, providing for judges and clerks of election. The declaration and determination of the Board of County Commissioners so entered on the record are conclusive against all persons, so that no matter of fact so determined shall ever be disputed. The record is conclusive evidence in all courts of the matters recited therein and of the corporate existence of the district; provided, the fact that lands described in drainage districts heretofore incorporated under chapter 215 of the Laws of 1905 have not been described by subdivisions according to Government survey, or by appropriate numbers as lots and blocks, shall not invalidate any petition or the order of court incorporating such districts. [State ex rel v. Niotaze Dr. D., 140 K. 1; 34 Pac. (2d) 124.]

Sec. 24-458. Where nonresidents own three-fifths of land:

When contiguous lands of different owners are subject to injury from overflow of a natural watercourse and may as a body be protected by levees or other works, but the owners of three-fifths of the acreage of such lands are nonresidents and there shall not be five taxpayers residing within the territory including such land, then such territory may be incorporated as a drainage district by the Board of County Commissioners upon presentation of a petition as described in section 24-403. The petition must be signed by not less than three-fifths of the persons who own and pay taxes on land in such territory and must state these facts in addition to the facts required by section 24-403. (L. 1911, ch. 173.)

Sec. 24-459. **Directors of such districts:** The directors of such districts must be three landowners, but not necessarily residents, named in the petition for the first term after organization, and shall be declared to be such directors by the County Commissioners. Directors thereafter are elected.

ORGANIZATION—Powers

Sec. 24-407. **Powers:** Each district incorporated hereunder is a body corporate and politic and, subject to the superior rights of the United States over navigable waters, such districts are granted exclusive control over the beds and channels, and state lands therein, of all natural watercourses within the district. In addition to the usual formal powers of corporation, the district may (1) completely control the natural watercourses within its limits, alter or change the channel of same, construct necessary works, and acquire necessary rights-of-way by gift, purchase, or condemnation; (2) fix the location of bridges as well as their height and span, within the district; (3) exercise the right of eminent domain to construct works across railroads and other corporations for the purpose of maintaining a continuous levee of uniform height; (4) change the grades of highways, railroads, and street railways; (5) require railroads to elevate their tracts where necessary for continuation of levees; (6) maintain suits to enforce its orders, and to enjoin placing or maintenance of any structure obstructing the flow of water; (7) recover and hold possession of all state lands between the highwater banks of natural watercourses and change the channels of streams, and sell the abandoned channels giving good title thereto, and apply the proceeds for the cost of the new channels; (8) annually levy * * * a general tax not exceeding five mills on the dollar on all taxable property within the district to create a general fund; [The word "property" as

used includes personal property. The assessment of railroads on a mileage basis is upheld *Lowden v. Nusbaum*, 143 K. 700; 56 Pac. (2d) 58]; (9) levy assessments and special taxes upon all of the real estate benefited to pay for the cost of construction and maintenance of works to prevent overflow or to drain overflowed land or to be conducive to the public health, convenience, and welfare; (10) issue negotiable bonds to pay the costs of improving channels and constructing levees and drains and other works, and for the necessary rights-of-way, such bonds to be payable by general taxation of all property within the district when it shall be determined that all property within the district will be benefited thereby or that the works will be conducive to the public health, convenience, and welfare; provided, no bonds may be issued until ordered by the vote of the taxpayers.

See: *Putnam v. City of Salina*, 136 K. 646; 17 Pac. (2d) 827; 22 Pac. (2d) 957.

Cities Service Gas Co. v. Riverside Dr. D., 137 K. 410; 20 Pac. (2d) 520.

Hawkins v. Gregory, 138 K. 477; 26 Pac. (2d) 247.

Sec. 24-408. Powers of districts incorporated under Laws of 1905: All drainage districts incorporated under chapter 215, Laws 1905, have the power (1) to take sand, rock, gravel, or other minerals from any navigable river within their corporate limits without payment of any compensation to the state therefor, and sell the same and use the proceeds in the construction and maintenance of their works or for dredging or other authorized improvements; (2) to construct streets along, upon, or adjoining or over any river, wall, dike, or levee or approaches thereto from adjacent intersecting streets and may issue bonds to pay the costs of said improvement; (3) to contract or cooperate with any municipal corporations or other persons for the construction and maintenance of sewers, etc., for the draining of any portion of the drainage district, and to issue bonds to pay therefor. (L. 1917, p. 173.)

Sec. 24-438. Eminent domain: Drainage districts have the power to condemn property necessary in carrying out the purposes of the district, including railroad rights-of-way, after hearing before the county court or the Court of Common Pleas and the appointment of commissioners to report on the facts.

Sec. 24-453. Boundary watercourses: Every water course which runs through or constitutes a boundary of a drainage district is deemed to be within the district for such distance as it so runs through or constitutes the boundary, and the district has control over the whole width of such water course between the banks at highwater mark for the distance of such boundary, except where districts are organized on opposite sides of the same water course. In this latter event each district controls to the center of the main channel.

Secs. 24-463 to 24-469. Enlargement of district: Provision is made in these sections for the enlargement of drainage districts upon petition of the directors after notice and hearing similar to the original organization of the district.

Sec. 24-481. Counties having population between 85,000 and 130,000: Special provision is made for the organization of districts in counties having a population of between 85,000 and 130,000. (These districts are obviously not in aid of agriculture.)

ORGANIZATION—Officers

Sec. 24-409. Board of directors: All powers of a drainage district are exercised by the Board of Directors, consisting of three persons who must be freeholders and actual residents of the district; provided, in districts in counties having less than 85,000 population, the directors must be freeholders

residing in the county in which the district is located, and in intercounty districts the directors may reside in either county. (Up to the second Tuesday in March, 1914, the directors were five in number.) Directors hold office for three years, and until their successors have qualified after they have originally been chosen in the manner prescribed by this Act. (L. 1927, ch. 197.)

Sec. 24-410. Elections—Voters: Within five days after incorporation the county clerk ascertains from the tax rolls the names of all taxpayers who are qualified electors residing within the district, and delivers a certified list of them to one of the persons appointed by the County Commissioners as election judges of the first election. An elector must be an adult taxpayer, resident of the district, and a qualified elector under the Statutes of Kansas. The list so furnished is conclusive at all elections. Anyone claiming to be erroneously omitted from the list must present to the county clerk evidence of his right to vote, and upon certificate of the clerk he must be permitted to vote. (L. 1935, ch. 169.)

Secs. 24-411 and 24-414. Election—Directors: The first election is to be held at the time appointed in the order of the Board of County Commissioners incorporating the district. The election is held in the same manner as general county elections. The three persons receiving the highest number of votes are declared to be elected directors. The County Board of Commissioners canvasses the return and issues certificates of election to those chosen. **Sec. 24-414:** The statute recites in detail the method of conducting the election.

Secs. 24-415 to 24-418. Directors: There is special direction in the statute as to the organization of the Board of Directors and the election of a president. The county treasurer is made the treasurer of the drainage district and is liable on his official bond for money received, which money must be deposited in the county treasury to the credit of the district. **Sec. 24-416:** The directors hold regular meetings on the first Monday of each month, and special meetings may be called by the president or by two directors at any time after notice in writing to all directors at least six hours before the meeting is called. All meetings of the Board of Directors are open to the public and the Board may not go into executive session. **Sec. 24-417:** The directors may employ an engineer to make plots, estimates, and specifications. **Sec. 24-418:** The board may cause any water course in the district to be deepened, widened, or straightened; may construct levees and other works, but only after plans, specifications, and estimates of cost have been prepared by a competent engineer and reported in writing to the secretary of the directors. If the directors are of the opinion that the improvements recommended by the engineer are beneficial to the district and to the public health, convenience, and welfare, the board has power to cause the work to be constructed and to issue bonds not exceeding 20 percent of the taxable property of the district as shown by the tax records of the next preceding year to pay for the work; provided, the improvement must first be authorized by a vote of the taxpayers of the district at a special election. The directors have no power to remove any storage dam constructed across a navigable stream by any city, without permission of the State Highway Commission.

FINANCING—Assessments

Sec. 24-422. Assessment of cost: When from the engineer's report the directors determine that work should be done to protect the lands in any part of the district from overflow, and that the cost should be paid by levying special taxes or assessments upon all the real estate that will be benefited by the improvement to the extent of such benefit, then it so declares

by resolution entered on its journal and appoints three freeholders resident of the district as assessors. The assessors actually view the lands and assess all within the district which are in their opinion to be to any extent protected from overflow or benefited, having reference to the value of the land without the works and the value as benefited by said works. The assessors determine the portion of the estimated cost that ought to be charged to each parcel of land benefited, and make a detailed report to the directors. If it appears that the amount to be charged against any parcel will not exceed 10 percent of its value, then the directors may proceed to have such work done and levy a special assessment upon each tract benefited as shown by the assessor's report for the purpose of constructing the works. Railroads are specifically made subject to this provision. (L. 1917, ch. 174.)

Sec. 24-423. Meeting of taxpayers—When—Notice—Vote: If it appears by the assessors' report that the amount to be charged against any tract of land for benefits will exceed 10 percent of its actual value as fixed by such report, then the directors must forthwith call a meeting of the taxpayers whose property will be benefited and submit the question of whether the improvement shall be made. If a majority of the taxpayers vote against the improvements, they may not be made. On a favorable vote, the directors may cause the improvement to be made and levy special taxes in accordance with the appraisers' report. Notice of the meeting is by publication and only taxpayers shown by the assessors' report are permitted to vote.

Sec. 24-424. Hearing on assessments—Notice: Notice of special assessment is given by the directors by publication and the notice states that the report is on file in their office. A time is fixed when all aggrieved persons may be heard on the report. At the hearing the directors hear all complaints and have the power to correct or amend the report of the appraisers in order to equalize such assessments and make them equitable. The directors confirm or amend the report of the assessors, and after confirmation the amount charged against each tract becomes a special assessment and constitutes a lien on such tract. The directors must enter their findings of record, which thereupon become final and conclusive. Such special assessments are then certified to the county clerk and entered upon the tax rolls, to be collected in the same manner as other taxes. No suit may be entered to set aside such assessment after the expiration of 30 days from the confirmation of the report by the directors.

Secs. 24-430 to 24-432. Installment assessments on bonds: Whenever the directors cause any work to be done which is to be paid for by special assessment, they may provide for the payment of same in installments, and issue improvement bonds therefor, payable in installments in equal amounts each year for such a number of years as may be deemed advisable. No bonds may be issued until after the expiration of 30 days from the confirmation of the report of the assessors. During said 30 days any party may pay his assessment in full and discharge his property from the lien thereof. **Sec. 24-431:** Bonds so issued recite that they are payable from special assessments that have been levied and constitute a lien upon real estate in the district benefited by the improvement. Such recital may be relied on by the purchaser as conclusive evidence of the validity of the bonds. **Sec. 24-432:** No part of the proceeds of the sale of such bonds may be used for any other purpose than the payment of the cost of the improvements for which they were issued.

Secs. 24-433 to 24-435. Collection of assessments to pay bonds: When improvement bonds have been issued against special assessments, the directors must levy enough assessments each

year to be equal to, and not exceeding by more than 10 percent, the amount required to redeem installments of such bonds next thereafter maturing, and interest thereon. Such special assessments are levied and collected in the same manner as special assessments for improvements where no bonds were issued. The assessed valuation established in the first years' assessment must be retained for the assessments for succeeding installments of bonds. **Sec. 24-435:** Supplemental assessments may be made to correct errors by the omission of lands benefited or otherwise, by order of the directors entered on their journal. Owners affected by supplemental assessments are entitled to the same notice and hearing as in the case of the original assessment. Supplemental assessments are collected in the same manner as original assessments and become liens to the same extent.

Sec. 24-462. Additional assessments: When the directors have levied assessments payable in installments and issued bonds against the same, payable in installments of equal amounts each year, and the money received from bonds is insufficient to pay the entire cost of the work done, the directors may levy other special assessments as necessary to complete payment for the works, but the total amount of such special assessment may not exceed 10 percent of the amount of bonds issued.

FINANCING—Bonds

Sec. 24-420. Engineer's report—Election—Bond: If the directors, after examining the engineer's report, find that the work should be done and the cost paid by general taxes, and the estimated cost does not exceed the amount for which bonds may be issued (20 percent of the taxable value), then they proceed to call a special election to vote on the issue of bonds. If the bonds are authorized, the directors issue them and proceed with the improvement work. The election is held in the same manner as the election of directors.

Sec. 24-421. Changing channel—Bonds: When the directors determine that it is necessary to change the channel of a natural water course in the district or to provide a cut-off or a new channel, they may cause the work to be done and issue bonds to be paid from general taxation [of all property within the district, sec. 24-407 (10)] to pay the costs of the improvement. Otherwise they may levy assessments upon the property benefited.

Sec. 24-425. Election on bond issue: Whenever the directors deem it necessary to issue bonds to be paid by general taxation (see sec. 24-421 above and sec. 24-407), which issue requires the sanction of the taxpayers, it must make and enter on its journal an order calling for an election for that purpose. The proclamation calling the election must be published for 10 days, and give full details of the time when same will be heard and state the manner of conducting the election. Such election is conducted in the same manner as general county elections, except that the returns are canvassed by the directors. If a majority authorizes the issuance of bonds, the directors will proceed to issue them.

CONSTRUCTION

Sec. 24-426. Manner of letting contracts: All contracts for construction must be let to the lowest bidder after advertisement, but the directors may reject all bids if deemed too high. All contractors must give bond for the faithful performance of the work and for damages caused by negligence in performance. All contracts are under the supervision of the directors or their engineer. However, in cleaning channels of solid obstructions, if it is impracticable to let a contract the directors may do the work through their engineer and purchase or rent tools and machinery for that purpose. (L. 1911, ch. 174.)

ARTICLE 6.—DRAINAGE IN ONE OR MORE COUNTIES

ORGANIZATION

Sec. 24-601. Articles of association: A majority in interest (sec. 24-654, *post* says "a majority in interest, of the acres") of the owners of any contiguous body of swamp or overflowed lands, situated in one or more counties, may form a drainage district to protect such lands from the effects of water, by drainage or otherwise, and to that end may make and sign articles of association, stating the name of the proposed district; the number of years it is to continue; its limits, which may not be less than 160 acres; the names and residences of the owners of the lands; a description of the tracts and parcels owned by those signing the articles; the names and descriptions of the real estate owned by those who do not join the organization but will be benefited thereby; and describing the real estate, the owners of which are not known. The petition further states that the owners so forming the district obligate themselves to pay the taxes which may be assessed for the expenses of the improvement. After signing the articles, they are filed in the office of the clerk of the district court of the county in which the district is located; or if the district be inter-county, then with the district court of the county in which the greater portion of the proposed district is situated. The petitioners pray that the area be declared to be a drainage district under this article.

See: *Fidelity Nat. Bank & Trust Co. v. Norris*, 130 K. 290; 286 Pac. 206.

Lyon Co. Commissioners v. Bernheisel, 123 K. 204; 254 Pac. 371.

State ex rel v. Drainage District, 123K. 191; 254 Pac. 372.
Schrag v. Blaze Fork D.D., 119 K. 169; 237 Pac. 1047.

Sec. 24-602. Summons to owners: Immediately after the articles of association are filed, the clerk of the district court issues a summons returnable to the next term of the court, directed to the several owners of real estate in such proposed district who may be averred to be benefited but have not signed the articles, and such summons is served as in civil cases. Unknown or nonresident owners are notified, in the manner that nonresident defendants are notified, that the articles are filed; the purpose thereof; that the lands of such owners will be affected thereby and rendered liable to taxation; and that application will be made to have the territory declared a drainage district.

Sec. 24-603. Objections—Hearing—Public corporation: All owners who have not signed the articles and who object to the formation of the district, on or before the second day of the term of the court to which they have been summoned file written objections to the formation of the district, stating why such district should not be organized and declared a public corporation of the state and why their lands will not be benefited and should not be embraced in the district and made liable to taxation. Objections are heard by the court in a summary manner, without delay, and in case the objections are overruled the court by order entered of record declares the said district a public corporation. The fact that the district contains 160 acres or more of wet, overflowed, or submerged lands shall be sufficient cause for declaring the public utility of the improvement and sufficient grounds for declaring the organization a public corporation of the state. If any owner shows that his lands have been wrongfully included and will not be benefited, the court will exclude such lands and declare the remainder a district as prayed for.

Sec. 24-604. Record filed with the Secretary of State: Within 20 days after the district has been declared a corporation, the

clerk of the district court transmits to the Secretary of State a certified copy of the record and the same is filed in like manner as articles of incorporation are filed. A copy of the record and a plot of the district is also filed in the office of the county clerk of each county affected.

Sec. 24-654. Renewal of incorporation: The owners of a majority in interest of the acres of real estate within the boundaries of a drainage district organized under this act, which district has constructed a drainage system, may, at any time before or after the expiration of the number of years the same was to continue as stated in the articles of association, file their written petition with the district court in which the decree incorporating the district was rendered, asking for renewal, continuation, or restoration of the articles of association for a stated number of years. Upon hearing the petition, if the court find it sufficient, it will duly declare the district renewed, extended, or restored, with the same force as if its articles of association had not become inoperative. Within 20 days the clerk transmits to the Secretary of State a certified copy of the record for filing in the same manner as the original articles of association are filed. (L. 1939, ch. 184, sec. 1.)

Sec. 24-655. Validity of prior Acts: Decree of renewal validates all prior Acts of the district within the scope of its original articles of association and renews its rights and obligations as if its articles of incorporation had at all times remained in full force and effect. (L. 1939, ch. 184, sec. 2.)

ORGANIZATION—Officers

Secs. 24-605 to 24-608. Supervisors: Within 30 days after the district is declared organized the clerk of the court, giving 15 days' notice, calls a meeting of the landowners at some public place in the county in which the district was organized, for the purpose of electing a board of five supervisors. The supervisors must own real estate within the district and a majority of them must be residents of the county or counties in which the district is situated. The landowners organize and conduct an election at which each acre of land represents a share and each landowner is entitled to one vote for each acre owned. Landowners may vote in person or by proxy. One supervisor is elected for a term of one year, two for two years, and two for three years, their terms to expire at the regular date of holding the annual elections. **Sec. 24-606:** Every year after the first board of supervisors is elected, at such time and place as may be designated by the board, and after 15 days' notice by publication and mail, the landowners meet and elect supervisors in like manner, who hold office for three years and until their successors have been elected and qualified. Vacancies may be filled by the remaining supervisors until the next election. **Sec. 24-607:** Supervisors must take oath of office. **Sec. 24-608:** Supervisors organize by electing one of their number as chairman, and electing a secretary who need not be a member of the board. They adopt a seal and keep a record of all of their proceedings. They report at each annual meeting and publish a statement of the receipts and disbursements in some newspaper of general circulation within the district. They may employ an attorney for the district or to advise the board.

Sec. 24-610. Drainage commissioner: The supervisors appoint some competent person to award all contracts contemplated in this article to the lowest bidder, subject to their approval, to be known as the drainage commissioner and to hold office for one year. He has general superintendence of all works under contract, subject to the approval of the supervisors, and certifies the completed contracts to the board. The drainage

commissioner must take oath of office and furnish bond from \$2,000 to \$10,000 according to the amount of the contract.

Secs. 24-631 and 24-632. Treasurer: The treasurer of the county in which the district or the larger portion thereof is situated is *ex officio* treasurer of the district, and the treasurers of the counties containing smaller portions of the district pay over to him all funds collected for the benefit of the district. The treasurer must make disbursements on warrants signed by the chairman of the supervisors and attested by the secretary. **Sec. 24-632:** The general law of the state as to warrants applies to all warrants of the drainage district.

Sec. 24-635. Overseers: In order to preserve the works of the district the supervisors have the power to appoint not more than three overseers, who hold office for one year. It is their duty to keep the works in good repair and remove obstructions from same. They cause the arrest and trial of any person obstructing or injuring said works.

ORGANIZATION—Powers

Sec. 24-611. Inclusion of lands: If upon the filing of the report and estimates of the engineer it appears that lands other than those incorporated by the court will be benefited by the improvements of the district, it is the duty of the supervisors to file a petition in the district court of the county where the district was organized, containing a description of said lands and the names of the owners as they appear on the tax rolls, alleging that the lands will be benefited and ought in justice to bear their proportion of the expense of the improvements. If the names of the owners of such lands are unknown, that fact is stated and a prayer is included that such tracts be incorporated in the district. The court clerk issues a summons to the interested party as provided in section 2 and the same proceedings are had as on the original petition; provided, that upon the return day of said notice or at any time to which the court may adjourn, the court has jurisdiction to determine the matter in chambers and make necessary orders thereon; provided further, such owners may waive the service of the summons and the court may, upon the filing of such waivers, enter the necessary decree. Upon the filing of the petition, it is docketed as a part of the original cause for establishing the district. After the decree of the court, the lands so brought in are subject to the same provisions as other lands, as though they had been included in the original petition. No lands may be included except wet, submerged, and swamp lands or lands within a district subject to overflow.

Sec. 24-612. Eminent domain: When the supervisors, by order entered of record, have agreed on the location or route of the ditch or ditches and formulated a plan for other improvements, they have the right to acquire, and if need be may condemn, any real estate, easement, or franchise within or without the boundaries of the district that may be necessary for a right-of-way upon which to construct and maintain the works of the district. When they are unable to acquire such rights-of-way by agreement, or the owners are unknown, they may petition the district court to appoint three appraisers, disinterested freeholders of the county, to ascertain the compensation to be made to such owners. The proceeding is the same as for condemnation of rights-of-way of railroads and the damages awarded are paid to the county treasurer for the use of the parties interested. If not paid within two years, all proceedings abate at the cost of the district. The supervisors may also acquire, and if need be may condemn in the same manner, any natural or artificial obstruction in any existing water course and remove same for the benefit of the district.

Sec. 24-625. Powers and duties of supervisors: The board of supervisors is authorized to clean and remove obstructions from any waterway in the district and to straighten, deepen, or construct a new channel for same. They may construct the works of the district across any street, highway, railroad, ditch, or flume which the works may intersect, in such manner as to afford security for life and property, but must restore the same to the former state as nearly as may be and not unnecessarily impair its usefulness. Where agreement cannot be had between the district and the property owner, the amount to be paid shall be ascertained as provided in respect to the taking of land. Rights-of-way over state lands are dedicated.

Sec. 24-628. Scope of Act: This Act is not to be construed as repealing or in anywise modifying the provisions of any other Act relating to drainage. Nothing herein authorizes any person or persons to divert the waters of any watercourse from its channel to the detriment of persons having an interest in such waters, without compensation as provided for by the laws of the state authorizing the taking of private property for public uses.

Secs. 24-628 and 24-629. Outlets: When two or more districts have outlets in the same watercourse and it becomes necessary to deepen or enlarge such watercourse, each district is assessed the cost thereof in the same ratio to the total cost as the discharge of water from said district bears to the total combined discharge of waters of the several districts. But no district is chargeable for the expense of the improvement of such watercourse above the point of discharge of the water of such district. **Sec. 24-629:** Landowners assessed for cost of construction have the right to use the works of the district as outlet for lateral drains from their own lands.

Sec. 24-630. Subdistricts: Landowners assessed for benefits and being separated from the main ditch by the lands of others, and desiring to drain their lands across such intervening lands, and being unable to agree with the intervening owners on the terms and conditions of such drainage, may proceed as provided in this Act and the ditches or drains which they shall construct shall be considered as conducive to the public health and welfare. They may file a petition with the district court asking that a subdistrict be established within the limits of the original district. All proceedings are the same as for the establishment of the original district, including the assessment of damages and benefits. When constructed, the subdistrict becomes a part of the drainage system under the control of the board of supervisors.

Sec. 24-639. Body politic and corporate: Every district organized under this Act shall be a body politic and corporate, known as "Drainage District No. ___ of ___ County" and shall have the usual powers of corporations.

Sec. 24-641. Legalizing existing districts: This Act legalizes existing drainage districts created by the district courts or boards of county commissioners, except where resolutions of dissolution have been passed.

FINANCING—Assessments

Sec. 24-609. Classification of lands—Benefits: The supervisors cause a topographical survey to be made of the district by some competent engineer with a full and complete plan for draining, reclaiming, and protecting the lands of the district. The survey shows the location of the district and of the rights-of-way, roadbeds, bridges, railroad property, and public highways within the district. The engineer estimates the cost of the entire improvement. He examines all improvements within the district, municipal or otherwise, that may be affected by

the works of the district, and also examines all natural water-courses, lakes, and ponds that may be wholly or partly within the district. He assesses the amount of benefits that will accrue to each tract or parcel of land and corporate property by virtue of the improvements of the district. Each tract of land, right-of-way, and corporate property within the district must bear its share of the entire cost and expense incurred in constructing the improvement, in proportion to the benefit assessed, whether such improvement be made on such land or property or not. The engineer may not consider what benefit will be derived by lands or property after other improvements shall be constructed, but only the benefits that will be derived by the construction of the improvements of the district as they afford drainage or outlet for drainage or protection from overflow or damage by water. Benefits to public streets, highways, railroad rights-of-way, and roadbeds must be assessed according to the increased efficiency and value had by reason of the protection derived from the improvements of the district. The engineer classifies lands and other property according to the benefits that will be received, the lands receiving the highest benefit being classified as 100 and those receiving less percentage of benefit at such less number as the benefits may determine. The property of public and private corporations may be classified in a separate list, each according to the relation which its total benefits bear to the total benefits in the district. The map prepared by the engineer shows the boundary line of each tract and the name of the owner as it appears in the deed records.

Secs. 24-613 to 24-617. Objections to engineer's report: After the filing of the report of the engineer with the chairman of the supervisors, he calls a meeting to fix the time and place for a hearing of all objections to the report and to the classification of the lands and other property. Notice is by publication. The form of the notice is set out in the statute. A copy of said notice and resolution accompanying same are spread upon the minutes of the board. **Sec. 24-614:** A drainage district or any owner of land or other property affected may file objections to said report or to any item of classification or assessment of benefits within 10 days. Objections are heard by the supervisors as speedily as may be and so as to carry out liberally the purposes and needs of the district. The allegations of the objections are deemed to be denied and the district may interpose any matters in defense that it may have. The proceedings may be adjourned from time to time, not to exceed two weeks in all. **Sec. 24-615:** At the hearing the supervisors, after they find that due notice has been given to all parties, consider the objections and may subpoena and examine witnesses. After due consideration of all of the evidence, the supervisors may adopt, amend, modify, or reject the plan for reclamation and protection of lands and property and determine the location, character, and extent of the improvements necessary to be undertaken, and estimate the cost thereof. Upon the decision of the board on these matters, no appeal will lie; but upon a proper showing thereafter, the supervisors may modify their order should such modification be necessary to promote the welfare of the district. The board also has the power to establish the classification of lands and property and to determine and adjudicate the total benefits that will accrue to each tract of land or other property. They adjust and equalize the classification and benefits so as to be just and equitable to all parties. The board enters its order confirming the equalization as made by them. All proceedings are filed with the secretary of the board of supervisors. **Sec. 24-616:** The costs of the proceedings are adjusted by the supervisors; that is, if the

objections fail, the cost is paid by the objectors; if the objections are partly successful, the supervisors apportion the costs; if the objections prevail, the costs must be paid by the district. **Sec. 24-617:** Any person who has filed objections and is aggrieved by the decision of the board may appeal to the district court upon giving bond to pay damages to the district caused by the appeal. (*Chase Co. v. Drg. D.*, 106 K. 315; 187 Pac. 694.)

Sec. 24-618. Tax levies—Installments: When the supervisors have established the classification and benefits as provided in section 24-615, they at once levy a tax on the lands and other property in the district to which benefits have been assessed, equal in amount to the cost of such works as estimated by the engineer and confirmed by the board, plus the actual expense of organization and probable administrative expense and damages (as estimated by the board). If bonds are issued, then the amount of interest which will accrue thereon is included and added to said tax. The tax is levied on each tract in proportion to the benefits assessed, and not in excess thereof. The board determines whether the tax shall be paid as a single assessment or be divided in not to exceed 20 installments. Such tax is certified by the board to the county clerk of each county in which the lands are situated; provided, if the cost of the improvement for any reason exceeds the amount of the taxes levied against the lands and other property in the district, the supervisors may levy such other and further installments as may be necessary to complete the works, but the total amount of all levies may not exceed the total amount of benefits assessed, and such additional cost is apportioned to the lands and other property in the same proportion as the first apportionment. Annually thereafter the supervisors determine and levy the installment of the taxes which is to become due and be collected during that year at the same time that state and county taxes are due and collected. If bonds are issued under section 24-620, the interest on said bonds is included and added to the said tax. The levy is certified by the board to the county clerk of each county interested not later than September 1 of each year. The levy is extended on the county books as "drainage taxes" and collected by the treasurer at the same time and in the same manner as state and county taxes.

Sec. 24-619. Supplemental assessments: Whenever it appears to the supervisors that the levies theretofore made will be insufficient to pay the costs of the improvement or pay the principal and interest on bonds which the district desires to issue, and that a supplemental assessment is necessary, the board, by resolution duly passed and entered on its minutes, declares the amount of such deficit and the purposes to which the supplemental assessment should be applied, and thereupon causes to be made a supplemental assessment roll which apportions the amount necessary to be raised upon the lands in proportion to the former assessment. Thereupon the board proceeds to enter judgment by confirmation upon such supplemental assessment roll. The supplemental assessment is levied in all respects as provided for the levy and assessment of drainage taxes. From time to time and as often as the occasion may arise, supplemental assessments may be levied. In the event that a supplemental assessment is levied before any bonds are issued, it is divided into installments, payable when the installments of the first or original assessment are payable and is collected therewith, and together they constitute one fund against which drainage bonds may be issued as provided in the act of which this is an amendment.

Sec. 24-620. Expense apportioned to streets, highways, and railroads: When the works cross, drain, or protect in whole or

in part, any street, highway, public or corporate road or railroad, or benefits the same, the supervisors apportion and set off to the controlling authority of such works benefited a portion of the expense of the whole drainage improvement the same as to private individuals and in proportion to the benefit conferred. Any such special assessments are collected in the same manner that state and county taxes are enforced under the general revenue laws. Any apportionment to a county, township, or municipality is filed as a claim with the clerk thereof and collected as other judgments against such corporations are collected.

Sec. 24-623. Lien—Sinking fund: All assessments against real property and easements are a lien against the property assessed from and after November 1 in the year in which it is assessed, and draw interest at the rate of 10 percent *per annum* from the 20th day of June in the year following. Such lien is not removed until the assessment is collected, and the tax laws of the state for the sale of lands for taxes are made applicable to the collection of assessments under this act. When bonds have been issued, the collections to pay the same constitute a sinking fund to be used only for the payment of said bonds and interest.

Sec. 24-634. Assessments for repairs: When the works of a district become defective, inefficient, or in need of repair, the supervisors may order an assessment upon the lands for the purpose of placing the works in proper condition, using the original assessment as a basis for ascertaining the ratio that each tract of land or other property bears to the whole amount to be levied. The assessment is collected in the same manner as assessments for original construction; provided, if the repairs are made necessary by the act or negligence of any landowner, the costs of the repairs are assessed and levied against the lands of that owner alone.

Sec. 24-638. Contest of assessments: The collection of drainage assessments shall not be enjoined nor declared void nor be set aside in consequence of error, omission, or irregularity in any proceeding, and no injunction shall be allowed restraining collection of any assessment until the complaining party has first paid to the county treasurer the amount of his assessment. Such payment may be recovered if an injunction be made perpetual.

Sec. 24-621. Preliminary expenses: Before funds can be obtained by taxation or the sale of bonds, the supervisors may borrow up to \$5,000 and pledge the credit of the district for repayment, such fund to be used for the necessary costs of organization and incorporation and other legitimate charges and expenses, and to be repaid with interest when funds come into the hands of the supervisors.

FINANCING—Bonds

Sec. 24-621. Issuance of bonds—Levy: The supervisors may issue negotiable bonds not to exceed the amount of the total tax levy certified to the county clerks, in denominations of not less than \$100 and bearing not to exceed 7 percent interest. Bonds mature at annual intervals commencing after a period of five years, and are payable at the office of the county treasurer of the county where the district was organized or at some convenient banking house to be named. Bonds must mature in not more than 20 years; if they mature at definite times within the period, assessments must be divided into as many installments as there are dates of maturity of said bonds; provided, maturity is fixed as of the first day of July of the year in which the bonds mature. The method of issuing bonds is set out in detail in the statute. Bonds may not be sold for less than par with accrued interest, and are payable out of the money derived from drainage assessments or taxes.

All bonds must be presented to the auditor of the state, with a transcript of all of the proceedings, and he must examine the bonds and the proceedings relative to issuance of them, and if satisfied that they have been legally issued he certifies that fact on their face and registers said bonds in his office. A copy of the certification must be furnished any bondholder on demand. Any person or corporation may pay the total amount assessed against him or it for benefits, and the amount of bonds issued is reduced by the amount of such payments. The property of the party paying in cash is released from the lien of such drainage taxes, and bonds and the interest on same is chargeable solely against the lands and other property not paying in cash.

Sec. 24-622. Resolution for bond issue: Before issuing any bonds, the board passes a formal resolution giving the amount of the total tax as confirmed, the deductions thereon, the estimated cost of collection, and the total amount of tax available for the payment of principal and interest on the bonds which it intends to issue. Then, in said resolution, the board divides the total levy theretofore made into convenient installments, stating after each the year in which it becomes payable. Thereupon the board authorizes the bonds, fixing dates of maturity such that the installments of taxes will be sufficient to pay the corresponding installments of bonds when they become due. Then the funds so far as necessary shall be pledged and hypothecated to the payment of said bonds, which charge against the fund is superior to any other.

Sec. 24-624. Sale of bonds: The board may sell bonds as may be necessary and advantageous to raise money for the construction of works and the acquisition of rights-of-way and property to carry out the objects of the district. Proceeds are used to pay for the costs of the improvement and expenses as provided by law. The money may be deposited, with security required and provisions for withdrawal upon warrants of the board when needed.

CONSTRUCTION

Sec. 24-626. Letting contracts: After the supervisors have certified to the county clerk the total levy of costs and expenses of the improvement, they may let contracts for construction. They give notice by publication for 20 days, calling for sealed bids for the construction of all or any part of the improvement, notifying the public of the time and place where bids will be opened. Bids are let to the lowest responsible bidder, or the supervisors may reject all bids and readvertise or proceed to construct the works under their own superintendence. Contracts for materials are awarded to the lowest responsible bidder. Contractors must give bond for the amount of the contract price, conditioned to faithfully perform the work. The work is done under the direction of the drainage engineer and subject to the approval of the supervisors.

DISSOLUTION

Secs. 24-647 to 24-652. Disorganization of district: Whenever the owners of a majority in interest of the acres of real estate within the boundary of any drainage district organized under sections 24-601 to 24-640, which district has not constructed a drainage system, shall file their written petition with the secretary of the board of supervisors of such district, asking that the district be disorganized and dissolved, the board of supervisors upon finding the petition sufficient will designate a time and place for a public meeting of the board within 60 days thereafter to consider the petition. They give notice to landowners in the same manner required for an election meeting under section 24-606. All interested parties may attend and be heard. After the hearing, the board of supervisors

has power to adopt a resolution providing that said district shall or shall not be disorganized and dissolved. The form of the resolution is set out in the statute. A certified copy of such resolution must be filed with the Secretary of State. If the resolution be to disorganize and dissolve, the district ceases to exist upon such filing and the board of supervisors becomes a board of trustees to conclude and finally determine all of the affairs of the district. A copy of such resolutions and all proceedings is filed with the clerk of the court in which the decree incorporating the district was rendered. *Sec. 24-648:* The board of trustees organize and function as a unit and a majority vote controls all matters. *Sec. 24-649:* To provide expense funds the board of trustees may borrow money, not in excess of 25 cents for each acre in the district, and bind the district to repay the same. To repay borrowed money and all indebtedness incurred in concluding the affairs of the district, the lands in the district, without regard to their value or the improvements thereon, are taxed in the following manner: The trustees certify to the board of county commissioners before August 1 of each year the amount it is necessary to raise, and the county commissioners levy equally upon each acre of land in the district a tax sufficient to raise the amount required. This tax is levied and collected as other drainage taxes, and delinquent lands may be sold to pay the levy. *Sec. 24-650:* The trustees by publication notify all creditors of the district to file verified and itemized statements of their claims with the secretary of the trustees within 30 to 90 days thereafter. A copy of the notice is mailed to the last known address of each claimant appearing on the records of the district.

"The validity of each claim and the right of each claimant to be paid shall be determined in accordance with the law under which the drainage district was organized and exclusive of and unaided by this Act, so that the rights of all claimants and all property owners shall remain unchanged and the limitation, if any, upon the power of the drainage district to incur indebtedness shall be observed."

Sec. 24-651: When the rights of creditors have been established, the trustees certify the amount necessary to pay all claims to the board of county commissioners, and the commissioners may raise such money in accordance with the provisions of chapter 168 of the Laws of 1911. (Secs. 24-601 to 24-640.) *Sec. 24-652:* The resolution to disorganize does not change the rights of any creditors nor the liability of the district to any party. All property of the district vests immediately in the board of trustees for the benefit of the landowners in the district. The trustees close the affairs of the district, file their report with the clerk of the district court in which the district was incorporated, and apply to the court for their discharge. The court, finding the report substantially correct, orders the discharge of the trustees.

KENTUCKY

(Baldwin's 1936 Revision, Carroll's Kentucky Statutes, Annotated; Baldwin's Supplements, 1939 and 1940)

Article VIII—Ditches, drains, construction of levees and reclamation of lands.

The Act of 1912, chapter 132, sections 2380-1 to 2380-50 is not repealed by the Act of 1918, chapter 64, sections 2380-b-1 to 2380-b-61, but they are two separate alternative systems for the reclamation of wet lands, the option to choose either being the right of the petitioners and the board of drainage commissioners but not of the county court.

See: *Drg. Comrs. v. Long*, 187 Ky. 123; 218 S.W. 736.
Drg. Comrs. v. McGill, 251 Ky. 400; 65 S.W. (2d) 91.

ACT OF 1912

Sec. 2380-1. County judge—Jurisdiction: The county judge of any county has jurisdiction to locate, establish, and have constructed all levees, ditches, drains, or canals, and to have such works and non-navigable watercourses straightened, widened, and deepened, or to reconstruct works already built under any law, for the purpose of draining or reclaiming low, swampy, or overflowed land. (As amended March 25, 1926, ch. 6, p. 9.)

The Act of March 19, 1912, which is subdivision I of the chapter on lands, sections 2380 to 2381, and the Act of March 26, 1918, which is subdivision II of the same chapter, have been held by the Supreme Court of Kentucky (187 Ky. 123) not to be a single code of laws but separate and alternative codes for the reclamation of wet lands. Under subdivision I the county judge of any county has authority to establish drainage districts upon petition of 25 percent of the landowners or of the owners of 25 percent of the land. When the petition is for the reconstruction of drainage works, it must be signed by 50 percent of the owners or the owners of 50 percent of the land. Under subdivision II the county court and the circuit court have concurrent original jurisdiction to establish, operate, and maintain drainage districts upon petition, with the same requirements as to signers. Under either act when the proposed district is intercounty, the petition may be filed in either court of any county in which lands are situated. Section 2380-b-3 of subdivision II provides that the petition must state the proceeding is to be under this later act, and unless so stated it is deemed to be brought under the Act of 1912. Since the general provisions of the two acts are very similar and some of the sections of the latter act are amendatory of the prior statutes, the following synopsis is taken from the Act of 1918, subdivision II.

ACT OF 1918

Sec. 2380-b-1. Organization—Jurisdiction: Jurisdiction is conferred upon county courts and circuit courts to organize drainage districts and provide means for their operation and maintenance. Such jurisdiction is concurrent. *Subsec. A:* The circuit courts also have appellate jurisdiction to review all orders of the county courts which are final in their nature. *Subsec. B:* Appeals also lie to the court of appeals of Kentucky from all orders of the circuit court which are final in their nature. *Subsec. C:* In matters relating to procedure, the provisions of this act are exclusive of all other remedies. Where no rule of procedure is specifically set out in this act, the procedure is governed by the rules of the civil code of practice and the common law rules. *Subsec. D:* Trials on appeals to the circuit court are *de novo* and judgment must be rendered as though the proceeding has originated in the circuit court. *Subsec. E:* Judgments from which no appeal is prosecuted are executed by the orders of the court wherein the judgment was rendered. *Subsec. F:* Proceedings under this act have preference on the dockets of the county and circuit courts over all civil cases except election cases and those heretofore given preference by law. *Subsec. G:* Any aggrieved person may appeal within 30 days, but not thereafter. Appellants must give bond for costs, and while the appeal must be tried *de novo* no issue not raised in the court below may be considered. In like manner appeals will lie to the court of appeals of Kentucky within 30 days unless the court extends the time until the next term of court. In the absence of appeal the circuit court judgment is final. The method of appeal is set forth in the statute. (As amended by the Law of 1924, ch. 145.)

ORGANIZATION—Petition

Sec. 2380-b-3. Ex parte—Allegations of petition: The proceedings are declared to be *ex parte*. They must be commenced by not less than 25 percent of the landowners or the owners of not less than 25 percent of the land, by filing a petition with either the county or the circuit court clerk of the county in which the lands are situated. When intercounty, the petition may be filed in either county. The court in the county where the petition is filed has jurisdiction regardless of county lines and to the exclusion of courts of any other county where any other part of the district lands are located, and has the same power and authority as if all of the lands and other property were exclusively in that county.

The petition must give a general description of the land and allege (1) the benefit or utility to the public; (2) the benefit to the public health; (3) the promotion of the general convenience and welfare of the public; and (4) the benefits to the land to be drained or protected from overflow, or the benefits to the sanitation of any city or town. In addition the petition sets out such other facts as tend to show the sanitary, agricultural, or commercial expediency or necessity for making the improvement. The petition must state the names of the owners of the lands or other property, including highways, sewers, and railroad rights-of-way, that will be benefited by the improvement so far as known to the petitioners, as well as the character of the estate of the owners thereof. It is sufficient if the territory to be improved is described by metes and bounds. The petition must be signed by one or more persons owning lands or other property in the proposed district that will be affected. Three copies of the petition must be filed with the clerk, and the petitioners must execute bond in the sum of \$2,000 conditioned to pay costs if the petition is denied.

(Any person desiring to prosecute an action under the provisions of this Act of 1918 must so state in the petition; otherwise the court must deem the proceedings are brought under the Act of 1912, sec. 2380-1, *et seq.*)

Sec. 2380-b-4. Board of viewers: On the first day of the succeeding term after the petition is filed, the court enters an order appointing a board of three viewers, two of whom must be resident freeholders of the county or counties wherein some of the lands or other property described in the petition are situated. They must be adults, not owning any land or other property sought to be incorporated in the district, nor kin in the second degree of consanguinity to any petitioner or interested party. The other member is to be a competent civil and drainage engineer, who may or may not be a resident of Kentucky, provided he does not own land or other property in the proposed district and is not related in like degree to any petitioner or any interested party.

Sec. 2380-b-5. Report of viewers: After taking the prescribed oath, which is filed in the record, the viewers examine the land and other property in the proposed district and any other property not embraced in the petition that may be affected by being benefited or being necessary for location of the works. They cause surveys to be made to determine the boundary and elevation of the several parts of the district, and cause the courses of all ditches and other works and water courses to be platted. Within 30 days, unless the time is extended by the court, they file a written report showing (a) whether the proposed improvements will result in public benefit or utility or promote the public health, convenience, and welfare; (b) whether the district will benefit the lands, towns, and other property sought to be benefited, specifically describing any land or other property that will not be benefited and giving the name

of the owners thereof; (c) whether all of the lands or other property that will be benefited are included in the district, and reporting specifically as to such land and property not so included; (d) a description by metes and bounds and by a plat of the territory to be embraced in the district, giving the names and addresses of owners within such boundaries and of corporations, towns, and municipalities interested together with the amount of land or other property owned by each; and (e) the names of all interested infants and persons under disability owning property in the district. They also report whether in their opinion the district should be established, and file three copies of the report signed by at least two of the viewers under oath.

Secs. 2380-b-6 and 2380-b-7. Notice—Report of viewers: If the report of the viewers when filed recommends the establishment of the district, the court clerk gives notice to each person named in the report as being affected, stating the time within which objections to the report may be filed and the time when the proceedings will be heard by the court. The form of the notice is set out in the statute at length. Notice is by mailing, posting, and publication. **Sec. 2380-b-7:** If the report of the viewers shall recommend against the establishment of the district, the clerk does not issue any notice until the court shall thereafter order the same. At the next term of court the petitioner or any owner of property that would be affected may file objections or exceptions to the report. The court will hear them and, finding that there is reasonable doubt of the correctness of the viewers' report, will enter an order directing the clerk to give notice requiring interested parties to show cause why the objections should not be sustained. In each instance the clerk makes a certificate of the service of notice in the form prescribed by the statute, and files it in the record. [Drg. Comrs. v. Bank, 259 Ky. 823; 83 S.W. (2d) 511.]

Sec. 2380-b-8. Clerk's certificate of notice: The certificate of the clerk as to the serving of notice is equivalent to the sheriff's endorsement on a summons or other process. All interested persons are deemed to be before the court, which acquires and retains complete jurisdiction over all lands, easements, and other property described in the report of the viewers as being affected. By virtue of such jurisdiction the court is authorized to establish the district and cause it to be organized, and to cause necessary assessments to be levied and collected to pay for organization, construction, operation, and maintenance, and to have bonds issued and sold to obtain money with which to pay the costs as prescribed by law.

Secs. 2380-b-9 to 2380-b-11. Hearing on viewers' report: After notice has been given the court sets a hearing on the report of the viewers, and may continue the hearing from term to term and cause proper notice to be given, if the clerk has failed so to do, to the end that all persons affected shall be properly before the court. Any person affected may file an objection and exception within 30 days showing why the district should not be organized. Objections are limited to a denial of the facts stated in the petition or in the report of the viewers. The report of the viewers is taken as *prima facie* correct. If the court finds that the lands and other property described in the report of the viewers should not be formed into a district, the petition is dismissed at the cost of the petitioners. No petitioner shall be allowed to withdraw from the petition after the viewers are appointed, without the written consent of the owners of land owning a majority of the acreage described in the petition. Finding that the report does not correctly describe the body of land involved in the proposed district,

the court will refer the report back to the viewers for a supplemental report, and no notice of the time fixed for hearing the report is necessary. If additional owners of land or other property are brought in by the supplemental report, additional notice of hearing thereon is given to the new parties only, and in the same manner as for original hearing.

If the court finds that the territory or any portion thereof should be organized into a district, the court establishes the district by entering an order for judgment. (The form of the order establishing the district is set out in full in the statute.) The court adjudges and declares the district to be established and directs that it be organized as a district and a body corporate under the name given. The proceeding is then ordered into the hands of the board of drainage commissioners of _____ District (naming it) to be organized. The judgment of the court is entered on the order book like other judgments. (As amended by the Act of March 12, 1938, ch. 35.) *Sec. 2380-b-10:* Upon entering of such order, the district is fully established with all of the powers granted by the statute. The costs follow the judgment of the court as in civil actions. All owners of land or other property embraced in the viewers' report and appearing in the notice posted by the clerk are bound by the judgment, whether they file objections or not, and may not be heard thereafter on any question raised or that could have been raised by any party up to that time, subject, however, to the right of appeal. *Sec. 2380-b-11:* As soon as the judgment has been rendered, the court enters an order referring the cause to the board of drainage commissioners elected by the landowners of the district and continues the case, usually to the next term, of which continuance all parties must take notice. If no such order is entered, the continuance is by operation of this statute with like effect as if the order had been entered. (As amended by Act of March 12, 1938, ch. 5.)

ORGANIZATION—Powers

Sec. 2380-b-2. Jurisdiction—Power to construct: The power conferred on the court includes the establishment, organization, and maintenance of districts; and the districts when organized have power to construct works or to improve existing works and watercourses or to reclaim lands and prevent overflow, provided navigation is not impaired and that such improvements will result in public benefit or promote public health and welfare.

ORGANIZATION—Officers

Sec. 2380-c-1. Drainage commissioners in certain counties: In all counties having 75 or more separate drainage districts, the county judge must appoint a drainage commissioner who exercises all of the powers and duties vested in directors and boards of drainage commissioners elected under section 2380-7. (L. 1936, ch. 40.)

Sec. 2380-b-12. Election of drainage commissioner, secretary, and board of drainage commissioners: In all counties and towns where a drainage district shall have been established under existing law and been brought under this act, or where districts are hereafter established under this act, it is the duty of the county judge to divide the district into three precincts as nearly equal in area as practicable, and to appoint a temporary secretary to act for the district board. The secretary records the divisions in the drainage record, gives 20 days notice by publication and posting in all counties affected, informing the landowners that they may vote for a drainage commissioner for each precinct, and for a secretary, within a time stated. The vote is taken by the landowners filing a written declaration of choice together with the number of acres owned or the amount of

benefits confirmed against his land. Each acre owned and assessed counts one vote, or if the benefits have been confirmed, each \$100 or fraction thereof in benefits assessed shall count one vote for drainage commissioner and secretary. The votes are recorded by the secretary and the landowners must file their vote before the first Monday in April. Election is for one year from the following May 1.

The three persons receiving the largest number of votes become the drainage commissioners of the district. One commissioner is elected from each precinct and the secretary from the district at large. One month after the completion of the election, the elected officers take charge of the affairs of the district, except cash in the hands of the treasurer. Only a landowner in the precinct for which he acts may be a drainage commissioner. Each commissioner must be an adult freeholder and must give bond for \$2500 for the faithful performance of his duties. Immediately upon their qualification the board of drainage commissioners become a body corporate under the name of "Drainage Commissioners of _____ District" with the usual powers of corporations. The board elects a treasurer, resident of the district but not member of the board and not the secretary; and the treasurer gives bond as the board may direct. The duties and compensation of the officers are defined in the statute, and all expenses are paid out of the drainage fund and not from the funds of the county. (As amended by the Act of March 12, 1938, ch. 35.) [Comrs. v. McGill, 251 Ky. 400; 65 S.W. (2d) 91.]

FINANCING—Assessments

Sec. 2380-b-13. Tax for preliminary expenses: The drainage board immediately after taking charge, levies a uniform tax of not more than 50 cents per acre upon the lands in the district as shown by the viewers' report, to be used for the expense of establishing the district before the board is empowered to provide funds to pay the costs of constructing the works. Such tax becomes delinquent December 1 of the year in which levied, and is collected by the sheriff in the same manner as general state and county taxes. This tax is a lien against the land and other property from the time it is levied, and is subject to the same penalty for nonpayment as state and county taxes. Any surplus is placed in the general fund of the district to be used for construction.

Sec. 2380-b-14. Engineer: The drainage commissioners appoint a competent engineer, who may be an individual or corporation, to be the chief engineer of the district and to engage such assistants as the commissioners may approve. The chief engineer has control of the engineering work and makes surveys of all lands affected and reports in writing, in triplicate, to the drainage board with maps and profiles and a plan for the works. This report must show each separate tract of land, its area, name of the owner, and the location of the proposed improvements. The original report may not be withdrawn from the custody of the secretary.

Secs. 2380-b-15 and 2380-b-16. Plan—Appraisers: The report of the engineer is known as the "plan of reclamation," and when it is filed the commissioners adopt it with such modifications as may be agreed on, and file a copy with the clerk of the court in which the district was organized. The court refers the report to a board of appraisers to be appointed by the judge, consisting of three resident freeholders of the county who are in no way interested in the proceedings nor kin within the second degree of consanguinity to any person owning land in the district. The appraisers have to appraise the land and other property and assess benefits and damages, basing their return on the report of the engineer. *Sec. 2380-b-16:* The

appraisers begin their duties within 10 days after taking the oath of office. They may call on the attorney for the district and the chief engineer for assistance. They view the premises and determine the value of all land and other property, within or without the district, subject to assessment or to be acquired for rights-of-way and works of the district. They appraise each parcel separately and assess the benefits and damages that will accrue to each separate tract or subdivision or other property, highway, railroad, right-of-way, or easement from carrying out the "plan of reclamation." Highways, railroads, and rights-of-way are assessed according to the increased physical efficiency and decreased annual average maintenance cost by reason of the proposed work of the district, capitalized on a 6 percent basis. Appraisers may not change the "plan of reclamation." They report their findings in writing and the report must be signed by at least two of them. They estimate the cost of the work as set out in the "plan of reclamation." They report separately for each tract of land the number of acres, present value, quantity of land to be taken for rights-of-way, value of the land to be taken, consequential damages to adjacent land, and enhancement per acre of the value of the land that will accrue from the improvement. They classify the land and other property into five or more classes designated A to E.

Sec. 2380-b-17. Hearing on appraisers' report: If the report of the appraisers shows that any property is going to be affected and the owner thereof has not been brought into court, the clerk will give notice equivalent to that given to owners already in court. He also gives notice by posting and publication of the filing of the appraisers' report and when and where exceptions thereto will be heard. The trial of such exceptions is by the court, except that where lands are to be condemned the trial is by jury as provided in the general laws.

Secs. 2380-b-18 to 2380-b-20. Appraisers' report—Confirmation—Abandonment: The board may compromise with objectors to the appraisers' report, but such compromise must be approved by the court. Otherwise a trial is had first on exceptions to the assessment of damages, and this trial may be by jury and follows in all respects the trials for condemnation of railroad rights-of-way. All damages awarded are paid by the drainage board out of the first money available for that purpose, and cash payment, or arrangement for payment, must be made before the land is taken, unless advance payment is waived by the owner. The trial for damages must be completed before any trial of the exceptions to assessments of benefits or to classification is had. These exceptions are heard in a summary manner so as to carry out the purposes and needs of the district and the equities of all persons interested. When exceptions have been filed, the court determines the correctness of the classification of, and assessment of benefits to each tract of land or other property. The report of the appraisers is *prima facie* evidence of the correctness of the facts stated therein. If after hearing it appears to the court that the estimated cost of the improvement is less than the benefits assessed against the land and other property, the court will confirm the report of the appraisers as to classification and assessment of benefits, as it may be amended or modified by the court.

If a majority of the landowners shall at this time desire to abandon the improvement, they have the right so to do by showing that the costs exceed the benefits accruing to the land and property in the district; and when it is so shown, the court will dismiss the proceedings.

(An amendment inserted by the Act of February 3, 1922, provides that after the report of the appraisers has been filed,

if the owners of 75 percent of the land embraced in the district, or any part thereof which is practically separated from other portions of the district, file a petition stating that they desire to abandon the improvement, the court will dismiss the proceedings at the cost of the landowners.)

Any interested person or corporation may appeal from the judgment of the court as to classification, assessment of benefits, or damages. On appeal no question may be raised that was not raised in the exceptions to the appraisers' report. The appeal does not in any way stay the proceedings nor affect the classification, assessment of benefits, or assessment of damages to any land or property not directly involved in the appeal. The judgment is construed as a several judgment as to each tract of land or other property. The form of judgment is set out in the statute at length. (L. 1918, ch. 34 as amended by Act of February 3, 1922, ch. 2.) **Sec. 2380-b-19:** The clerk of court certifies the judgment and the report of the appraisers to the drainage board and it is spread on their records. **Sec. 2380-b-20:** When lands or other property inside or outside of the district are acquired under this law and have been paid for by the drainage commissioners, the title, use, and possession pass to the district. In default of payment by the drainage commissioners for five years, all proceedings abate at the cost of the district.

Sec. 2380-b-21. Board may borrow money: The board of drainage commissioners has the power to construct the improvements themselves or to let contracts therefor. The provision for making contracts is set out in detail in the statute. After the court clerk has certified the judgment of the court and a copy of the confirmed appraisers' report to the drainage commissioners, they may borrow such money as is necessary to carry out the work of the district to an extent not exceeding 75 percent of the assessed benefits shown in the appraisers' report, and may pledge the faith and credit of the district for repayment thereof. No money may be borrowed for a longer period of time than the actual needs of the district require, and in no case for more than five years. They may not pay more than 6 percent interest. Borrowed money shall be repaid as soon as there are sufficient funds realized from assessments or the sale of bonds.

Sec. 2380-b-22. Minimum assessment: Within 30 days after all work is provided for, the drainage board must ascertain the cost of doing such work and add thereto all expenses of organization and damages. To that sum 10 percent is added and the result is the "minimum district assessment." If bonds are to be issued, the board determines the time they will run and calculates the interest that will accumulate on the entire issue. (The par value of the bonds may not be in excess of 90 percent of the "minimum district assessment.") The total of the interest that will accrue is the "district interest assessment." The sum of these two assessments constitutes the "maximum district assessment." The board ascertains what percent the minimum is of the total assessed benefit. They do the same for the "interest assessment." The board then apportions the minimum to each separate tract of land, railway, highway, and other property, so that each shall bear its ratable and just part of said "minimum." They likewise apportion the "interest." They then levy a drainage assessment for the amount of both the "minimum" and the "interest," and prepare a drainage assessment record for the district (one for each county in intercounty districts). They make copies for the drainage commissioners and for the clerk of the court. The form of the drainage assessment record is set out in full in the statute.

Sec. 2380-b-23. Drainage assessment record: When the drainage assessment record is filed, the drainage commissioners deliver same to the court clerk, who gives two weeks notice by publication that it may be inspected by interested persons at any time and that they have until the first day of the next term of court to file any exceptions thereto. Exceptions are heard and tried by the court in a summary manner upon the filing and recording of the proceedings. Any error found will be corrected by the court and its final order of approval is conclusive upon all lands, railroads, highways, and other property within the district. Such assessment is a lien upon all property and the several parcels and tracts of land and other property in the district, superior to all other liens except state, county, school, and municipal taxes.

Sec. 2380-b-24. Interest not included in estimate of cost: Where money is borrowed or bonds issued, interest charges thereon shall not be considered a part of the cost of improvements in determining whether such cost is equal to or greater than the benefits assessed.

Sec. 2380-b-28. Collection of assessments: The drainage commissioners, in December of each year, certify to the sheriff of each county the annual installment of assessments levied which will be due in the succeeding year, and the installment is collected at the same time as state and county taxes. The certificate to the sheriff is set out in the statute. *Sec. 2380-b-28-a:* When directed by the court, the treasurer may receive payments direct, certifying receipt of the payment to the sheriff.

Sec. 2380-b-29. Liens—Penalties: All assessments, penalties, and costs from the date of filing the district assessment register in the court clerk's office constitute a lien to which only state, county, school, and road taxes are paramount.

Sec. 2380-b-30: It is the duty of the sheriff or tax collector of each county in which district lands or other property are situated to receive the "collector's drainage assessment book" each year and collect the assessments at the same time that he collects county taxes on the same land and other property. The sheriff makes return to the secretary of the board of drainage commissioners and pays over all collections to the treasurer of the district. Assessments not paid by December 1 of each year are delinquent and a penalty of 6 percent is automatically added. If not paid by the January term of the county court the sheriff will sell the land or other property or so much thereof as may be necessary to pay the assessment, penalties, and costs. Such sale is for cash. Before making a sale, the sheriff gives notice to the owner in the form prescribed in the statute by publication and posting. The sale has the same force and effect as the sale of lands for county taxes. If there are no bidders of an amount sufficient to pay the assessment and costs, the sheriff purchases the property for the board of drainage commissioners and makes report to the county clerk of the county where the land or other property is situated. The purchaser of such property takes it subject to future assessments of the drainage district. The purchaser at such a sale takes the same title as the purchaser at a tax sale, and the time for redemption is the same. (L. 1918, ch. 64.) [Drew v. Board of Drg. Comrs. of McCracken County, 264 Ky. 270; 94 S. W. (2d) 664.]

Sec. 2380-b-43. Maintenance assessment: Upon completion of the improvement the board of drainage commissioners, in order to maintain, operate, and repair the same, levies a maintenance assessment on the first Monday of December in each year, apportioned on the basis of the assessment for original construction, and not to exceed 10 percent thereof in any one year.

This assessment is certified to the sheriff or tax collector in the same way as the original assessment. It may not exceed 2 percent of the original cost of construction unless consent is first obtained in writing from two-thirds of the owners of the land affected. The maintenance tax is collected at the same time and in the same manner and with the same penalties as other taxes. (L. 1932, ch. 4.) *Sec. 2380-b-43-a:* Landowners may, with the approval of the board, do maintenance work and receive credit slips therefor, to be used in payment of the maintenance assessment only. Regulations under which this may be done are set out at length in the statute.

FINANCING—Bonds

Secs. 2380-b-25 and 2380-b-26. Resolution for bond issue: The secretary gives notice that the "assessment record" (sec. 2380-b-22, *ante*) is in his hands and that, at a time fixed between 30 and 60 days thereafter, all persons may pay the minimum assessment and release the lien thereof. Any party so paying is given a receipt and the clerk will endorse on each copy of the assessment record the fact that the minimum assessment against such tract is paid in full. At expiration of the period stated, the drainage commissioners meet and adopt a resolution, which must be recorded, stating the total amount of bonds to be issued, the denominations thereof, the number of series, and the time of payment of each series. *Sec. 2380-b-26:* Immediately thereafter the secretary prepares a district assessment register for each county involved, containing the names of each owner found in the confirmed report of the appraisers and a description of the property. The assessment register shows the "minimum" and "interest" assessments and the installment to be paid each year during the time the bonds are to run, except where the "minimum" has been paid. The form of the assessment register is set out in the statute. This assessment register is the authority of the tax collector of each county to collect the assessments therein.

Sec. 2380-b-27. Installments—Interest: The board of drainage commissioners may, if in their opinion the best interests of the district will be subserved, defer the payment of the "minimum" assessment for not to exceed five years and may fix the time when the first annual assessment shall become payable. In such case a sufficient annual assessment is made to cover interest on bonds plus cost of collection. This levy is in the exact ratio of the assessments confirmed by the court.

Sec. 2380-b-38. Warrants: Warrants presented to the treasurer and not paid for lack of funds are endorsed by him to that effect; thereafter they bear 6 percent interest until such time as there are sufficient funds on hand to pay them, and at which time interest ceases whether they are presented for payment or not.

Sec. 2380-b-42. Bonds—Maximum amount—How proceeds applied: The board of commissioners of any district may in their discretion issue bonds in amount not to exceed 90 percent of the total of the minimum district assessment levied upon the lands and other property. The bonds bear 6 percent interest and mature at annual intervals within 30 years, commencing after a period of years not greater than five. Bonds must be signed by the president and secretary of the board and countersigned by the clerk of the county court in which the district was organized. The secretary of the board of drainage commissioners certifies to the county court clerk the resolution of the board authorizing the issuance of bonds, and the county clerk records said resolution in the *lis pendens* record in his office and countersigns all bonds before they are delivered to the treasurer. Bonds may not be sold for less than par or face value at the date of issuance, and must show on their face that they are

payable out of the money derived from assessments. When assessments are collected, a sufficient amount to pay maturing bonds and interest must be preserved in a separate fund for that purpose and no other. Delinquent bonds and coupons bear 6 percent interest. It is the duty of the drainage board to make ample provision by annual assessments for maturing bonds and interest. If the original levy of assessments be not sufficient to pay all bonds issued and interest, then the commissioners must make additional levies for this purpose upon the benefits assessed. But no levy may be made in excess of the benefits shown in the confirmed appraisers' report or that will impair the security of the bonds. [First National Bank of Ava, Ill. v. Bd. Drg. Comrs. of Hickman County, 229 Ky. 508; 17 S.W. (2d) 431.]

Sec. 2380-d-1. Refunding bonds: Whenever the drainage commissioners or other governing authority of a drainage district find and declare of record that it is for the best interest of the landowners of the district to refund all or any part of its bonded indebtedness, such board or governing authority may issue refunding bonds payable at such longer time, not to exceed 40 years from their date, as they may determine. Such refunding bonds may not exceed in the aggregate the amount of bonds refunded thereby and interest accrued thereon to the date of the refunding bonds. Such refunding bonds bear 6 percent interest, payable semiannually, and may be exchanged for the outstanding bonds if the holders thereof agree. Or they may be sold for not less than par and accrued interest, and the proceeds must be used in the payment of the outstanding bonds and the expense incident to issuing the refunding bonds; provided, no refunding bonds so sold shall become valid obligations of the district unless and until an equivalent amount of bonds refunded thereby shall have been surrendered by the holders thereof and duly cancelled. Any landowner has the right, within two weeks after the order for refunding bonds, to pay the full amount of the uncollected taxes or assessments against his property for the payment of the bonds to be refunded, and thereby release his land from the tax or assessment for the payment of refunding bonds. His property, however, remains subject to additional taxes that may be levied pursuant to law. Unless and until refunding bonds have been issued, the rate of tax or assessment or the amount of assessment applicable to bonds to be refunded, shall not be reduced. (L. 1936, ch. 38, sec. 1.)

Sec. 2380-d-2. Procedure for refunding bonds: Before issuing refunding bonds the governing authority of the district must give notice to the owners of the land or other property in the district of the intention to refund the bonds. Notice is by publication in each county interested and states the time and place of the hearing thereon. The form of notice is set out in full in the statute. Notice is to show cause why the refunding should not be done "and taxes in addition to the assessed benefits levied if necessary to pay interest on said refunding bonds." The notice states further that if a majority of the owners owning a majority of the acreage object to such refunding, it will be abandoned. (L. 1936, ch. 38.)

DISSOLUTION

Sec. 2380-49-a. Discontinuance of ditches: If a majority in number and amount of those assessed for the maintenance of any public ditch petition of county court for its discontinuance as a public ditch, the judge will docket the petition and issue to all parties interested notice of a hearing at the next term of court; and if no valid reason then is shown to the contrary, the judge will issue an order discontinuing the ditch. Appeal may be had to the circuit court in the same manner as

provided for the construction of the ditch. (L. 1918, ch. 114, p. 502.)

Sec. 2380-b-61. Treasurer's funds at dissolution: If upon dissolution there is any money in the hands of the treasurer after the payment of all obligations of the district, it is prorated to the several tracts of land, railroads, highways, and other property according to the assessed benefits confirmed by the court on organization, and shall be paid to the then owner of such property. (L. 1918, ch. 64, sec. 61.)

LOUISIANA

[Louisiana General Statutes (Dart) 1939;
Cumulative Pocket Supplement 1940;
Chapter 19, secs. 6989 to 7032]

GRAVITY DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 6989. Creation of district—Police jury: The police juries of the various parishes, except the parish of Orleans, are empowered to create "gravity drainage districts" in their respective parishes from lands which drain by gravity. No district may contain the entire territory of the parish and none may have less than five landowners therein. The police jury may also create subdistricts within the gravity drainage districts. They must create a gravity drainage district when petitioned by a majority in number of acres or a majority of the resident landowners in the area to be embraced, where such area contains 40 or less landowners. Where there are more than 40 landowners, the district must be created upon petition of 25 landowners. The resolution of the jury must fix the boundaries and give the district a numerical designation.

Gravity drainage districts and subdistricts so created are subdivisions of the State of Louisiana within the meaning of the constitution and statutes relating to incurring debt and issuing bonds therefor.

See: Brown v. Chataignier Grav. D.D. #2, 161 La. 309; 108 So. 548.

Gravity D.D. v. Caldwell, 171 La. 58; 129 So. 668.
Shautin v. Bd. Drg. Comrs., 160 La. 1036; 107 So. 897.
Thompson v. Police Jury, 168 La. 517; 122 So. 713.

ORGANIZATION—Officers

Sec. 6990. Publication: Whenever districts are created or reorganized, or lands have been added, a copy of the ordinance of the police jury duly certified by the secretary must be published for 30 days in the parish in which the land is situated and must also be posted. Within 30 days any landowner within the district has the right of appeal to the courts to contest the action of the police jury or object to the inclusion of his land. After 30 days the action of the jury is absolute and incontestible for any cause whatever and the regularity and legality of the proceedings is presumed. But nothing in this section requires the board of drainage commissioners of any gravity drainage district to await the expiration of 30 days before proceeding to organize. (L. 1924.)

Secs. 6991 and 6992. Board of commissioners: All districts are governed and controlled by five commissioners. These commissioners or their wives must own assessed real estate within the district with a value of at least \$500. Representatives of corporations owning land in the district of a like value may be commissioners. Such representatives may be officers of, or persons designated to represent, the corporation. Persons possessing such qualifications, or so designated, may be drainage commissioners, whether residents or nonresidents. Commissioners may hold office in two or more districts and may hold such position in addition to any other office held, without that

fact being considered in contemplation of law as dual office holding. (L. 1924.) *Sec. 6992:* The police juries organizing the district appoint three commissioners in each district, two for two years and one for four years. The remaining two members are appointed by the governor for four years. The appointment in either case must be upon the petition or recommendation of a majority in number of acres, or a majority of the resident landowners where the district contains 40 or less landowners. Where there are more than 40 landowners, the appointment is made upon the recommendation of 25 landowners; if there is a contest, the jury or the governor must appoint those commissioners recommended by the landowners owning the greatest number of acres in the district. In the absence of recommendation, the jury and governor appoint at their discretion. (L. 1924.)

Secs. 6993 and 6994. Inter-parish districts: When it is necessary to organize districts containing land in two or more parishes, they are created by joint resolution of the police juries of the respective parishes or by resolution passed by one police jury and approved by the other or others. They create such districts on a like petition as for districts in one parish. (Sec. 6989.) In inter-parish districts two commissioners are selected by the police jury of the parish having the largest area in the district, and one by the jury of the other parish. When portions of three parishes are involved, each selects one commissioner and they draw lots for the long and short term appointments. When portions of more than three parishes are included, the juries of the three parishes having the greatest acreage name the three commissioners, and they draw lots for terms of office. Commissioners may be removed for cause by the power appointing them. *Sec. 6994:* On failure or refusal of the juries to organize gravity drainage districts when needed in territories partly in the parishes of each, they are required to do so when petitioned by the property owners as is provided in section 6989 (*ante*). A petition objecting to the creation of such gravity drainage district is not good reason for the jury to refuse to create or to approve such district when properly petitioned under section 6989.

Sec. 6995. Gravity subdrainage districts: Subdrainage districts are composed of territory wholly within a district and less than the entire territory of such district. Such subdrainage districts may be created from the land of one landowner. The governing body in a subdistrict is the same as that of the parent district. The resolution creating subdistricts defines their limits and such boundaries may be changed by the police jury creating them prior to the issuance of bonds or the levy of taxes. Subdrainage districts may also be formed on the petition of the board of commissioners of the parent district, and they must be formed when petition is presented as provided in section 6989. The corporate seal of the parent district may be used for the subdistrict. (L. 1924.)

ORGANIZATION—Powers

Secs. 6996 to 6998. Powers of districts: Any gravity drainage district or gravity drainage subdistrict created and numbered by the police jury of any parish or by the joint action of two or more juries, constitutes a body corporate with all of the powers of a corporation, and has perpetual succession. They also have the power of expropriating property for the purpose of acquiring land for the necessary purposes of the district. The drainage commissioners of either a district or a subdistrict, for the purpose of securing proper outlet for the waters of the district, have the authority to extend canals or ditches or both beyond the limits of their respective districts, with the same power of expropriation for rights-of-way. *Sec. 6997:* The police juries creating gravity drainage districts may designate

the domicile of the corporation so created, and the drainage commissioners, by resolution and publication of notice for 30 days, may change the domicile.

When a police jury creates a gravity district, it designates the time and place of the first meeting of the drainage commissioners. These commissioners immediately organize and elect a president, a vice-president, and a treasurer who shall serve also as secretary and receive a salary of not less than \$15 per month nor more than \$50, to be fixed by the commissioners. *Sec. 6998:* The board of drainage commissioners has the power to open all natural drains to make them effective, and to cut and open new drains, ditches, and canals wherever necessary. They may enter into contracts for the performance of such work, and may perform all other acts necessary to fully drain all of the land in their districts.

Sec. 7024. Commissioners—Powers: The commissioners have absolute control over the drainage of the districts and subdistricts and are authorized to construct the works necessary for the purpose of gravity drainage thereof. They may adopt all needful regulations. A police jury may include within a district lands situated in incorporated towns and municipalities, although their charters may except such lands from the authority of the police juries; but this provision does not limit the authority of the towns or municipalities to carry on drainage work within their limits.

FINANCING—Assessments

Sec. 6999. Tax levies: The drainage commissioners have the power to provide necessary funds by levying a tax or forced contribution. If it is an acreage tax levied by the vote of electors of gravity drainage districts, then such tax shall be by resolution of the governing authority of the district and be levied for the full term for which it was voted. If the tax is *ad valorem*, assessed to pay principal and interest on bonds issued upon vote of the taxpayers, then such *ad valorem* tax shall be levied annually. (L. 1924, sec. 11.)

Sec. 7001. Acreage tax: Districts and subdistricts, through their governing authority, are authorized to collect annually [in addition to the tax authorized by article XIV, section 14 (a) of the constitution of Louisiana] an acreage tax or forced contribution not exceeding 50 cents per acre per year for a period not exceeding 40 years. Such acreage tax must be imposed by the governing authority upon petition by the owners of more than two-thirds of the acreage. The governing authority may in its discretion, and shall upon petition of a majority in number of the landowners and a majority in number of the acres, order an election to determine whether the tax shall be imposed, the amount thereof, and the length of time the tax shall run. Such district may issue bonds and refunding bonds, the payment of which is secured by acreage taxes or forced contributions, running not longer than 40 years and not exceeding 50 cents per acre, when authorized at an election held for that purpose, by landowners qualified to vote under Louisiana laws, who constitute a majority in number and own a majority in acreage in the district. But the total amount of the debt incurred or bonds issued shall not exceed in principal and interest the aggregate amount to be raised by said acreage taxes during the period for which they were levied.

Sec. 7023. Sale of delinquent property: When it is necessary to sell lands for delinquency in the payment of drainage taxes, and the entire property does not sell for enough to pay the forced contribution or acreage tax together with the state and other taxes assessed thereon, the sheriff of the parish must adjudicate the same to the State of Louisiana. The state registrar takes possession of the land and as soon as the redemption

period has expired, offers the property for sale. The property may not be sold for less than all taxes or forced contributions due thereon together with interest and penalties. Any conveyance by the registrar is good and valid. All sales statutes apply with equal force to any tax adjudication under this statute.

FINANCING—Bonds

Secs. 7000, 7002, and 7003. Bond issues: Gravity drainage districts and subdistricts may, as political subdivisions, incur debt and issue negotiable bonds payable from an *ad valorem* tax on the property within the district under the laws of the State relating to the issuance of bonds. **Sec. 7002:** The governing authority of any gravity drainage district or subdistrict may call a special election on the question of levying an acreage tax or forced contribution and issuing bonds secured thereby. They must call the election when requested by petition of one-fourth of the property tax payers eligible to vote. The special election is ordered by resolution stating the purpose thereof, the amount of the debt, the maximum time for which the bonds are to run, and the maximum rate of interest. **Sec. 7003:** Notice of the election is by publication for 30 days.

Sec. 7004. Use of funds: *Ad valorem* taxes, or acreage taxes, or forced contributions may only be levied, and debts may only be incurred or bonds issued, to construct gravity drainage works or to refund bonded indebtedness of a district or subdistrict, and for no other purpose.

Secs. 7005 to 7013. Voting: These sections give in detail the manner of holding elections and canvassing the returns.

Sec. 7014. Result of election: If a majority in number of qualified taxpayers and a majority in number of acres voting at the election vote in favor of levying a forced contribution or acreage tax, the governing authority by resolution may proceed to levy such tax for the term for which voted. (L. 1934.)

Sec. 7015. Issuance of bonds: If a majority in number of the qualified taxpayers and a majority in number of acres voting at the election vote in favor of incurring debt and issuing bonds secured by and payable from an acreage tax, the governing authority may by resolution authorize the issuance of such bonds in an amount not exceeding that stated in the proposition voted on, and for no other purpose than that stated, and not exceeding in principal and interest the aggregate amount to be raised by such forced contribution or acreage tax during the period for which the taxes are levied; provided that the avails of at least two and one-half cents per acre of any acreage tax or forced contribution thus levied shall not be funded into bonds but shall be set aside each year and used solely for the maintenance of the gravity drainage works; and the total amount of the bonds issued shall not exceed in principal and interest the amount to be raised after deducting two and one-half cents per acre set aside for maintenance. (L. 1934.)

Sec. 7016. Bonds—Terms: No bonds may run for more than 40 years, bear more than 6 percent interest, or be sold at less than par. The governing authority fixes the time when the bonds shall be payable, which must be in annual installments beginning not more than three years after the date of the bonds. The total amount payable in each year shall not exceed the amount of the forced contribution or acreage tax, after deducting from such tax 15 percent for cost of collection, delinquency, and contingencies. (L. 1924.)

Sec. 7017. Bonds registered: Bonds may be either registered or coupon bonds. Coupon bonds may be registered as to principal in the holder's name on the books of the treasurer of the district. Thereafter no transfer is valid unless made on the treasurer's books. Registration as to principal does not

restrain the negotiability of the coupons by mere delivery. Bonds may be discharged from registration by transfer to bearer after which they are transferable by delivery only. (L. 1924.)

Secs. 7018 to 7021. Resolution authorizing issuance: Before the bonds are issued, the governing authority investigates and determines the regularity of the proceedings. A form of recital of regularity is set out in the statute. **Sec. 7019:** When the time in which the validity of the bonds may be contested has elapsed, which is 60 days from the date of the promulgation of the result of the election, bond issues by any district will be registered by the secretary of state without charge. **Sec. 7020:** Whenever bonds have been issued and a tax levied as herein provided, any landowner in the district has 60 days next following the election proclamation to contest the validity of the proceeding by action in court. Thereafter the levy is incontestable and no court has jurisdiction to hear objections to the same. **Sec. 7021:** All tax laws of the state are applicable to the collection of drainage taxes.

DISSOLUTION

Sec. 7028. Dissolution: At any time before bonds are issued, the governing authority may submit to the taxpayers the question whether the forced contribution or acreage tax previously voted therein shall be repealed and may also submit at such election the question of dissolution of the gravity drainage district. If the proposition receives a majority in number and amount of the votes of qualified taxpayers voting at such election, the governing authority of the district or subdistrict may give notice by publication requiring creditors to present their claims within 60 days. After termination thereof, the district is deemed to be dissolved except so far as necessary to continue it for the purpose of levying a tax to pay such claims and demands as are established against it.

No proceeding shall be taken to dissolve a gravity drainage district or subdistrict so long as the same shall have outstanding bonds secured by a forced contribution or acreage tax or by an *ad valorem* tax. (L. 1924.)

LEVEED AND PUMPED DRAINAGE DISTRICTS

(Chapter 20, secs. 7033 to 7092)

ORGANIZATION—Petition

Secs. 7033 and 7034. Creation of districts authorized: The police juries of the several parishes are authorized to establish drainage districts in their respective parishes under Article XV of the constitution (L. 1921, E.S., sec. 1). **Sec. 7034:** For the purpose of drainage or reclamation of partially drained swamp and overflowed lands that must be leveed and pumped in order to be reclaimed, police juries are empowered to create on their own initiative districts embracing all or part of the lands in their respective parishes; provided that all of the land in any district must be contiguous. When the lands are in more than one parish, action is taken either by joint resolution of the respective juries or by an ordinance of the jury of one parish approved by the jury of the other parishes interested. But no district may contain within its limits less than five landowners, resident or nonresident, and no land may be included in more than one drainage district.

Sec. 7035. Upon petition of landowners: Upon failure or refusal of the police juries to create districts, they are required so to do when petitioned by the owners of a majority of the acres in a proposed district. Such petition must describe the area, designate the name of the proposed district, be signed by the owners of a majority of the acres, and have with it a certificate of the court clerk certifying to the ownership of

the lands and the acreage of each owner. When a district is inter-parish, the petition need be presented only to the police jury of the parish having the largest acreage, and it must be created by that jury.

Secs. 7036 and 7037. Approval of state engineer: No district may be created by petition or otherwise until the board of state engineers has approved its formation and furnished the police jury with a map showing the land which, in the opinion of the board, it is proper to include. If the board thinks it necessary to include any highlands, that does not invalidate the district but the highlands shall be taxed only in the proportion that they will be benefited by the works of the district. **Sec. 7037:** Districts shall be known as "drainage district" with such other name or number as the police jury may determine. When created by petition, the name stated in the petition must be used unless it conflicts with the name of an existing district.

ORGANIZATION—Officers

Sec. 7038. Drainage commissioners: All drainage districts must be governed and controlled by five commissioners known as the board of drainage commissioners. They or their spouses must be each a record owner of real estate in the district assessed at \$500 or more, or the representative of a corporation owning lands assessed at a value of \$500 or more. Corporation officers when designated by their corporate board of directors may be drainage commissioners, whether resident or nonresident. Drainage commissioners may hold office in more than one district.

Secs. 7039 to 7041. Appointment of commissioners: In the ordinance creating the district the jury appoints five commissioners of the qualifications designated. Appointments must be made upon the recommendation of a majority in acreage of the landowners where there are 40 or less landowners. Where there are more than 40 landowners, the appointment must be made upon the recommendation of 25 of them. In case of contest the police jury appoints those commissioners recommended by the landowners owning the greatest number of acres. The commissioners determine by lot their terms of office of from one to five years. Thereafter the police jury creating the district annually appoints one commissioner to hold office for five years. Recommendations for appointment must be in writing and signed by the landowners. (L. 1928, Act No. 200, sec. 1.) **Sec. 7040:** Commissioners may be removed upon petition by the landowners owning a majority of the acreage, and a new commissioner appointed by the police jury. But the commissioner always has the right to have the court pass on the legality of his removal. **Sec. 7041:** The domicile of a district must be stated in the ordinance creating it, and change of domicile requires 30 days notice by publication. A district may be sued only in the courts of its domicile. All meetings of the board must be held in the domicile, except that, by unanimous consent of the board at a meeting held at such domicile, the board may designate a different place at which meetings may be held.

Sec. 7052. Attorney: The board appoints an attorney to have charge of the legal affairs of the district. For his work done in organization, assessing benefits, and issuing bonds, the attorney may not receive more than one and one-half percent of the total benefits assessed.

Secs. 7053 and 7054. Engineer—Appointment: The board of commissioners as soon as possible after organization appoints a chief engineer, with such assistants as the board may provide. He makes all necessary surveys of boundaries and land within the district and reports in writing with maps, profiles, and recommendations as to any subdistrict which should be

created. His report must contain a complete plan for leveeing, draining, and reclaiming land from damage by water, and an estimate of the total cost. He also makes a similar report as to any subdistricts. He reports to the commissioners every 12 months, and oftener if required by them. The board of commissioners may adopt the final report of the engineer or any modification thereof, and the report so adopted is the plan for the improvement of the district, known as the "plan of reclamation," and is filed with the secretary and recorded in the drainage record. (L. 1924, Act No. 235.) **Sec. 7054:** When, upon the adoption of the plan of reclamation, the owners of a majority in acreage of a district or a subdistrict present a signed petition to the board requesting that the work proceed according to the plan, it then becomes the duty of the commissioners to proceed with the reclamation, incur debts, issue bonds, and levy taxes to pay the obligations.

Sec. 7055. Appraisers: Within 20 days after the petition to carry out the work, the board appoints three appraisers, adult residents of Louisiana, without ownership or interest in the district or relationship to persons or corporations owning land in the district. They become the board of appraisers to appraise the lands within or without the district required for rights-of-way and to assess benefits and damages accruing by reason of the improvement.

Sec. 7087. Chief engineer for reorganized district: When a district is reorganized and the board of commissioners appointed, they employ a chief engineer as provided in section 7053 and thereafter the proceedings are the same as in the case of a new district. The engineer has charge of the plan of reclamation as well as the restoration, enlargement, or improvement of all works. The board of commissioners has full power to adopt the plan, to assess benefits and damages, and to levy or collect taxes to construct the works provided by the plan. They may, in their discretion, issue bonds; provided, and bonds of a reorganized district or a subdistrict thereof must begin to mature not later than 10 years after their date. All debts of pre-existing districts or subdistricts become the obligations of the reorganized district, or such subdistricts thereof as were originally liable therefor, and are payable out of the respective funds, from whatever source derived, of the reorganized district or the subdistrict thereof originally liable for such debt, and not otherwise. Pre-existing indebtedness, bonded or otherwise, may be funded or refunded by the issuance of bonds. (See Financing—Assessments, for balance of sec. 7087.)

ORGANIZATION—Powers

Sec. 7043. Bodies corporate—Powers: Drainage districts created by the respective police juries constitute bodies corporate in law with all the powers of corporations, and have perpetual existence. They also have the specific power to expropriate property necessary to carry out their purposes. They may acquire pumping machinery and rights-of-way for levees in full ownership. They may contract with other drainage districts (gravity or pumping) for joint enterprises. The proportion of each in the cost and ownership in the joint undertaking must be determined in advance. They have the power to open new drains and to improve natural drains to make them effective, within or without the district. The commissioners are specially authorized to perform such work without necessity of calling for bids. To secure proper outlets they may extend canals and ditches beyond the limits of the district with the same power of expropriation for rights-of-way as if the outlets were wholly within the district. When a district created under this act has no outstanding debts of principal or interest of bonds, the jury creating it, with concurrence of the board of commissioners and

the chief engineer of the district, may enlarge or diminish its boundaries or may entirely repeal the ordinance creating the district. (L. 1926, Act No. 272.)

Sec. 7046. Contesting legality: Certified copies of all ordinances creating districts must be recorded in the "drainage district record book" provided for each district. The ordinance is then published for two weeks. Any interested person may contest the legality of the drainage district by suit in the district court of the domicile of the district within 60 days. No court has jurisdiction to entertain suit after the expiration of the 60-day period. In the absence of contest after 60 days it must be conclusively presumed that the district was legally created. The trial of contests is a summary proceeding without jury and with preference over all other cases. Appeals may be had as in other cases.

Sec. 7050. Subdrainage districts: The board of commissioners of any district has the right to form two or more subdrainage districts out of the territory comprising the main district by a simple resolution to that effect, approved by the engineer of the district. Such subdistricts may be composed entirely of land of one individual or corporation, but no subdistrict may be created after adoption of the plan of reclamation. Subdistricts may be enlarged or diminished by the board by simple resolution, approved by the engineer, prior to the adoption of the plan. Such subdistricts have the same powers as drainage districts except that they are governed in all respects by the commissioners of the parent district. Upon forming a subdistrict the commissioners appoint not to exceed three property owners as representatives of the subdistrict, who may or may not be drainage commissioners of the parent district, to superintend the work of the subdistrict. Any contract of a subdistrict in excess of \$100 must be approved by the board of commissioners of the parent district.

Sec. 7061. Powers of commissioners: When a certified copy of the court decree confirming the appraisers' report is received by the commissioners, they have full power to carry out the "plan of reclamation" and to construct the works in accordance therewith. They may do the work themselves, acquiring the necessary equipment, or they may let a contract therefor to the lowest bidder. The chief engineer is superintendent of all works and he reports at least once a year to the commissioners.

Secs. 7067 and 7068. Expropriation: The district is given full power to construct works, alter water courses, and acquire rights-of-way. It may expropriate for the use of the district any land or property within or without the district not acquired or condemned by the court after confirmation of the appraisers' report assessing benefits and damages. The procedure follows the expropriation of land for telephone and telegraph rights-of-way. **Sec. 7068:** The district may not enter on land to be expropriated until the price awarded to the owner has been paid or deposited with the court. If not paid within five years, the judgment of expropriation is void.

Sec. 7076. Changing "plan for reclamation": The board of commissioners, upon petition by the landowners owning more than two-thirds of the acreage within the district, have the right, with the consent of the chief engineer, to change the "plan of reclamation" theretofore adopted.

Secs. 7077 and 7078. Changing boundaries: The police juries creating a district must enlarge the boundaries so as to include additional land upon petition by the landowners owning a majority of the acreage of land to be added; provided that the petition is approved by the board of commissioners and the board of state engineers. **Sec. 7078:** In the event of enlarging a district, or a change in the plan of reclamation, the board of

commissioners appoints three appraisers having the same qualifications as the original appraisers (sec. 7055) to assess benefits and damages and estimate the cost of the improvements. They report in the same manner as the original appraisers.

Sec. 7079. Subdistricts: Where a subdistrict has been formed and a plan of reclamation for same prepared, the proceeding for assessing benefits and damages and levying taxes and issuing bonds is the same as for the parent district.

Sec. 7086. Reorganization: Any drainage district organized for the purpose of reclaiming swamp and overflowed land that must be leveed and pumped in order to be drained and reclaimed may reorganize; or any two or more of such districts may consolidate and reorganize. Such reorganized district is entitled to the benefit of all of the provisions of this act. The owners of a majority in acreage present a petition to the police jury of the parish in which such districts are situated, or if more than one parish, to the police jury of the parish where the greater portion of the lands are situated, containing a certificate by the court clerk, as to landowners and acreage, and bearing approval of the board of commissioners of each district and of the board of state engineers. The police jury adopts an ordinance creating the reorganized district and appoints commissioners therefor as in original organization. Such commissioners may adopt a plan of reclamation for the reorganized district, make assessments, and issue bonds and refunding bonds generally in the same way as in original organization; provided, no such reorganization shall affect the obligations of the former organization or any subdistrict thereof, but all such obligations attach to and become a part of the reorganized district until fully paid. (L. 1923, Act No. 235.)

FINANCING—Assessments

Sec. 7051. Acreage tax: The board of drainage commissioners, immediately after organizing the district, levy a uniform acreage tax of not more than 25 cents per acre, to be used for organization, surveys, assessing benefits and damages, and other expenses before the commissioners are empowered to provide funds to pay the total cost of the improvements. If the boundaries are extended later, the same uniform tax is immediately levied on the additional land. The secretary assesses the tax against each acre on a triplicate assessment roll, one copy of which is placed in the drainage record, one copy filed with the tax collector, and one with the recorder of mortgages. Where the district is in more than one parish, an assessment roll is made for the land in each parish. This tax is due immediately and becomes delinquent after December 31 of the year in which levied. The tax is a lien upon the lands, enforceable in the same manner as other tax liens. If the money so collected exceeds the total expense of organization, the surplus is prorated and refunded. Where the report of the board of appraisers shows any land which will not be benefited by the plan of reclamation, and the uniform acreage tax has been assessed against such land, the tax is refunded.

Secs. 7056 and 7057. Appraisers—Duties: At the first meeting of the appraisers, the clerk of the court furnishes them a complete list of the lands in the district or subdistrict, and the names of the owners, together with a copy of the plan of reclamation. After they have taken the oath of office they elect one of their number chairman. A majority constitutes a quorum. **Sec. 7057:** The appraisers view the land, determine the value of the lands or other property within or without the district to be acquired for its works, and assess the benefits and damages that will accrue to each 40-acre tract or less from carrying out the plan of reclamation. They consider and assess only such benefits as will be derived from the work proposed in

the plan of reclamation regardless of other proposed works, improvements, or plans. They give consideration to works already constructed by taxation and to works constructed by landowners, and appraise their value. (Such needed works will be expropriated and the landowners reimbursed for their value.) Railroad and other rights-of-way are assessed according to their increased physical efficiency and decreased maintenance cost. Appraisers may not change the plan of reclamation. All lands enjoying a servitude of natural drainage shall be entitled to continue to receive equivalent artificial drainage without charge therefor and without having the same considered as an element in assessing benefits. The appraisers file their report in the tabular form prescribed in the statute. They also, with the advice of the engineer, estimate the cost of the work set out in the plan, including rights-of-way, settling basins, and other damages and the probable expense of organization and administration. The report must be signed by a majority of the appraisers. (L. 1924, Act No. 235.)

Secs. 7058 and 7059. Petition to district court: Upon the filing of the appraisers' report, the commissioners file a petition with the district court of the parish which is the domicile of the district, together with a copy of the report and plan of reclamation, and ask for the confirmation of the report. In the same petition they sue for the expropriation of any property necessary for the works of the district. The clerk of the court gives notice of the petition by publication for four weeks and by posting. He cites each property owner whose property is to be expropriated to appear in court within 15 days and show cause why the petition should not be granted. *Sec. 7059:* The court clerk sets the hearing not earlier than 16 days after the date of the last service of citation and not earlier than 10 days from the last publication of the notice. The court hears the matter in a summary manner without jury and determines all issues. It is not necessary to enter defaults against defendants or property owners who have not contested the suit. The court hears the matter of expropriation of property without a jury, and the report of the appraisers is *prima facie* proof of the necessity for expropriation as well as of all other matters in the report. If after hearing all of the evidence and contests the court is satisfied that the estimated cost of the improvement is less than the benefit assessed against the district or subdistrict, then the court must approve and confirm the said report or modify and confirm it and order the expropriation of the necessary property within or without the district. The court clerk transmits the decree to the drainage commissioners, by whom it is recorded in the drainage record. Appeal may be taken by interested parties who have filed contests as in other cases. The decree is conclusive on all persons and on the right of the drainage commissioners to proceed according to the plan for reclamation.

Sec. 7060. Rejection of plans: If the court finds on the hearing of the appraisers' report that the estimated cost of the improvement as reported or amended will exceed the estimated benefits, it will decree that the commissioners are not authorized to proceed with the work and the order will be recorded in the drainage record. When a plan has been so rejected and the commissioners are petitioned by the owners of a majority of the land in the district or subdistrict, they may cause other and amended plans to be prepared by the engineer and the procedure thereafter is the same as in the first instance.

Sec. 7062. Tax levy for cost of work: After the decree of the court confirming the assessor's report is received, the board without unnecessary delay levies a tax against the lands, railroads, and other property in such amount as may be found

necessary to pay the cost of completing the plan of reclamation, plus 10 percent for emergencies. The tax is apportioned to each tract of land or other property in proportion to the benefits assessed and not in excess thereof. If bonds are issued, then the amount of interest which will accrue shall not be considered as a part of the cost of construction in determining whether the costs are equal to or in excess of the benefits. As soon as the tax is levied the secretary prepares the drainage tax record, which becomes a permanent record in the office of the district.

Sec. 7063. Lien of tax: Drainage taxes as well as penalties, interest, and costs constitute a tax lien against lands and other property against which assessed, from the date of the filing with the commissioners of the certificate of the clerk of court confirming the appraisers' report.

Sec. 7064. Maintenance tax: For the purpose of maintaining the works of a district or subdistrict the commissioners may, before September 1 of each year, levy a maintenance tax. It is proportioned on the basis of the net assessment of benefits accruing from original construction, may not exceed 5 percent thereof in any one year, and is certified to the sheriff or tax collector in each parish interested at the same time as the annual installment tax is certified. It is collected in the same way.

Secs. 7065 and 7066. Collection of tax: After the levy and apportionment of the total tax provided in section 7062, the board of commissioners each year levy the amount of the annual installment of the total taxes together with a maintenance tax which taxes become due and payable at the same time as state and parish taxes. The annual installment of taxes is certified by the board to the sheriff or tax collector of each parish before September 1 of each year, for collection; provided, the annual installment of taxes shall not exceed in any one year 10 percent of the total taxes levied under section 7062. *Sec. 7066:* It is the duty of the sheriff to receive the drainage tax book of all districts and collect the taxes at the same time that he collects state and parish taxes on the same land and other property. The sheriff accounts for all taxes to the secretary-treasurer of each district, furnishing an itemized statement of collections and the names of persons paying. All of the laws of Louisiana relating to delinquent taxes are made applicable to drainage taxes. Neither the state nor any of its subdivisions shall ever be liable for any taxes assessed or imposed under the provisions of this act. No sale of any land or other property subject to the lien of drainage taxes has the effect of destroying such lien; provided, any land adjudicated to the state for delinquent drainage taxes shall not be liable for drainage taxes while owned by the state or any subdivision thereof. After such property is disposed of by the state or its subdivision, it becomes subject to all assessments and maintenance assessments thereafter accumulating; provided, if such property is redeemed from tax sale, the person redeeming must pay all assessments due thereon. At tax sales the board of commissioners may purchase the property like any other bidder. When sold for drainage taxes only, and in default of bidders, the property may be adjudicated to the drainage district and held by it in the same manner that the state holds like property. Property held by the district is liable for state and parish taxes while so held.

Sec. 7081. Readjustment of assessments: Whenever the owners of 25 percent or more of the land in a district or subdistrict file a petition with the clerk of the district court which confirmed the appraisers' report, stating that there has been a material change in the value of the properties in the district

since the last assessment of benefits and praying for a readjustment of the assessment of benefits on a more equitable basis as to the levy of maintenance taxes, the clerk gives notice of a hearing on the petition at a time not less than 30 days after the last posting of notice. The form of notice is set out in the statute. If the court finds that the statements of the petition are true, it will order a readjustment of the assessment of benefits to provide an equitable basis upon which to levy the maintenance taxes of the district. The court appoints three appraisers, with duties and powers similar to those of the original appraisers, to make such readjustment. The appraisers are not limited to the aggregate assessment of the original or any previous assessment of benefits. After the readjustment is made, the limit of 5 percent for the annual maintenance tax which may be levied applies to the amount of benefits as readjusted. There may not be a readjustment more than once in five years.

Sec. 7083. Amendment of plans—Additional tax: Where the works set out in the plan of reclamation are found insufficient to reclaim in whole or in part any or all of the lands and other property in the district, the commissioners have the right to formulate new or amended plans with new ditches and works or to provide for the enlargement of existing ditches, levees, and other works. Additional assessments may be made in conformity with section 7055 and subsequent sections, such additional assessments to be in proportion to the increased benefits accruing to the land and other property because of the additional works. If it is found that the total tax levied under section 7062 is insufficient for the cost of the plan of reclamation, or of the additional work done under this section, the commissioners may make an additional levy to provide funds to complete the work, provided that the total of all levies does not exceed the total amount of benefits assessed.

Sec. 7085. Right to pay tax in full: Any landowner assessed has the right to pay the total tax to the secretary of the board at any time before the date set by the board, and the amount to be paid is the full amount of tax levied less any amount added thereto to meet interest. The commissioners must fix a time after which the privilege of paying the total assessment shall not exist, which time shall not be subsequent to the date of any bonds issued. Notice of such date is by publication. Payment is recorded by the secretary and the drainage tax marked satisfied.

Sec. 7087. Reorganized districts—Taxes: (See "Organization—Officers," for first part of section.) In a reorganized district, if benefits assessed be sufficient to pay the cost of carrying out the plan of reclamation adopted as in the case of a new drainage district, and in addition thereto the pre-existing bonded or other indebtedness, not including interest thereon, then the commissioners of such reorganized district, in making the tax levy under section 7062, shall make in addition thereto such levy as will provide sufficient funds to retire principal and interest of the pre-existing debt. In such cases the proceeding for the annual levy of installments shall be the same as before provided for the case of a new district.

If the assessed benefits shall not be sufficient to pay the pre-existing indebtedness in addition to the cost of reclamation, then the commissioners of the reorganized district shall levy and collect in addition to all other taxes, annually until the pre-existing indebtedness is fully paid, an acreage tax or forced contribution against each acre of land liable for the pre-existing indebtedness sufficient to pay that indebtedness with interest, plus 10 percent for emergencies; provided such forced contribution may not exceed \$3.50 per acre *per annum*. This acreage tax is a lien on the property assessed.

FINANCING—Bonds

Sec. 7071. Exemption from taxation: All bonds issued by any drainage or subdrainage district are exempt from taxation. (L. 1921, E.S., Act No. 85.)

Sec. 7080. Bonds—Issuance: The commissioners may in their judgment issue coupon bonds not exceeding 90 percent of the total amount of taxes levied (sec. 7062) on which the interest is not to exceed 6 percent *per annum*. Bonds mature at annual intervals within a period not to exceed 40 years from their date, commencing after a period not longer than 5 years, as determined by the board of commissioners. The secretary of the district sells the bonds at such time as the commissioners direct, to meet payments for the works and improvements in the district. Bonds may not be sold for less than 90 percent of par and accrued interest, and are payable out of money derived from taxes levied. A sufficient portion of the taxes collected must be apportioned by the commissioners for the purpose of paying principal and interest of bonds, and must be held in a separate fund for that purpose and no other. Bonds and coupons not paid at maturity bear 6 percent interest until paid or until sufficient funds to pay them have been deposited at the place of payment. In the event that the original tax levy is not sufficient to pay principal and interest on bonds issued, commissioners must make such additional levy on benefits assessed as may be necessary to make such payment. Under no circumstances may tax levies be made which will impair the security of the bonds. The total taxes levied, exclusive of taxes levied for interest on bonds, maintenance, or reorganization, shall not exceed the total assessed benefits as decreed by the court; provided, the annual installment of taxes, exclusive of maintenance taxes and taxes levied under section 7087 for reorganization, shall not exceed 10 percent of the total taxes levied.

Sec. 7088. Funding and refunding bonds: Any drainage district or subdistrict may, for the purpose of readjusting, funding, refunding, extending, or unifying any or all of the authorized indebtedness, bonded or otherwise, or both, issue and sell funding or refunding bonds and pay such indebtedness or exchange refunding bonds with the holders of outstanding indebtedness in payment thereof as hereinafter provided. (See next paragraph.)

Sec. 7089. Refunding bonds—Sale—Terms: Refunding bonds bear 6 percent interest, run for not to exceed 40 years, and mature annually beginning not more than 10 years after their date. They may be sold or exchanged at not less than par and accrued interest. The proceeds are dedicated exclusively to the retirement of indebtedness of the district or subdistrict. They are payable out of any funds of the district not otherwise dedicated. It is the commissioners' duty to levy up to the full amount of the benefits assessed, if necessary, to pay and retire said bonds. The proceeding for the total levy, the annual levy, and for collection, is the same as for new districts. (L. 1935, 4th E.S., Act No. 33.)

CONSOLIDATION

Sec. 7082. Consolidation of districts: Any two or more adjacent districts, whether in the same or different parishes, may be consolidated into one, and the board of commissioners thereof have all of the rights and powers of those of any other district. In order to consolidate, the landowners owning a majority of acres in each district present a joint petition, approved by the board of commissioners and chief engineer of each district, to the police jury of the parish where the majority of the land in the consolidated district is situated. The petition

must be accompanied by a certificate as to ownership and acreage and must have the approval of the board of state engineers. It is thereupon the duty of the police jury to create the district in the same manner as original districts are created. The ordinance must be recorded with the clerk of the court and the recorder of each parish affected. Such consolidated district is thereupon subject to all of the rights and liabilities of the original districts.

DRAINAGE DISTRICTS FROM LAND IN EXISTING DISTRICTS

(Acts of 1928, No. 233)

Sec. 7094. Petition: The owners of a majority of contiguous undrained or partially drained land in any organized drainage district; or the owners of a majority of land in contiguous portions of two or more districts; or the owners of a majority of lands partly in a drainage district and contiguous land not in any district, all of which lands must be levied and pumped for drainage, may petition the police jury of the parish in which a majority of the lands are situated to create a drainage district. Such petition must be signed by the owners of a majority of the acreage to be included in such district and have with it the court clerk's certificate as to ownership and acreage. (L. 1928, Act No. 233.)

Sec. 7095. Board of state engineers: The board of state engineers must have first approved the petition with respect to the body of land to be included, and have furnished an approved map of land which it is proper to include. (L. 1928, Act No. 233.)

Sec. 7096. Organization: The same form and procedure applies as to the districts organized under the Laws of 1921, Act No. 85; and such districts are subject to the provisions of that Act except that the board of commissioners will not follow requirements that are inconsistent or rendered unnecessary by the work that has already been done. Such districts may not affect in any way the obligations or indebtedness of any former organization.

(NOTE. Chapter 22, secs. 7100 to 7104.3, relates to bonds of drainage districts created prior to 1921. Chapter 23 contains miscellaneous provisions.)

MARYLAND

[Annotated Code of Maryland (Bagby), Subtitle—"Drainage lands," Article 25, p. 38]

TAX DITCHES

ORGANIZATION—Petition

Secs. 38 to 41, 43, and 45 to 52. Petition: Whenever the owners of any swamp or low grounds shall deem it fit to have them drained, and if the owners cannot agree, or if they be legally incompetent or nonresident, any of them may petition the county commissioners of the county where any of the land is located for the appointment of commissioners to lay out ditches for drainage. The commissioners of the county where the application is first made have jurisdiction. They appoint three or more impartial freeholders from the vicinity of the land, at least one being taken from each county in which any of the land is situated, as ditch commissioners. **Sec. 39:** The drainage commissioners so appointed call to their assistance a skilled surveyor to view the lands and lay out by courses, distances, breadths, and depths, ditches sufficient to drain such land. **Sec. 40:** They estimate the cost of cutting such ditches, including damages, if any, and fix the proportion of said cost which each owner or person benefited shall be bound to pay. **Sec. 41:** The ditch commissioners report to the county commissioners in writing with plats or maps describing the general boundary lines

of the lands in question and a delineation of each owner's lot or parcel thereof, with estimated acreage, and the names of any persons to whom damages are awarded and the amount thereof. They also report the amount which each owner shall be bound to pay as a proportion of the costs and damages. A majority vote of the ditch commissioners prevails. The ditch commissioners award damages to any person injured, which damages must be paid by the persons chargeable with the cost before the cutting of any ditch. **Sec. 43:** All persons through whose lands the ditches are laid out, or whose lands will drain into same, and who will derive benefit therefrom, must contribute to the cost of the works, and the commissioners assess by way of a tax upon such persons a sum proportionate to the advantage they will receive. The sum so levied is apportioned to the cutting of the ditches, the payment of the damages awarded, and the expenses of the drainage commissioners. **Sec. 45:** The commissioners may adopt any already constructed ditches and provide by assessment for their extension, enlargement, or repair, and allow the owner of such already constructed ditch fair compensation for the work done, to be paid by those benefited; provided, the owner of such already constructed ditch shall be taxed his just proportion of the cost of the new and additional work. **Sec. 46:** Any person damaged or who will be assessed may apply to the county commissioners, at any time before confirmation of the return of the ditch commissioners, for an order of review, and the county commissioners may in their discretion grant such order or appoint other commissioners to perform the same duties as the original commissioners. **Sec. 47:** The commissioners appointed under any order, original or review, within one month after confirmation of their report, call together the taxables rated for such ditches for the purpose of choosing a board of two or more managers and one treasurer. When the land is situated in two or more counties, the board of managers must be composed of one member from each county. **Sec. 48:** Any person may be elected treasurer whether he be a taxable or not. **Sec. 49:** Notice of the meeting is by advertisement and posting in four public places in the neighborhood. **Sec. 50:** At the meeting each taxable is entitled to vote in proportion to his taxes, to-wit: Tax of \$5.00 and over, one vote; \$15.00, two votes; not less than \$35.00, three votes; not less than \$60.00, four votes; not less than \$100.00, five votes; \$150.00 and upward, six votes. (This provision does not apply to Dorchester County which has a special law.) **Sec. 51:** A majority of the taxables is a quorum at the meeting to vote for managers. If they fail to meet for any regular election, the county commissioners, upon proof that notice has been given, will appoint such managers and treasurer. **Sec. 52:** The managers thereafter call an annual meeting on the first Saturday in March, but if they fail so to do the county commissioners may make appointments on proof that the meeting has not been called.

FINANCING—Assessments

Secs. 53 and 54. Taxation: The ditch commissioners deliver to the treasurer a statement of the taxes levied with the sums which each taxable is bound to pay. The assessment when returned to and confirmed by the county commissioners remains in full force for 20 years (by amendment, L. 1920) from such confirmation and is the proportion or basis on which other and further taxes may be levied by the managers for necessary repair and maintenance. Somerset County is exempted from the application of this act and has a special law. **Sec. 54:** After the lapse of five years a new assessment may be had by application of a majority of the taxables to the county commissioners of one of the counties in which the lands are situated for enlargement, extension, cleaning, or repair of the ditches. The

county commissioners of the county in which the application was first filed have jurisdiction. They appoint commissioners to make assessments and return in the same manner as the original return and subject to the same review.

Secs. 79 and 80. Liens: Assessments and taxes for ditches made in pursuance hereof are liens on the real estate of the person indebted from the time the same are levied and are in arrears 30 days after levy. *Sec. 80:* In addition to the specific methods of collection provided, the treasurer of any ditch may enter suit in his own name as treasurer before a justice of the peace, provided the amount does not exceed \$100, and before the circuit court where the amount is more than \$100, and may obtain judgment in assumpsit.

ORGANIZATION—Officers

Sec. 61. Treasurer: The treasurer gives bond in double the amount of the assessments which will come into his hands and must turn over all moneys and accounts at the end of his term. The treasurer collects all taxes levied and, in case of delinquency, proceeds to collect and recover in the same manner as county taxes are recoverable by law. The treasurer settles his accounts with the taxables at the annual meeting in March and retains 5 percent of the gross collection as his compensation.

In case of a vacancy in the office of manager or treasurer, any three taxables may immediately call together, in the same manner as the first meeting is called, the remainder of the taxables for the purpose of filling such vacancy. A majority vote elects.

ORGANIZATION—Powers

Secs. 62 and 63. Intervening lands: Any person taxed for a ditch which does not pass through his land may open ditches through intervening lands and keep them open at his own expense; provided, he must have the consent of the owner of the intervening land unless the ditch be laid out and approved and damages assessed by the commissioners who laid out the main ditch, or by three other freeholders appointed by the county commissioners to assess such damage. *Sec. 63:* Persons applying for ditches through intervening lands must pay the cost thereof and pay all awarded damages before cutting the ditch. When in the opinion of the ditch commissioners the owner of intervening land is benefited by a cross ditch, he must contribute such sum as the ditch commissioners determine to be a proportionate share of the cost. Every ditch so made must remain open for the benefit of the persons named by the commissioners as being benefited, but if any ditch laid out is not begun within two years from the confirmation of the return, or being begun is not completed within seven years, the order and return become void.

Sec. 75. Appeals: The county commissioners or the circuit court of the county in which proceedings are pending may, before final decision, grant an application to examine the petition or any part of the proceedings so as to bring the merits of the case before the commissioners or the court or a jury for trial. Any aggrieved party may appeal to the circuit court of the county in which the proceedings are had and be entitled to a trial by jury at the election of either party. Appeal must be taken within 30 days and judgment therein is final.

CONSTRUCTION

Sec. 58. Method: The managers, after being chosen at the meeting of the taxables, proceed to construct the ditches laid out or repair and extend same as the case may be, and may employ necessary labor and acquire necessary machinery and supplies. They keep strict account of their expenditures and report thereon at the annual meeting of the taxables. Payment is made

by order drawn by the managers on the treasurer. Any person assessed may discharge his assessment by work to the amount of his proportion of the assessment, excluding any proportion necessary to pay damages and other expenses. The managers' certificate of work done must be received by the treasurer in payment of the tax.

Sec. 116. Maintenance: The managers are required to clean and repair the ditches at least once every two years, making a levy upon the taxables to pay for the work. (L. 1920.)

DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 85. Authority to establish: The county commissioners of any county have jurisdiction to establish levee or drainage districts in their counties and to locate works and improve water-courses for the purpose of draining wet or overflowed land. It is declared in the statute that the removal of surplus water from agricultural lands and the reclamation of tidal marshes shall be considered a public benefit and conducive to the public welfare.

Sec. 86. Petition—Engineer—Viewers: A petition signed by a majority of the resident landowners in a proposed district, or by the owners of three-fifths of all lands that will be affected or assessed, is filed with the clerk of the board of county commissioners of any county in which a part of the lands are located. The petition describes the lands, states that they are subject to overflow or too wet for cultivation, and that the public welfare will be promoted by draining them or by improving a natural watercourse. The petition shows the route and termini of the proposed works and the branches thereof. A bond of \$50 per mile must accompany the petition, conditioned to pay costs in the event that it is not granted. The clerk issues a summons to all landowners affected who have not signed the petition. Service of notice on the landowners may be by publication where personal service cannot be had. Notice is given to mortgage holders, who may appear in person or by counsel. Upon the return day the commissioners appoint a disinterested engineer, recommended by the state drainage engineer or the state road engineer, and two resident freeholders of the county or counties in which the lands are located, as a board of viewers to examine the land and make preliminary report thereon. In intercounty districts the jurisdiction is with the commissioners of the county where the petition was filed.

Secs. 87 and 88. Viewers: The viewers examine the lands described in the petition and other lands if necessary to properly locate the improvement along the lines mentioned in the petition or other lines if found more practicable, and they may make necessary surveys to determine the boundaries and elevations of the several parts of the district and to make a tentative plan of development. They make public return to the clerk of the county board within 30 days unless the time is extended by the commissioners. They report: (1) whether the proposed district is practicable; (2) whether it will benefit the public health or any public highway or be conducive to the general welfare of the community; (3) whether the district will benefit the lands in question sufficiently to warrant the probable cost; (4) whether all lands to be benefited are included in the district. They also file a map of the district showing the location of the works to be constructed, with an estimate of the cost thereof, and the names of the owners who will be affected thereby. *Sec. 88:* The commissioners consider the report at their first meeting, with the engineer and two viewers present. If the viewers' report is adverse and is approved by the commissioners, the petition is dismissed at the cost of petitioners. If the

report is favorable and the commissioners so find after hearing all of the evidence, they direct the viewers to make a complete survey, plans, specifications, and estimate of the cost of the improvement, and to report within 60 days unless the time is extended by the commissioners.

ORGANIZATION—Officers

Secs. 97 and 98. Board of drainage commissioners: After the district has been declared established and the survey and plan approved, the county commissioners appoint three freeholders, who are designated as the board of drainage commissioners for that district. The appointment is subject to the written approval of a majority of the landowners in the district, and vacancies are filled in like manner. The drainage commissioners organize as a corporate body under the name and style of "The Board of Drainage Commissioners of _____ District" and have the usual corporate powers. They elect from their number a chairman and a vice-chairman and elect a secretary who may or may not be a board member. The treasurer of the county where the proceeding was instituted is *ex officio* treasurer of the drainage commissioners. **Sec. 98:** The drainage commissioners appoint a competent superintendent of construction, who gives bond approved by them and in their favor. They may terminate such appointment whenever they consider the services of the superintendent no longer necessary.

ORGANIZATION—Powers

Secs. 103 and 104. Eminent domain: If necessary to acquire rights-of-way for outlets over lands not affected by drainage, and they cannot be acquired by purchase, then the power of eminent domain is conferred, and such rights-of-way may be condemned substantially in the manner provided for condemnation of rights-of-way by railroads. The amount awarded in condemnation proceedings must be paid by the drainage commissioners from the first money coming into their hands from bonds or otherwise. **Sec. 104:** The owner of any land assessed for construction has the right to use the drain as an outlet for lateral drains from his land, and if there be intervening owners and agreement with them cannot be reached, the assessed landowner may file an ancillary petition in the pending proceeding and the procedure shall be as provided by law. When such laterals are constructed, they become a part of the system under the control of the drainage commissioners.

Sec. 108. Completed improvements: When improvements constructed under sections 85 to 111 are completed, they are under the control and supervision of the board of drainage commissioners. It is their duty to keep the ditches in repair, and for that purpose they may levy assessments on the lands benefited in the same manner as assessments for construction, but not to exceed 25 percent of the original assessment; provided, repairs made necessary by the act or negligence of any landowner through whose land the improvement is constructed will be assessed and levied against the land of such landowner alone, and will be collected by proper suit brought by the drainage board.

Sec. 111. "Drainage district fund": The statute provides that sections 85 to 111 shall be liberally construed. To encourage formation of districts, this section establishes a "drainage district fund" of \$10,000 from which loans can be made, not to exceed a total of \$2,000 to any one drainage project, for the payment of preliminary expenses up to the time of the establishment of the district. The amount loaned is returned to the treasurer through the county commissioners, who shall collect the same from petitioners or their bondsmen if the petition

is not allowed. Otherwise, the drainage commissioners return the loan out of the first proceeds of bonds.

FINANCING—Assessments

Sec. 90. Damages: The engineer and viewers assess damages claimed for land taken or inconvenience imposed because of the construction of the improvement. Damages are considered separate and apart from any benefit because of the proposed work, and such damages are paid by the commissioners when funds come into their hands.

The engineer and viewers personally examine the land and classify it with reference to the benefit it will receive from the construction of the works. The degree of wetness of the land, its proximity to the ditch or a natural outlet, and the fertility of the soil are considered in determining the benefits to be received. The lands are divided into five classes: that receiving the highest benefit being Class A; the next highest, Class B, etc. The holdings of one landowner need not necessarily be all in one class. The number of acres in each class must be ascertained, but the boundaries of the different classes need not be described or shown on the map. The number of acres in each class owned by each person and the total number of acres benefited must be presented in tabular form. The scale of assessment upon the several classes shall be in ratio of 5-4-3-2-1; that is to say, as often as 5 mills per acre is assessed against the lands in Class A, 4 mills is assessed against Class B land, etc. This forms the basis for all future assessments, taxes, levies, and costs connected with the district, except as it may be changed by the commissioners at the final hearing or in order to conform to any decree of court.

Sec. 93. Hearing: When the final report is filed and found in due form, it is accepted by the commissioners. Otherwise it may be referred back with instructions to secure further information and report at a later date. When accepted, the commissioners fix a date not less than 30 days thereafter for final hearing on the report and notice is given by publication and posting. A copy of the report is open to inspection of interested parties at the office of the commissioners.

Secs. 94 and 96. Notice: The clerk of the commissioners causes all landowners who have not signed the petition to be summoned, when they are known. If it appear to the clerk by affidavit or otherwise that the names of the owners are not known, he gives notice to such unknown landowners by publication for four consecutive weeks before the date of the hearing. Any interested party may file objections in writing to the report of the viewers, and the board of commissioners will carefully review the report and the objections and make such changes as will render substantial and equal justice. If in the opinion of the commissioners the aggregate of the cost and damages is not greater than the benefit which will accrue to the lands affected, the board will confirm the report and declare the district established. Finding the contrary, the petition will be dismissed at the cost of petitioners. **Sec. 96:** The clerk of the commissioners provides a suitable book, to be known as the drainage record, in which he transcribes all petitions, orders, reports, and findings of the board. He must keep on file the maps and profiles furnished by the engineer, open to inspection of interested parties.

Sec. 99. Estimate of cost: After the classification of the lands and the ratio of assessment thereon have been confirmed by the county commissioners at the final hearing, and any appeal has been adjudicated, the drainage commissioners ascertain the total cost of the improvement which includes damages awarded, expenses of the engineer and viewers, the amount necessary to pay the superintendent of construction, expenses of the

commissioners, the necessary expenses of maintaining the improvement for a period of three years, and the payment of interest on bonds for three years. The drainage board certifies such total estimated cost to the clerk of the board of county commissioners. Such certificate is recorded in the drainage record and open to inspection by any landowner.

Sec. 100. Assessment—Lien: The drainage commissioners prepare in duplicate 10 assessment rolls or drainage tax lists to cover the period of the bond issue, giving the name of the owners of lands in the district so far as can be ascertained, a brief description of the tracts assessed, and the amount of the assessment against each tract. The first assessment roll provides assessments sufficient for the payment of interest on the bond issue to accrue the third year after issue and the installment of principal due at the end of the third year, together with annual charges. The second assessment roll makes like provision for the fourth year; and so on. Each assessment roll must specify the time when collectible and be numbered in consecutive order, and the amount assessed against the several tracts of land must be in accordance with the benefit received as shown by the classification and ratio of assessments made by the viewers. One copy of the assessment roll is filed with the drainage record, and one copy delivered to the sheriff or the county collector after an order has been appended thereto by the county commissioners directing the collection of said assessment, and such assessments thereupon have the force and effect of a judgment as in case of state and county taxes. Such assessments constitute a first and paramount lien, second only to state and county taxes, and are collected in the same manner and by the same officer as state and county taxes. Assessments are due the first Monday in January of each year, and if not paid by the 30th day of April following, the sheriff or tax collector must sell the land so delinquent. The laws as to the collection of state and county taxes have application in the collection of drainage assessments. The sheriff or tax collector must promptly pay over to the county treasurer money collected by him upon such drainage tax assessment. It is the duty of the county treasurer to provide and pay the installments of interest at the time and place as evidenced by the coupons on the bonds issued and also to pay the annual installments of principal on said bonds. Should the total estimated cost of the improvement be less than an average of 25¢ per acre for the total area, bonds may not be issued but the assessments will be collected in cash.

Secs. 101 and 102. Public highways: Should the viewers find that the drainage plan will benefit any public highway or railroad or other public property, then in their return they assess the state, county, or corporation an amount which they consider just for the benefits to be derived. **Sec. 102:** Lands within the outer boundaries of the district as finally established and not affected nor benefited by the works shall not be assessed for any drainage tax, but they may not prevent the formation of the district and the district may acquire rights-of-way across such lands for necessary purposes.

FINANCING—Bonds

Sec. 105. Notice—Bonds: The drainage commissioners must give three weeks notice by publication and posting that they propose to issue bonds to pay for the total costs of the improvement, giving the amount of the bonds, rate of interest, and the dates of maturity. Any landowner may, within 15 days, pay the county treasurer the full amount for which his land is liable and have it released from liability to be assessed for the improvement. Such land continues liable for future assessments for maintenance or for any increased assessment authorized by law.

Sec. 106. Issuance of bonds: At the expiration of three weeks after publication of notice of bond issue, the drainage commissioners may issue and sell bonds of the district for an amount equal to the total cost of the improvement less such amounts as shall have been paid in cash, plus an amount sufficient to pay interest on the bonds for the three years next following the date of issue. The bonds shall be payable in 10 equal installments, the first of which shall fall due three years from the date of issue. Bonds may be sold at not less than par. The proceeds must be devoted to payment for the work as it progresses, and of interest on the bonds for three years next following. The proceeds of bonds are for the exclusive use of the district, and all bonds are recorded in the drainage record, which sets out specifically the lands in the district on which taxes have not been paid in full. If any installment of principal or interest on bonds be not paid when due, and such default continue for six months, the bondholders have right of action against the district or the drainage commissioners of said district, wherein the court may issue a writ of mandamus directing the levying of a special tax or assessment in such sum as may be necessary to meet the unpaid installments of principal or interest and costs. Bondholders have the right to institute action against any officer of the district on his bond for failure to perform any duty imposed hereunder. The official bond of the county treasurer and the tax collector may be held liable for the faithful performance of their duties.

CONSTRUCTION

Sec. 107. Bids: The drainage commissioners advertise for bids for the construction of the works, either as a whole or in parts. Contracts must be let to the lowest responsible bidder. The commissioners have the right to reject all bids and re-advertise the work. They make such terms of payment as they deem proper and fix the amount of the contractor's bond.

MICHIGAN

(Act No. 316—Public Acts of 1923)

DRAINS

(An act to codify and add to the laws relating to the laying out of drainage districts, the construction and maintenance of drains * * * and pumping equipment * * * and the assessment and collection of taxes therefor * * *.)

ORGANIZATION

Ch. I, secs. 1, 2, and 4. Drains: Drains may be established and maintained and water courses improved whenever conducive to the public health, convenience, or welfare. **Sec. 2:** The word "drain" includes any watercourse or ditch, open or covered, * * * and any structure or pumping equipment or levee or a combination thereof constructed for drainage or for the purification of the flow of streams. (Act 318, L. 1929.) **Sec. 4:** The word "commissioner" used in the act means the county drain commissioner.

ORGANIZATION—Officers—Election

Ch. II, secs. 1 to 4, 8, 10, and 11. County drain commissioner—Election: At the regular biennial election on the Tuesday after the first Monday in November and every second year thereafter, one county drain commissioner is elected in every organized county by the qualified electors thereof. He is elected for two years from the succeeding January. The commissioner takes the oath of office and files with the county clerk a bond in the sum of \$5,000 conditioned on the faithful discharge of his duties. The board of supervisors in their discretion may fix said bond at a different amount. The supervisors

of any county having a population of less than 12,000 may, by resolution, abolish the office of county drain commissioner and transfer the powers and duties to the board of county road commissioners. (Act 258, L. 1933.) *Sec. 2:* Commissioners holding office when the act takes effect continue until their successors are elected and qualify. Proceedings pending are to be completed in accordance with this act. *Sec. 3:* Commissioners have jurisdiction over all drains in their counties. Inter-county drains are established and constructed under the provisions of this act relating to such drains. *Sec. 4:* Commissioners may appoint deputies under the approval of the county board of supervisors. (Act 318, L. 1929.) *Sec. 8:* The drainage commissioner's salary is fixed by the board of supervisors of the county. *Sec. 10:* Each drainage commissioner must keep a full financial statement of each drainage district in his county and a complete record of the establishment of each drain and the assessments of benefits therefor. *Sec. 11:* Every drainage commissioner must make a full report annually in October to the county board of supervisors of all drainage districts under his supervision. He must also make such report as the commissioner of agriculture may request. (Act 331, L. 1927.)

COUNTY DRAINS

ORGANIZATION—Petition

Ch. III, sec. 1. *County drainage districts:* Before action is taken there must first be filed with the drain commissioner an application to lay out a district with reference to the proposed drain, describing its location and route and the area proposed to be drained. The application must be signed by not less than 10 freeholders of the township in which the lands to be drained are situated. Five or more of such signers must be owners of land liable to assessment. If it appears to the drainage commissioner that the proposed drain might not include 20 freeholders whose lands would be liable to assessment, the application may be received if any one of the signers is a freeholder liable to assessment for construction. The eligibility of the signers is determined by the drain commissioner according to their interests of record in the office of the Register of Deeds in the probate court or in the circuit court of the county in which the lands are situated at the time of filing the application. (Act 318, L. 1929.)

Ch. III, secs. 2 to 4. *County drains:* Upon the receipt of an application for a new drainage district, the commissioner causes a survey to be made to determine the area that would be drained by such district and the route and type of construction most suitable. He is not limited to the route stated in the application. When the county has a board of auditors, the approval of such board is necessary. If it appears or is later determined that the proposed district will affect land in more than one county, the commissioner must proceed under the law relating to intercounty drains. Should the drainage commissioner determine the proposed drain to be impracticable, he takes no action except to notify the applicants of that fact and his reasons for such determination. If after survey the drainage commissioner determines the district to be practicable, he lays it out, including therein all lands, highways, townships, and cities that would be benefited and liable to assessment therefor. He obtains from the county treasurer a statement showing the taxes and special assessments levied during the preceding three years against the lands affected and the amount thereof remaining unpaid. If it appears from such statement that one third or more of the lands in the proposed district are delinquent, no further action may be taken. (Act 167, L. 1939.) *Sec. 3:* The surveyor prepares plans and profiles and computes

the excavation, tiling, bridges, and culverts to be constructed and makes estimate of the cost and lays out the district, including all lands, highways, townships, villages, and county and state lands which would be benefited, and delivers such estimate to the drainage commissioner. (Act 318, L. 1931.) *Sec. 4:* The drainage commissioner files in his office an order designating the drainage district and giving it a name or number, and describing its boundaries and the boundaries of each tract of land included therein and the political subdivisions or highways which would be benefited and would be liable to assessment therefor. The order also shows the route, termini, and type of construction proposed and the estimated cost. The commissioner gives notice of such determination by publication in the county. (Act 258, L. 1933.)

INTERCOUNTY DRAINS

ORGANIZATION—Petition

Ch. III, secs. 5 to 9. *Intercounty drains:* Before any action is taken to construct a drain that will traverse lands in more than one county or affect more than one county, there must be filed with a commissioner having jurisdiction an application to lay out a district with reference to the proposed drain. The application must describe the location and route of the proposed drain sufficiently to determine the area to be drained thereby. The application must be signed by freeholders of lands liable to assessment who equal in number one-half the number of freeholders whose lands would be traversed by the drain applied for. The eligibility of the signers is determined by their interests of record in the office of the Register of Deeds in the probate court or the circuit court of the county in which such lands are situated. (Act 121, L. 1931.) *Sec. 6:* Upon receipt of the application the drainage commissioner within 20 days sends a copy to the Commissioner of Agriculture and to the drainage commissioner in each county in which lands liable to assessment are situated. He also notifies the board of supervisors and the county clerk of each county traversed or affected by the proposed drain. Each board so notified appoints three supervisors from each of the respective counties whose townships are not liable for township assessments on account of such proposed drain, and they constitute a drainage board. The drainage commissioners of each county and the Commissioner of Agriculture or his designated deputy are *ex officio* members of such board. The Commissioner of Agriculture calls a meeting of the board, after notice by posting in each county and service on the county clerk of each county and the supervisor of each township traversed by said drain, and also by publication. *Sec. 7:* The board considers the application, determines the sufficiency of the signers, goes over the route of the proposed drain, and hears testimony to determine its practicability. All interested persons or municipal corporations may appear for or against the proceedings. If it is determined that the drain is not practicable, no further action may be taken within one year. If the drain is determined to be practicable, then a survey is made to ascertain the area that will be drained and the route and type of construction most serviceable. (Act 318, L. 1929; Act 121, L. 1931.) *Sec. 8:* The surveyor prepares plans and profiles and a computation of the excavation necessary, and the amount of tile and number of bridges and culverts, with an estimate of cost. He lays out the proposed district, including all tracts of land, highways, and municipal corporations that will be benefited, and reports to the board. *Sec. 9:* The chairman of the board prepares an order designating a drainage district, giving it a name or number, and describing the boundaries of the several tracts of land and municipalities therein as well as trunk-line

railroads that will be benefited and liable to assessment. He also gives a description of the works. Notice of the order is given by the State Commissioner of Agriculture by publication. A copy is filed by the Commissioner of Agriculture with the county drain commissioner of each county affected within 10 days. If the commissioners of the counties affected cannot agree on the apportionment of cost, the Commissioner of Agriculture apportions the same as provided in section 2, chapter XI. (Act 318, L. 1929.)

Ch. IV, sec. 1. Petition to construct: After a district has been established and the order filed with the county drain commissioner, a petition to locate and construct a drain may be filed with the commissioner having jurisdiction of the lands which constitute the district. The petition must be signed by a number of freeholders in the district whose lands would be liable to an assessment for benefits equal to two-thirds of the number of freeholders whose lands would be traversed by the drain or abut on any highway or street traversed thereby. With the petition there must be a description of the lands of each signer and a certificate of the county treasurer as to payment of taxes on such land. The name of any signer delinquent in the payment of taxes shall not be counted. Eligibility is determined by the commissioner according to the records of the Register of Deeds in the probate court or the circuit court of the county. (Act 318, L. 1931.)

Ch. IV, secs. 2 and 3. Board of determination: The commissioner authorized to act serves a copy of the petition on the Judge of Probate of the county. Within 15 days the Judge of Probate appoints a Board of Determination, composed of three disinterested freeholders, residents of the county but not of any township affected, and calls a meeting within the district. The drain commissioner gives notice of this meeting by publication, posting, and service on the clerk of each township, city, and village. At the meeting, the Board of Determination decides the question of necessity for such a drain and whether the same would be conducive to the public health, welfare, and convenience. All persons owning lands which will be assessed or which will be crossed by the drain may appear for or against the proceeding. If it appears on a report of the county treasurer as to the taxes assessed during the past three years that one-third or more of such taxes remain unpaid, no further action may be taken. If the board finds the drain not necessary or not of public benefit, it dismisses the petition by order to the commissioner. The petition may not be renewed within one year. Finding the drain necessary and of public benefit, the Board of Determination makes its order to that effect and files the same with the commissioner. (Act 258, L. 1933.) **Sec. 3:** Within 60 days the commissioner endeavors to secure releases of damages and rights-of-way from the owners of the lands.

Ch. IV, secs. 5, 6, and 8 to 13. Special commissioners: If, within 60 days after the first order of determination, all persons whose lands would be traversed by the drain have not released rights-of-way or damages, the drainage commissioner makes application to the Probate Court of the county in which the lands are situated for appointment of three disinterested special commissioners, who must be resident freeholders of the county but not of any township affected by the drain. They determine the necessity for taking private property for public use and the just compensation to be made therefor. The form for this petition is set out in the statute. **Sec. 6:** If the court finds the proceeding in accordance with the statute, it appoints a time and place for hearing on the application and cites all interested parties to appear and be heard with respect to such application and show cause why it should not be

granted. Objections not presented before the court at that time are deemed to have been waived. The interests of minors and incompetents are administered by the court. **Sec. 8:** The citation of the court must be personally served upon every person who has not released rights-of-way and damages. The method of service on municipalities and other corporations is fully set out in the statute. Service on nonresidents is by mail, and by publication if their addresses are unknown. **Secs. 9 to 11:** At the time fixed, the court, finding the record in proper shape, hears all objections; and if no sufficient cause is shown against granting the petition, the court makes an order appointing three resident freeholders not interested and not resident of a township interested, as special commissioners to ascertain and determine the necessity for the drain and to appraise the damages and compensation to be allowed the owners of real estate proposed to be taken. **Sec. 12:** The special commissioners make written report within 30 days and file it with the drainage commissioner. If the drainage commissioner finds the return to be without substantial error, he files it with the drainage records, and such return by such special commissioners is deemed a sufficient conveyance to vest in the county an easement in said land for the uses and purposes of drainage, with right of entry; provided the compensation awarded therefor shall have been paid or secured to the person entitled to it. **Sec. 13:** If the special commissioners find drainage unnecessary and so report to the drainage commissioner, he dismisses the petition.

Ch. V, sec. 1. Intercounty drains—Petition: After an intercounty drainage district has been established and the order filed, a petition to locate and construct may be filed with any drain commissioner having jurisdiction of any of the lands constituting the district. It must be signed by a number of freeholders in the district, whose lands would be liable to assessment for benefits equal to two-thirds of the number of freeholders whose lands would be traversed by the drain or abut on any highway or street traversed thereby. Petition must be accompanied by a description of land owned by each signer and by a certificate of the county treasurer as to the payment of taxes and special assessments against such lands in a form set out in the statute. No signer is counted who is delinquent for taxes or assessments on his lands for three years past. The record of the Register of Deeds determines the eligibility of the signers. (Act 318, L. 1931.)

Ch. V, sec. 2. Drainage board: The commissioner receiving the petition notifies the drain commissioners of the other counties interested and the Commissioner of Agriculture, who calls a meeting provided in chapter III, section 6. The drain commissioners and the Commissioner of Agriculture thereafter constitute a drainage board to control the district. At such meeting all interested persons liable for assessment may appear for or against the drain proceeding. If the commissioners determine that the drain is necessary for the public health, convenience, or welfare, they proceed to determine the just percentage of the whole cost of construction which each county shall bear and the number of installments in which taxes shall be collected. In case of disagreement the chairman (Commissioner of Agriculture) determines the issue. Thereupon the first order of determination is prepared, showing necessity, percentage of cost for each county, and number of installments in which the taxes shall be collected, and a copy is filed in the office of the county drain commissioner of each county. (Act 318, L. 1929.)

FINANCING—Assessments

Ch. V, secs. 3 to 6. Intercounty drains: After obtaining releases of rights-of-way, the drain commissioner of each county

affected apportions the benefit to each parcel of land and each municipality and railroad within the district in the manner provided in chapter VI. *Sec. 4:* After such apportionment by the county drain commissioners, the drainage board calls a meeting for the purpose of receiving bids for construction and also a meeting for a review of the benefits apportioned. (Act 318, L. 1931.) *Sec. 5:* Bids are received and computation of the entire cost is made before the time set for the review of the apportionment. *Sec. 6:* If no contract for construction is let within three years, the petition is presumed to be abandoned and no action shall be taken unless a new petition is filed, provided that the time consumed by any litigation contesting the validity of the proceeding shall not be included in the three-year period.

Ch. VI, secs. 1, 4, and 6. Apportionment and review: Upon release of rights-of-way and damages, or upon determination of the return of the special commissioners, the drain commissioner having jurisdiction makes and files an order of determination establishing the drain. A copy is filed with the county drain commissioner within five days. The county drain commissioner apportions the percentage of cost of construction which all municipalities and other corporations must pay, as well as the percentage of benefits accruing to each parcel of land. The apportionment so made is subject to review and appeal. *Sec. 4:* The commissioner gives notice by publication and posting of the result of the bids for construction and of a public meeting for a review of the apportionment of benefits. Where there are less than 100 descriptions of land upon which benefits have been apportioned, personal service is had on all resident landowners. The method of procedure is set out at length in the statute. (Act 318, L. 1931.) *Sec. 6:* On appeal the Probate Court appoints three disinterested and competent freeholders as a board to review all apportionments of benefits and to equalize them. Their decision is final except that there may be a further review on a writ of *certiorari*, and the procedure is set out in the statute. (Act 318, L. 1931.)

Ch. X, secs. 1 and 2. Levy and collection of taxes: Within ten days after letting contract, or forthwith after all appeals have been decided, the county drain commissioner makes the computation of the entire cost of the drain, including interest on bonds for the first year if bonds are to be issued, and adds 10 percent of the gross for contingent expenses. This is deemed to be the cost of construction. *Sec. 2:* The commissioner makes a special assessment roll for each county, township, village, and state highway, calling it the "Drainage Special Assessment Roll," entering therein the amount of the percent apportioned to each tract of land or other property benefited. Where there are installments, he issues a certificate of determination as to whether the taxes are payable in one or more years. The roll is filed in the office of the county clerk.

Each year the commissioner prepares tax assessment roll and certifies the same to the county clerk before the annual meeting of the board of supervisors. If the roll is made payable in more than one installment, a permanent roll may be maintained in the office of the county treasurer, showing the total cost, the number of installments, and the amount of each annual assessment together with interest charges. (Act 167, L. 1939.)

Ch. X, secs. 5 to 9. Collection of taxes: All drainage taxes are subject to the same interest and charges and are collected in the same manner as state and other general taxes. *Sec. 6:* All provisions of the state laws relating to delinquent taxes are applicable to drainage taxes. *Sec. 7:* After taxes have been assessed for the construction of a drain, no injunction will lie to restrain the spreading of same on the tax rolls

unless the amount of the assessment shall be first paid into the county treasury to await the decision of the court. *Sec. 8:* The collection of taxes levied for construction of a drain shall not be perpetually enjoined or declared void in consequence of error or informality of any officer in the establishment thereof, nor in consequence of any error or informality appearing in the record; but the court, if there is manifest error, will allow the plaintiff to show that he has been injured thereby. *Sec. 9:* The court will allow proof that the drain was necessary and conducive to the public health, convenience and welfare, and that the steps required by the statute have been substantially complied with. It then will correct any gross injustice in the award of damages or assessment of benefits and make such order as may be just and equitable. In cases where assessments have been set aside after the contract for construction has been let or bonds sold, the court makes provision in the decree for the payment of said bonds by reassessment according to benefits or otherwise as equity may require. If error or injustice be shown, the costs are apportioned among the parties. If no error or injustice be shown, the costs must be paid by the party bringing the action.

Ch. X, secs. 10, 11, and 17. Lien of assessment: Whenever a drain has been established and constructed and the commissioner has made an apportionment of benefits and a special assessment roll and filed same with the county drain commissioner, such taxes remain a perpetual lien upon the land assessed. When no person or municipality has taken any action by virtue of chapter VI, section 11 to contest the validity of the proceedings, it is the duty of the county drain commissioner, upon application of any landowner assessed, to present a certified copy of the assessment roll to the board of county supervisors at their first October session thereafter; and it is the duty of the board of supervisors to order the taxes spread upon the tax roll. This provision also applies to drains established under drainage laws prior to this act where such laws have made the drainage taxes a perpetual lien upon the land assessed. *Sec. 11:* Taxes remaining unpaid may be sued for by the commissioner in an action in assumpsit, or may be charged back by the board of supervisors and reassessed in the same manner as under the general law. *Sec. 17:* Any person liable to special assessment for benefits received may pay the same in full with interest at any time, subject to the right of reassessment in case of deficiency.

Ch. X, sec. 18. Additional assessments: If there is not sufficient money in the fund of a particular drain to pay bonds at the time of the last maturity it is the duty of the commissioner to immediately levy an additional assessment to make up the deficiency. In the case of refunding bonds, the governing authority of the drain must provide, subject to the directions of the public debts commission, for such additional levy and assessments prior to maturity of such refunding bonds. (Act 178, L. 1931; Act 128, L. 1939.)

Ch. XI, secs. 1 and 2. Revolving fund: The board of supervisors annually appropriates, and collects by general taxation from the taxable property within their respective counties, such sum as the board may deem necessary for the purpose of creating a revolving fund; provided, such sum first appropriated shall not exceed the amount held by the county treasurer as a total of all drainage funds on hand when such appropriation is made. *Sec. 2:* The revolving fund may be used for paying preliminary expenses of drains and for repairs to old drains. In inter-county drains the preliminary expense paid from the revolving fund must be prorated between the different counties according to the amount apportioned to be paid by them. After the final order of determination, all expenses are paid in the manner

prescribed in chapter IX. The treasurer repays the revolving fund out of the first taxes collected.

FINANCING—Bonds

Ch. V, sec. 14. Bonds—Intercounty: If it is determined that the assessment shall be collected in more than two installments, the drainage board, acting on behalf of the district, may issue bonds as in the case of drains wholly within one county. Bonds are payable at the office of the county treasurer of the county to which the larger percentage of the cost of construction is apportioned. All installments of special assessments are transmitted to that county treasurer as they are collected in other counties, and he places the money in a fund which may be disbursed only for the retirement of bonds at maturity with interest.

Ch. X, sec. 15. Bonds issued: Where the issuance of bonds has been determined upon, and subject to the provisions of chapter VIII (see under "Construction"), a commissioner may borrow money in anticipation of the collection of the installments of taxes, and issue bonds of the district as evidence thereof. The amount of bonds may not exceed the aggregate of the installments levied. Bonds are payable in annual installments, equal in number to the installments of taxes, and may not mature later than June 1 of the year following the due date of installments of taxes. The number of installments may not exceed twenty; except for districts containing a closed drain, any cross section of which exceeds 60 square feet, the number of installments may be 30 but not more; and in no case may the bonds mature more than two and one-half years after the corresponding installment of taxes. (Act 228, L. 1935; Act 14, L. 1937.)

Ch. X, sec. 19: The county drain commissioner must file with the county treasurer annually, in the month of June, a statement of all drainage district bonds theretofore issued by any drainage district lying wholly or in part in his county. He files the same information with the treasurer of any municipal corporation interested. (Act 316, L. 1923.)

Ch. X, sec. 21. Refunding bonds: Refunding bonds are subject to the following limitations: (a) Except refunding bonds issued to refund bonds outstanding September 1, 1925, no refunding bonds may be issued unless there be at the time of issuance a default in the payment of a part of the bonded debt sought to be refunded, or unless the same will occur within six months, or unless the financial condition of the municipality warrants refunding as a matter of sound municipal financing. (b) Bonds issued to refund notes issued in anticipation of taxes or special assessments may be issued with the commissioner's approval without requiring the renewal of such notes for the maximum period permitted by law. The commission takes measures to assure the application to the payment of such refunding bonds of all receipts and taxes or special assessments against which such notes were originally issued. (c) Unpaid interest accrued to January 1, 1937, upon any funded indebtedness may be refunded in full. (d) Refunding bond issues under the provisions hereof—except those issued to refund drainage bonds issued under Act 316 of 1923 as amended—shall, except as otherwise provided in such refunding bonds, be the general obligation of the issuing municipality. (e) Upon issuing, the refunding drainage bonds under Act 316, 1923, shall be obligations of the same character as the obligation refunded and a continuation of the former obligation. (f) Subject to the approval of the commission, refunding bonds may be of serial nature as to principal, or term bonds with such sinking fund provision as may be prescribed by the resolution authorizing the issue, and shall mature in not to exceed 30 years. If serial bonds are issued, no installment

of principal shall be less than one-fourth of the amount of the largest installment, and one installment shall fall due each year beginning not later than two years from the date of issue unless otherwise approved by the commissioner. (g) Bonds may be sold as provided by law or may be exchanged for the bonds or notes refunded, on order of the county drain commissioner. (h) No refunding bond running more than three years shall be sold for a price which would make the net interest rate exceed 6 percent. For services in procuring the exchange or surrender of bonds or other obligations, municipalities may pay not to exceed 1 percent of the indebtedness so refunded in addition to actual expenses of issue. (k) Bonds may be registered under terms and conditions prescribed by the governing body of the district. (Act 129, L. 1939.)

CONSTRUCTION

Ch. VIII, secs. 1 and 2. Contracts: The commissioner may in any case, and must for drains estimated to cost \$3,000, advertise for sealed proposals to be opened on the day set in the notice. Bids are opened publicly at the meeting and may be inspected by any interested person. The commissioner awards contracts to the lowest responsible bidder or may reject all bids. Where the commissioner determines that the benefits shall be collected in more than one installment, he determines the amount, maturity, and interest of bonds to be issued. In counties having a board of county auditors, no contract may be let nor bonds sold without their approval. This does not apply to intercounty drains. If no contract be let within three years, either in original establishment or maintaining and extending drains, the petition is deemed to be abandoned and no further action may be taken without a new petition. Pending litigation on the validity of the proceedings suspends the running of the three-year period. (Act 31, L. 1931.) **Sec. 2:** The commissioner first lets the section at the outlet of the drain and each remaining section in order upstream. He may reject all bids but may not adjourn the proceedings for more than 40 days. Bidders must deposit certified check in an amount deemed reasonable by the commissioner and give bond for the faithful performance of the work. (Act 318, L. 1929; Act 216, L. 1935.)

MAINTENANCE

Ch. VII, sec. 1. Petition for maintenance: Whenever a drain wholly in one county needs improving or extending and five freeholders of the township in which the drain is situated, two or more of whom shall be owners of land liable to assessment for benefits, may petition the county drain commissioner setting forth the necessity for such work, the commissioner proceeds in the same manner as for the original establishment of the drain. As soon as the board of determination has determined the necessity for the work, the commissioner, after the order is filed, fixes the percentage of cost of such work which shall be paid by the landowners, state, or municipality.

Ch. VII, sec. 2. Intercounty drains: Whenever a drain in more than one county needs maintenance or extension work, any 10 freeholders within the district may petition the commissioner of any county having jurisdiction over any land in the district, setting forth the necessity for such work. The commissioner notifies the state Commissioner of Agriculture and the commissioner of each county having land within the district. The Commissioner of Agriculture calls a meeting as prescribed in section 6, chapter III. The persons so named shall constitute a drainage board and after work is determined to be practicable, they appoint a surveyor to lay out a drainage district under section 8, chapter III. After the surveyor files his report,

the drainage board proceeds in the same manner as for the original establishment of a district. (Act 318, L. 1931.)

Ch. VII, secs. 3 to 5. Maintenance—Apportionment: All apportionments for maintenance must be made in accordance with the benefits received and are subject to appeal as in the first apportionment. If the apportionment is the same as the last apportionment, no day of review is necessary; but if the apportionment is changed, personal service of a notice of the day of review must be given to those persons whose percentages have been raised. *Sec. 4:* No petition to extend an established drain shall authorize the laying out or construction of branches or lateral drains. *Sec. 5:* If it is necessary to secure further rights-of-way and allow damages, the commissioner takes such necessary steps as prescribed in chapter IV.

Ch. VII, secs. 6 and 7. Maintenance: The county drain commissioner of any county or the drainage board in an intercounty district causes an annual inspection of all drains. They may expend an amount not exceeding in any one year 40 percent of the original cost where inspection shows the work necessary or where an emergency endangering the public health, crops, or property exists. But county drain commissioners and drainage boards, if the initial cost of the drainage exceeds \$1500, shall not spend to exceed \$600 for cleaning the drain unless approved by the township boards affected. The commissioners or the board may reassess such drain where necessary for the cost of cleaning, the assessment being according to the benefits received. (Act 303, L. 1937.) *Sec. 7:* Where the survey shows that land will be added to the district or a new district will be necessary, the board of determination is reconvened by the drainage commissioner or the drainage board, and the proceedings as to the added lands or new district are the same as for establishing drains under chapter IV.

Ch. VII, secs. 8 and 9. Assessment and tax: The assessment and collection of taxes for maintenance and enlargements is the same as provided for drainage taxes in original districts. *Sec. 9:* Where the necessity for cleaning a drain arises from the act or negligence of any landowner, that fact is taken into consideration by the commissioners in making the apportionment. Where the cost of cleaning is lessened by the tiling of the source of a drain the commissioner takes that into consideration in apportioning the benefits against the land so tiled, but in no case may the benefit be considered to be less than 50 percent of the benefit if the land were not tiled.

ABANDONMENT

Ch. XVI, secs. 1 and 2. Abandoned drains—Funds: Any drain which has ceased to be a public utility and is no longer necessary may be declared to be abandoned and vacated upon proper petition therefor if, in the opinion of the drain commissioner or the drainage board having jurisdiction, it is no longer necessary or a public utility. The petition is subject to the provisions relating to petitions for establishing a county or intercounty drain and upon five days' notice by posting. Private rights acquired by persons from the establishment of such drains shall not be interfered with nor impaired. (Act 318, L. 1929.) *Sec. 2:* When a drain is abandoned and vacated, the commissioner serves notice thereof on the county treasurer. If there be any money belonging to the fund of said vacated drain, the county treasurer pays over the same to the treasurer of the township in which benefits for such drain have been assessed and collected. The money is prorated among the townships affected in the same proportion that those townships contributed to the total amount paid into the fund.

MINNESOTA

(Nason's Minnesota Statutes—1927, Supplement—1940,
Chapter 44)

DRAINAGE

I—State Drainage Commission (Department of Drainage and Waters)
6634—6840—140.

II—County Drains and Ditches (County Drains and Judicial
Ditches) Sections 6674—6840—140.

I. DEPARTMENT OF DRAINAGE AND WATERS

Sec. 6634. Department of Conservation: The laws of 1931, chapter 186, create the Department of Conservation and transfer to it the powers of the Department of Waters.

Sec. 6635. Commissioner of Drainage and Waters—Powers: The Commissioner of Drainage and Waters has the power to construct any ditch, drain, or watercourse within the state, and such watercourse may consist of a bed of a creek or river, whether meandered or not. The Commissioner may widen, deepen, straighten, and change the channel or bed of any natural watercourse or lake, whether navigable or whether meandered or not. He may construct new outlets and other works for the purpose of drainage. There are provisos that any diversion of a watercourse from its natural channel shall be in the same general direction; that no meandered lake may be drained unless it is no longer of sufficient depth and volume to be of beneficial public use; that no meandered lake shall be drained or lowered unless petitioned for by at least 60 percent of the legal voters residing within four miles thereof, who are freeholders and whose lands are affected as shown by the viewers' report. The Commissioner is given broad powers to assemble information as to the topographical features of watersheds of the state, drainage, flood control, stream flow, and water power. For the full scope of his powers, it is necessary to read sections 6635a, 6635b, 6636, 6659, and 6667. (Law of April 25, 1931, ch. 350.)

ORGANIZATION—Petition

Sec. 6637. Petition to the District Court: Before the drainage commission may construct any works or alter any watercourse, it must file with the judge of the District Court of the county or counties wherein the work is to be done a petition setting forth the necessity therefor and that it will be of public benefit and promote public health. The commission must also file a map of the route, estimates of cost, and a description of the lands likely to be affected. Such map and estimate must be prepared by the engineer of the commission or under his direction.

Secs. 6638 to 6640. Viewers: Within 10 days after petition is filed, the district judge makes an order appointing two resident freeholders of the county or counties affected, not interested nor kin to any interested party, and the state drainage commission appoints a person not a resident of any affected county, and these constitute the viewers. After qualifying, the viewers meet at the time fixed in the court order, with or without the drainage engineer, and prepare a tabular statement showing the names of the owners of each tract benefited or damaged, such names being the same as appear on the county tax duplicate. The statement also gives a description of each tract; the total number of acres in each; the estimated number of acres that will be benefited or damaged; the number of acres added by the total or partial draining of any meandered lake or change in any watercourse, and its value; the damages to riparian rights pertaining to any tract; and the amount that each tract will be benefited or damaged. The viewers also estimate and report benefits to public roads and municipalities, as well

as the damage to same. They report the total estimated benefits of the entire works, and whether or not the cost of construction, including damages, will be greater than the benefits; or they may report that the work is impracticable, giving the reasons therefor. *Sec. 6639*: If the viewers are unable to agree, each reports separately on the matter of disagreement. *Sec. 6640*: Where the location of a public ditch covers all or a part of a private ditch already wholly or partly constructed, the engineer makes an estimate of the cubic yards of material already excavated and the viewers deduct the saving by reason of such excavation from the estimate of the benefits.

Secs. 6643 to 6645. Report of viewers: Within 30 days the viewers file their report with the clerk of the District Court. Any delay not excused by the court carries a penalty of one-half of the viewers' compensation. *Sec. 6644*: Within three days the clerk gives written notice of the filing of the report to the district judge and to the auditor of each county affected. The judge fixes a time and place for a hearing on the report, with notice by publication and posting, said notice to contain a brief summary of the report and show the route and termini of the works. Nonresidents are served by mail. The proceedings will be adjourned until all parties are served with notice. *Sec. 6645*: At the hearing all interested parties may appear and be heard. Unless excused by the court, the engineer and at least two viewers must be present at the hearing. If the judge finds that the proceedings have been according to law, that the estimated benefits of the work are greater than the total costs including damages awarded, and that the work will be of public utility and benefit, he will by order establish such a ditch as specified in the report of the state drainage engineer, and will establish and confirm the viewers' report. The court is given power to make amendments and corrections by referring the report back to the viewers for further report. The court by order determines the cost to be equitably assessed against each tract benefited in proportion to the benefits and the damages to be allowed, in order to arrive at the total cost. Such order is filed in the office of the court clerk and he forthwith files a certified copy of same with the auditor of each county affected. Whenever any order of the District Court is declared void for any reason, the state drainage commission has one year in which to secure a rehearing. (State *ex rel v. Nelson*, 137 Minn. 265; 161 N.W. 714; 163 N.W. 510.)

FINANCING—Assessments

Sec. 6641. What lands assessed: All lands benefited by a public ditch and all public or corporate roads benefited in whole or in part shall be assessed in proportion to the benefits from the construction, whether the ditch passes through such lands or along or near the line of such roads or not. The viewers in estimating the benefits shall not consider what benefits the lands or roads will receive after some other works have been constructed, but the only benefits by reason of the construction of the public ditch. In determining the cost of drainage, the viewers must include damages to private owners and costs of rights-of-way, together with the cost of construction, organization, and office, field, and salary expenses.

Sec. 6642. Damages: When the works pass through private lands not necessary to drainage, the viewers report the damage to be allowed for rights-of-way and construction of the works. Any interested party aggrieved by the damages allowed may petition the District Court within 10 days for the appointment of appraisers in the same manner as provided by law for the appropriation of private property for public purposes. Construction may not be delayed by such action.

Secs. 6647 and 6648. Auditor's statement: As soon as practicable after the court order on the viewers' report is filed with the county auditors by the court clerk, the said auditors make in tabular form a list or statement showing: (1) The names of all landowners and of public or corporate roads within their respective counties to be benefited by the improvement; (2) a description of the land and the total number of acres in each tract, according to the assessment rolls and tax lists; (3) the estimated number of acres benefited in each tract; (4) the estimated amount of benefits and damages to each tract and to each public or corporate road; (5) the amount each tract and each public or corporate road so benefited will be liable for and must pay for establishing and constructing the drainage works. *Sec. 6648*: The auditors' statement is then signed by them in the presence of two attesting witnesses and filed with and recorded by the register of deeds of each county affected. The amount that each tract of land and each public or corporate road will be liable for, with the interest thereon, becomes thereupon and remains a first and permanent lien on such property until fully paid, taking precedence over all mortgages and encumbrances whatever.

Secs. 6649 and 6650. Jury trial: Any landowner aggrieved because of the amount finally assessed against his land, or because of the disallowance of damages claimed, may demand a jury trial. In case of failure, costs are taxed against the appellant. *Sec. 6650*: Appeal from any final order of the district court, except the order establishing the ditch, may be taken to the Supreme Court within 30 days. If the appellant prevails in the Supreme Court and the cost of construction is thereby increased, the judge of the district court makes a further order assessing such additional amount against the lands originally assessed for construction in proportion to the original assessment.

Sec. 6658. Liens—When payable: Payment of such liens (the lien of the auditor's statement recorded with the register of deeds—*sec. 6648*) shall be made to the county treasurer as follows: One-fifteenth of the principal and interest, on or before five years from said filing in the office of the register of deeds, and the balance in like annual payments. But if the annual assessment amounts to less than one mill per acre per year, the auditor shall levy one mill for as many years as necessary at that rate to pay the whole lien. On or before the 15th of November of the fourth year following the filing of the auditor's statement with the register of deeds, the auditor enters on the tax list the amount of the lien against each piece of property then remaining unpaid, as a tax on said property, with a proper entry to secure the successive entries each year thereafter of the unpaid balance of such lien, one-fifteenth being due and collectible each year.

FINANCING—Bonds

Secs. 6656 and 6657. County bonds: The county board of each county wherein any state or judicial ditch is proposed to be wholly or partly located shall issue bonds of their respective counties in an amount not greater than the assessment against the lands in such county as evidenced by the statement provided for in sections 6647 and 6648 of this Act, to defray the expenses incurred in locating, constructing, and establishing as much of any ditch as may be located within said county or in such relation to said county as to affect lands therein. "Expense" is construed to mean and cover every item of the cost of said ditch from its inception to its completion and all fees and expenses incurred in pursuance thereof. The bonds pledge the full faith, credit, and resources of the county for the prompt payment of principal and interest, and are payable at

such times not to exceed 20 years, and bear such interest not to exceed 6 percent, as the board shall determine by resolution. The board may negotiate the bonds as they deem best, but not for less than par. The proceeds of the bonds are paid to the state treasurer and by him credited to the state drainage fund hereby created. The county board shall provide money for the payment of the principal and interest of said bonds as they severally mature. The money is placed in the general county ditch fund, and the county board may transfer any surplus in the general revenue fund or other fund of the county to the ditch fund. They must also pay into the ditch fund all money received from any lien created by this Act. When the general ditch fund of the county is insufficient, the board is authorized to use any available funds in the county treasury to meet the payment of bonds issued in ditch proceedings as they mature. Such funds so used are replenished, with 6 percent interest, from collections of unpaid assessments for ditches, drains, or watercourses constructed under any proceedings hereunder. *Sec. 6657*: The amount that each piece of property is liable for on account of the location, construction, and establishment of any ditch, bears interest from the date of the filing of the auditors' statement in the office of the Register of Deeds, at 6 percent per year; provided, when the bonds are issued the same rate of interest is charged that the bonds bear, and the interest is an additional lien on the lands and property. Where bonds are sold at a premium, such premium is used to make up any deficiency in the assessments levied by the court in the proceedings, and any balance remaining is used for upkeep.

CONSTRUCTION

Sec. 6651. Contract—Payment: At the time of filing the order and findings of the court, as provided for the general assessment, the clerk of the District Court also furnishes a certified copy to the state drainage commission. The commission advertises for bids for construction or repair. Bids are to be made with reference to plans and specifications furnished by the commission and contract is let to the lowest responsible bidder. Successful bidders must furnish bond. Payment is made according to rules adopted by the drainage commission or as specified in the contract. Contract and rules must be approved by the attorney general of the state. Before final payment, the work must be completed and accepted by the commission. If the commission and the contractor cannot agree on approving the work, the commission has authority to refer settlement to a competent, disinterested civil engineer, whom the commission and contractor may agree upon.

II. COUNTY DRAINS AND JUDICIAL DITCHES

(Acts 1925, ch. 415; amend. 1935, ch. 312)

ORGANIZATION—Petition

Sec. 6840-2. Powers of county boards and district courts: The county boards of the several counties and the district courts of the several districts are authorized to make all necessary orders for the construction and maintenance of public drainage systems; to improve waterways and extend same to secure outlets; and to drain meandered lakes when they become normally shallow and no longer of sufficient volume to be of substantial public use. No meandered lake on which a city or village has riparian rights may be drained or lowered except by majority vote of the legal voters of said city or village at a special election, and with the consent of the Commissioner of Conservation.

Secs. 6840-3 and 6840-4. Petition and bond: Before the establishment of any drainage works, a petition must be filed

with the county auditor, if for a county drainage system, or with the clerk of the district court if for a judicial drainage system. The petition must be signed by not less than a majority of the resident landowners, or by the owners of not less than 51 percent of the area. It must set forth the necessity for the drainage, and that the same will be of public utility and promote public health; it must describe the route and termini of the proposed work and the lands over which it will pass; and must state that the petitioners will pay the costs in case the petition is dismissed or no contract for construction is let. The petition may also be signed by the supervisors of any township or the proper officers of any city or village authorized by resolution of the council thereof and liable to be affected or assessed for the proposed construction. One or more petitioners must file a bond for \$2,000 to pay the costs in the event of dismissal. The court or board may require additional bonds at any time. *Sec. 6840-4*: The expenses of any survey of proposed systems may not exceed the amount of the bond of the petitioners.

See: 172 Minn. 295; 215 N.W. 204.
172 Minn. 295; 216 N.W. 229.
181 Minn. 481; 233 N.W. 294.

Sec. 6840-26. Final hearing: Within three days after the filing of the report of the viewers, (*sec. 6840-16*, post, under "Organization—Officers") it is the duty of the auditor, in the county proceedings, to fix a date for hearing on the petition and the engineer's and viewers' reports between 35 and 50 days thereafter. In judicial proceedings it is the duty of the court clerk to give such notice. Notice is by publication and posting for three weeks. In intercounty judicial ditches publication is in each county affected, but it is only necessary to publish a description of the property in that particular county. Within a week the auditor or the clerk, as the case may be, must mail a copy of the notice to the State auditor, the Commissioner of Conservation, and all persons and corporations who are landowners or otherwise affected as shown by the report of the engineer and viewers. Where for any cause notice has not been given any interested party, the hearing is adjourned until such notice can be given.

Secs. 6840-27 to 6840-30: Upon due publication, posting, and mailing of notice, the board or the court, as the case may be, has jurisdiction of each tract of land and of highways, railroads, and other property described in the engineer's and viewers' reports. *Sec. 6840-28*: At the hearing the board or the court considers all matters pertaining to the engineer's and viewers' reports, and testimony presented on behalf of all parties interested. The engineer or his assistant and at least two viewers must be present. If it appear to the satisfaction of the board or the court that the general plan of drainage may be improved by addition of branches, or any change in cost or dimensions, or that the assessment has not been equitable, then they have authority to correct the engineer's and viewers' reports or may resubmit the same for change, correction, or amendment. Upon the final hearing after such change, the board or the court will again consider all evidence presented. If additional lands are brought in, the board or the court may adjourn until notice of the hearing is given to the parties affected. *Sec. 6840-29*: When the board or the court finds that all proceedings have been had in accordance with this act; that the estimated benefits to be derived from the drainage system are greater than the total cost, including damages awarded; that the improvement will be of public utility and benefit; and that such reports are complete, just, and correct, then the board or the court, by order containing such

findings, will establish the drainage improvement and adopt and confirm the original or amended report of the viewers. Errors in description of property later discovered by the county auditor may be corrected at a hearing for that purpose after they have been called to the attention of the board or the court. *Sec. 6840-30:* In all proceedings in the district court the clerk, within 20 days following the order directing the construction of the improvement, files a certified copy of the viewers' report in the office of the county auditor of each county affected. It is also the duty of the court, upon five days notice in writing to the auditor of each county affected, to apportion and determine the items of expense and the proportion of the cost of construction to be paid by the respective counties, which must be in proportion to the benefits received.

ORGANIZATION—Officers

Secs. 6840-5 and 6840-6. Preliminary survey—Engineer: The county board in a county drainage proceeding, or the district judge in a judicial proceeding, appoint a competent engineer to examine and report on the practicability and necessity of the improvement. *Sec. 6840-6:* The engineer examines all matters in the petition and makes a preliminary survey of the territory that will be affected, and reports on the practicability and necessity of the proposed work. If some plan other than that in the petition is found more practicable, the engineer so reports, giving the details thereof. Any change or addition to the plan in the petition or specifications is reported in detail; but the engineer must confine his preliminary survey to the area described in the petition except to secure outlets, unless he be authorized by the board or the court after the consent of the bondsmen and a hearing. (L. 1925, sec. 6.)

Secs. 6840-7 and 6840-8. Hearing on preliminary report: Upon the filing of the report the auditor, or the court clerk with the approval of the judge, fixes a time and place for a hearing thereon within 30 days and notifies the petitioners and the owners of the several tracts of land and the corporations affected. All interested parties may appear and be heard. If it appear that the plan is not practicable and no plan is reported by the engineer, or that the improvement would not be of public benefit, or that the outlet is not sufficient, the petition will be dismissed. But if the board or the court are satisfied that the improvement as outlined or modified is necessary, practicable, and of public benefit and would have proper outlet, then the board or the court so finds and issues a preliminary order establishing the improvement subject to further disclosures by a final survey. The preliminary order is accompanied by a map showing any changes in the plan. *Sec. 6840-8:* Upon the filing of this order, the court or the board direct the same or another engineer to make a detailed survey, furnish plans and specifications for the improvement, and report with reasonable dispatch.

Secs. 6840-10 and 6840-11. Engineer's final report: The engineer makes a detailed survey of the line of the improvement as approved by the order of the board or the court, showing the outlets, termini, and branches. He sets stakes numbered progressively, 100 feet apart, and fixes permanent bench marks not more than one mile apart so that they will not be destroyed by constructing the system. His report gives details of the yardage to be excavated in open ditches and the estimated price per cubic yard and the estimated total cost of the work in each 100-foot section. The engineer reports in minute detail the estimated cost of all structures and works to be built. When necessary, he may shorten or extend the ditch from the outlet

named in the petition. Where practicable, the engineer will locate the ditch on division lines between lands of different persons. *Sec. 6840-11:* With his final report, the engineer furnishes a detailed map drawn to scale, showing the location of all bench marks, landmarks, rights-of-way, and highways affected. He also furnishes a profile of the elevation, depth of cut, size of tile, and elevation of each branch and lateral. He makes a complete set of plans and specifications covering all work. The report is filed with the auditor or the court clerk, as the case may be. One copy of the report is forwarded within five days to the commissioner of drainage and waters (now Commissioner of Conservation) for examination and approval. If the commissioner disapproves, he files with the auditor or clerk his recommendation and modification. When the report is returned by the commissioner, approved, the auditor or clerk issues an order designating the time and place for the first meeting of the viewers as provided in section 6840-16. The engineer includes in his report a form of contract with complete specifications of the work; and he may, with the consent of the board or the court, modify his report and plan if such change would not impair the usefulness of the system or increase its cost by more than 10 percent of the original contract price. No change may be made that will increase the cost beyond the benefits accruing. (L. 1933, ch. 312.)

Secs. 6840-16 to 6840-18, and 6840-20. Viewers: Following the appointment of the engineer, the county board in the case of county drainage proceedings, or the district court in the case of judicial drainage proceedings, makes an order appointing three resident freeholders in the county or counties, not interested in the construction of the proposed work and not kin to any of the parties, as viewers. The auditor or the clerk, as the case may be, within five days after the report of the commissioner of drainage and waters (Commissioner of Conservation) is received, approving or modifying the engineer's report, makes an order designating the time and place for the first meeting of the viewers. *Sec. 6840-17:* The viewers, after taking the oath of office, proceed with or without the engineer to prepare a tabulated statement showing each tract; the name of the owner thereof as appears on the last county tax duplicate; the number of acres of land benefited or damaged; the number of acres added to any tract by the total or partial drainage of any meandered lake, or the change of any watercourse, with the location and value of the added land; the damages to riparian rights pertaining to any tract, and the benefits or damages to each tract by reason of the construction of the works. Also they report the benefit to corporations, highways, villages, and cities by reason of the increased drainage facilities or improvement of public health. They further report the total estimated benefits in respect to the entire system and branches, and whether the estimated expense of construction, including damages awarded, is greater than the utility of the proposed system; or that the system is impracticable for any reason, and giving the reason why it should not be constructed. *Sec. 6840-18:* When a public ditch is located wholly or in part in the bed of a private ditch already constructed, the engineer estimates the yardage already excavated on each tract of land, the amount of reduction in cost of the public ditch by reason thereof, and the viewers deduct such amount from their estimate of the benefits, if any, against such tract. *Sec. 6840-20:* Lands owned by the state or by a railroad or other corporation benefited by the construction are specifically made liable for assessments.

FINANCING—Assessments

Secs. 6840-21 to 6840-23. Property assessable—Basis: The State, and all counties, municipal corporations, and railroads

receiving any benefit from the improvement are assessable therefor. *Sec. 6840-22:* The amount for which any tract, corporation, or railroad shall be liable on account of the construction of any drainage system or the repair thereof shall not exceed the benefits accruing therefrom as determined in the proceedings to establish and maintain the system. *Sec. 6840-23:* The county auditor or the clerk of the court, as the case may be, notifies each municipality and corporation to construct any bridge or culvert across or upon its roads or right-of-way within a reasonable time stated in the notice. Upon failure so to do, the district court will order the same built as a part of the construction of the system, and the cost will be deducted from the damages or collected as an assessment against such municipality or corporation.

Sec. 6840-24. All benefits to be assessed: All lands and public or corporate roads or railroads and all villages and cities in any manner benefited in whole or in part by the construction of a public drainage system are assessable for the cost thereof in proportion to the benefits received. They are assessable whether the benefit result directly from the construction of the system or because the system affords an outlet for drainage and prevents overflow. When property is assessed for an outlet and the lateral connecting such property with the system is not yet constructed, the land will be assessed only for the estimated benefit less the estimated cost of connecting same with the system. When drainage by pumping is established, the board or the court has authority to provide maintenance of the pumping system by annual assessments. State lands are assessable. (L. 1933, ch. 312.)

See: 172 M. 295; 215 N.W. 204.

Op. Atty. Gen., June 20, 1931; Nov. 7, 1933; Nov. 10, 1936.

Sec. 6840-31. Damages—How paid: When damages have been awarded and have been duly confirmed, the county board of each county having lands affected must, before entering upon the land for construction purposes, order the damages, less any benefits assessed against the same property, to be paid out of the general ditch fund. If no money is available in that fund, then payment is made out of the county treasury on warrants drawn and attested by the auditor and signed by the chairman of the board. In case of appeal or delay in final determination of the amount of the damages, warrants are not issued until final determination. When there is any doubt as to who is entitled to receive the damages, the board may require an indemnity bond before issuing the warrant.

Sec. 6840-32. Appeal: Any aggrieved party may appeal to the district court: (1) On the amount of the benefits assessed; (2) on the amount of the damages allowed; (3) from an order refusing to establish the improvement. Appeal on the last ground may be taken to the Supreme Court in the manner provided in civil actions. The proceedings on appeal are set out in detail and at length in this section.

See: 172 M. 295; 215 N.W. 204.

180 M. 132; 230 N.W. 481.

Secs. 6840-44 to 6840-46, and 6840-49. Auditor's statement—Lien: As soon as practicable after letting the contract for construction, the auditor of each county affected must make, in tabular form, a list and statement showing: (1) The names of the owners of all lands and the names of all corporation roads, railroads, and municipal corporations within their respective counties benefited by the construction, as appears from the viewers' report confirmed by the board or court; (2) a description of said lands, together with the total number of acres in each tract according to the assessment roll or tax list of the county; (3) the estimated number of acres benefited; (4) the

estimated amount of benefits and damages to each tract and to each public or corporate road, railroad, or municipality as the same appears in the confirmed report or as changed by jury or court; (5) the amount that each tract of land, road, railroad, or municipality must pay into the treasury of each county for the construction of the system. This amount is determined as follows: The auditor makes a full statement showing the total cost of each drainage system, which must be designated by a number. The total cost is then divided by the total estimated benefits for the rate of cost on each \$1.00 of benefits. The amount of the estimated benefits to each separate property shall be multiplied by that rate, and the interest set out in a separate column opposite each separate property. The result, less the amount of the damages, if any, shall be the amount that each separate property will be liable for on account of such improvement. *Sec. 6840-45:* The auditor's statement must be signed and acknowledged by him in the presence of two attesting witnesses and be recorded in the office of the Register of Deeds of the county. The amount that each tract of land, railroad, or municipality will be liable for, with interest as hereinafter provided, shall be and remain a first and permanent lien on such property until fully paid, and shall take precedence over all mortgages, encumbrances, charges, or other liens whatever. The filing of the auditor's statement is notice to all parties interested as to the existence of the lien. The statement after being recorded is returned to the auditor's files and must be kept and preserved. *Sec. 6840-46:* Errors and omissions in the recorded statement of the auditor may be corrected upon petition to the board or court, as the case may be, and hearing thereon in the same manner as the original hearing. After correction a new or amended statement is filed. The lien of the erroneous statement is released by the proper auditor and a new lien attaches. Erroneous collections of assessments are adjusted. *Sec. 6840-49:* Additional cost of the system due to unforeseen circumstances or conditions may be included in a supplemental statement of the auditor, likewise recorded, and become a supplemental lien on the property assessed. Such increase, however, may not exceed the margin between the former lien statement and the total benefits reported and approved. The same notice and hearing is had in the case of the supplemental assessment and the same proceeding. The amount for which each property is liable bears not to exceed 6 percent interest from the date of the filing of the auditor's statement for record. When bonds have been issued, the interest rate is the same as that of the bonds. All interest is an additional lien.

See: *Normania Twp. v. Y.*, 286 N.W. 881.

Op. Atty. Gen., July 2, 1931.

Sec. 6840-51. Payment of assessment liens: Liens filed against property benefited are paid to the county treasurer as follows: One-tenth before November 1 subsequent to the filing of the lien in the office of the Register of Deeds, and one-tenth on the first day of November each year thereafter until paid; provided, that in the final order establishing the system, the board or the court may order the payment as follows: One-fifteenth of the principal on or before five years from November 1 subsequent to the date of said filing with the Register of Deeds; and one-fifteenth on the first of November each year thereafter until paid; or, when so ordered by the court or the board, the payment may be one-twentieth on or before 10 years from November 1 subsequent to the date of filing and one-twentieth each year thereafter until paid. The lien bears not exceeding 6 percent interest from the date of the filing; and the interest on the whole of the unpaid principal must be paid annually on November 1. Where bonds are issued, the liens bear

the same rate of interest as the bonds. The county auditor enters on the ditch lien record the amount of the lien and interest to June 1 following, and collects same each year in the same manner as real estate taxes for that year are collected. All of the provisions of law for enforcing the collection of real estate taxes are applicable to ditch liens and interest. No penalty is added to such installments of principal or interest in case of default, but they bear 6 percent interest from the first day of June following until paid. When payment of the lien and interest has been made in full, the auditor will issue a certificate of payment, which, when recorded, releases and discharges the lien. [Opps. Atty. Gen., Dec. 24, 1929; Jan. 24, 1933; Feb. 17, 1933; Dec. 12, 1933; (425 C) July 28, 1937; (921 i) Dec. 1, 1938.]

Sec. 6840-52. Apportionment: When a lien has been established against any tract by reason of the benefits assessed and no installment of the assessments or interest is in default, any person or corporation interested in such tract may, by petition to the district court, and after notice and hearing thereon, have such lien apportioned between or among specified portions of such tract. After apportionment, the aggregate of the separate liens may not be different from the amount of the unpaid portion of the original lien.

Sec. 6840-53. Maintenance and repairs: Any county containing a state, judicial, or county drainage system in whole or in part within its borders must keep the same in proper repair and free from obstructions. In case there are sufficient funds to the credit of the system, they may be expended for that purpose without assessment; provided that no improvement is contemplated other than the restoring the works to the original condition. In case there are not sufficient funds, the county may pay the costs out of the general revenue fund and reimburse that fund by assessing the lands originally assessed for benefits in the same proportion as the original assessment. To create a fund for maintenance and repair, the county board is authorized to levy an annual assessment against the lands originally assessed for benefits at a rate not to exceed 30 mills on each \$1.00 of assessed benefits. The assessment is made after notice and hearing, and the board's decision is final. This assessment is collected in the same manner as real estate taxes. If the general ditch fund exceeds 3 percent of the total original assessment of benefits, no further assessment for maintenance and repair may be made until that fund shall have fallen below that percentage. To repair state ditches constructed otherwise than by assessment against property benefits; or to deepen, widen, or extend a state, county, or judicial ditch; the board or the court, as the case may be, is authorized to cause the benefits and damages that will result to be ascertained and to assess the cost against the property benefited by the construction of the original system and all property benefited by the construction of a subsequent ditch or lateral, in proportion to benefits. The proceeding to be followed in keeping a system in repair is optional with the board. When repairs do not amount to \$500, the board may proceed without the letting of a contract.

See: *State v. Holmes*, 162 M. 173; 202 N.W. 440. 177 M. 598; 225 N.W. 909.

Opps. Atty. Gen., (150c) Sept. 29, 1937; (602J) Aug. 9, 1938; (148 b-5) Oct. 5, 1938; (150 a) March 11, 1939; (150 c) April 14, 1939.

(Sections 6840-55 to 6840-74 provide in elaborate detail the method to be pursued in repairing and improving a state, county, or judicial ditch. They cover petition, engineer's and viewers' reports, hearings, contracts, and the use of the system as an outlet for private or sanitary drainage.)

FINANCING—Bonds

Sec. 6840-43. Bond issue: The county board of each county wherein any drainage system is proposed to be located in whole or in part, or wherein lands are situated which are assessed for benefits, are authorized, after the lien statement prepared by the county auditor has been recorded in the office of the Register of Deeds, to issue bonds of their respective counties in such amounts as may be necessary to defray in whole or in part the expenses to be incurred in locating, establishing, and repairing so much of any works as may be situated in said county or in such relation to said county as to affect lands therein. Bonds may be sold only as provided for in section 1943 of Mason's Minnesota Statutes of 1927. Such bonds are payable as the county board may by resolution determine, but not later than 30 years from their date; and they bear not to exceed 6 percent interest; provided, the time of payment of bonds must conform to the time of payment of principal and interest on the ditch liens as provided in section 6840-51. The proceeds of such bonds are placed in the general ditch fund to the credit of the proceedings in which issued. The county boards are authorized to pay drainage bonds out of any available fund in the county treasury when the general ditch fund is inadequate, the treasury to be reimbursed, with interest at 6 percent, from collections of unpaid assessments for drainage improvements. The board may empower the treasurer, by a proper resolution, to accept in payment of liens any outstanding bonds issued on the ditch liens to be paid thereby, which are legal obligations of the county under the provisions of this act, at par plus accrued interest. (L. 1935, ch. 345.)

See: Op. Atty. Gen., Dec. 12, 1933.
Opp. Atty. Gen., (38 c) Dec. 14, 1934.
Opp. Atty. Gen., (901 a) Nov. 10, 1936.

CONSTRUCTION

Secs. 6840-33, 6840-34, and 6840-36 to 6840-42. Contracts: Thirty days after the filing of the order establishing the system, in the office of the auditor or the court clerk as the case may be, the auditor and chairman of the county board, or the auditors of the respective counties, meeting in the county where the system was organized, may proceed to sell the job of constructing the entire works as one job or in sections of 100 feet each. With the approval of the engineer, they may let separate contracts for different classes of work or for work and materials. They enter into a contract in the name of the county and exact a bond of 75 percent of the contract price, for the use of the county affected or any injured party in interest and conditioned for faithful performance. The auditor of the county where the proceedings are had gives notice by publication that the contract will be let to the lowest bidder, and invites bids on the work as described in the notice. The auditors may reject all bids, and no bid may be entertained which exceeds by 30 percent the estimated cost of the particular portion of the work to be performed thereunder. Certified check for 10 percent of the bid must accompany the same. When the cost of construction is more than \$3,000, the auditor may also advertise the letting of the contract in a trade paper. When there have been one or more appeals taken on the question of benefits or damages, no contract may be let unless ordered by the board or the court upon application of the auditor or any interested person, and notice thereof is by mail to all parties. **Sec. 6840-34:** The provisions of the contract and bonds are set out in this section. Each bond must provide for liquidated damages for each day's delay in completion beyond the specified time. **Sec. 6840-36:** Where tile is to be used in any part of the work, or where a majority of the petitioners request

the use of tile, separate bids are asked for tile construction. Secs. 6840-37 to 42: These sections relate to default by the contractor, extension of time, inspection of the work by the engineer, and payment for the work. (175 M. 60; 220 N.W. 423.)

MISSISSIPPI

(Mississippi Code, 1930; Supplement, 1938; Chapter 107, secs. 4371 to 4526)

DISTRICTS WITH COUNTY COMMISSIONERS

(Article I)

ORGANIZATION

Secs. 4371 to 4373. Authority: All drainage districts organized before or after the enactment of this article are managed by three county commissioners of the county in which the organization was perfected and by the chancery court of such county, except the districts with local commissioners and swamp land districts. **Sec. 4372:** The board of supervisors of the county select three county drainage commissioners for their county with terms of office of six years, vacancies to be filled by the supervisors. **Sec. 4373:** Every resident citizen landowner over 25 years of age and otherwise qualified, is eligible for appointment.

Sec. 4374. General authority: Drainage districts organized under the provisions of this article are given general authority to construct the necessary works over the lands of others or on lands which may be acquired by the district and also to improve natural drains and watercourses so that a complete system of drainage may exist for agricultural and sanitary purposes.

ORGANIZATION—Petition

Secs. 4375 and 4376. Who may petition: When a majority of the adult landowners within a proposed district who represent one-third in area of the land, or whenever one-third of the adult landowners owning more than one-half of the land, desire to construct drains across the lands of others for agricultural and sanitary purposes, or to maintain a ditch already constructed, or to establish a combined system of drainage and to construct and maintain the same by special assessment on the property benefited, they may file in the chancery court a petition signed by them, setting forth the name of the district, the necessity for the same, a description of the land to be included, the names and addresses of the owners where known, and a prayer for organization of a drainage district. **Sec. 4376:** When the land is wholly within one county, or a judicial district of one county, the petition is filed in the chancery court of that county or judicial district. When the land is situated in more than one county, the petition is filed in the county or judicial district having the greater number of acres. Such chancery court has jurisdiction of the entire drainage district, both in and outside of the county where it is organized.

Secs. 4377 and 4378. Proceedings after petition: The chancery court clerk causes three weeks' notice of the filing of the petition and a hearing thereon, to be given by posting and by publication in the county in which the larger portion of the district is situated. The notice contains the substantial allegations of the petition, and a copy is sent by registered mail to each nonresident owner whose address can be ascertained. **Sec. 4378:** The chancery court where the petition is filed may hold a hearing thereon at any term or in vacation, and may determine all matters pertaining thereto. If the petition proves to be defective in any respect, it may be amended upon motion of the petitioners.

Sec. 4379. Hearing: At the hearing all interested parties may appear and contest the granting of the petition, and if the

contestants file a petition signed by one-third of the landowners owning more than one-half of the land in the district, the original petition must be dismissed. If such second petition is not properly signed, then at the first hearing on the original petition, the only questions before the court are: (1) whether the original petition is properly signed as required by the statute; (2) whether the required notice has been given; (3) whether the land in the proposed district or any part thereof requires a combined system of drainage; and (4) whether the creation of the district would be of public necessity and be conducive to the public welfare. Finding all of these requirements in the affirmative, the court enters an order to that effect, refers the petition to the drainage commissioners of the county, and fixes a day when the commissioners shall consider the same; provided, all deeds made for the purpose of defeating or aiding the prayers of the petition, not in good faith and for valuable consideration, are deemed fraudulent, and holders of such deeds will not be considered as landowners. If the court, upon the first hearing, fails to find the petition and notice in proper order, it will permit the petitioners to amend same. If the court finds against the petitioners on any one of the above points, then the petition is dismissed at the cost of the petitioners.

Sec. 4381. Duty of drainage commissioners: Upon reference of the petition to them by the court, the drainage commissioners go upon the lands in the district and those over which it is proposed to construct any works and determine: (1) the starting point, route, and terminus of the works; (2) the location and size of necessary drains, settling basins, or levees to be constructed; (3) whether the drainage of the lands of such district is possible; (4) the probable cost of such drainage; (5) what lands will be damaged and the aggregate of all damages; (6) what lands will be benefited and whether the aggregate benefit will equal or exceed the cost of construction. The drainage commissioners are empowered to employ an engineer and to make maps and estimates of the necessary works and costs.

Secs. 4382, 4383, 4385, and 4386. Report by drainage commissioners: If the commissioners find that any land in the district would not drain into the proposed ditches, such land will be excluded. On filing of the commissioners' report, the chancery court clerk gives three weeks' notice by publication of a hearing thereon. The notice contains the facts stated in the report and all interested persons may appear and contest the report or seek modification thereof, and may offer competent evidence for or against its confirmation. **Sec. 4383:** If on the hearing the court is of the opinion that the district should be organized, it so declares and issues an order confirming the report and organizing the district. If additional ditches are found to be necessary, the chancellor will modify the report to conform to the equities. **Sec. 4385:** The form of the court's order is set out in the statute by amendment in the Laws of 1932, chapter 285. It is further provided by the amendment that if, after hearing, the court finds that the proposed works will not be sufficiently beneficial to the lands to justify the estimated cost, it will dismiss the petition at the cost of petitioners. **Sec. 4386:** Upon entry of the court order confirming the commissioners' report, the district becomes a body politic and corporate by the name given in the petition, with perpetual succession, and with the usual powers of corporations.

Secs. 4431 to 4434. Subdistricts: When one-third of the landowners owning a majority of the acreage or a majority of the landowners owning one-third of the acreage in a proposed subdistrict, composed of lands wholly within a drainage district or partly within and partly without a drainage district, petition

the chancery court to form a subdistrict and file bond to pay costs if the subdistrict is not formed, the court will enter an order directing the drainage commissioners of the county to cause a survey to be made and to ascertain the limits of the region that would be benefited and to estimate the cost of the proposed subdistrict. The drainage commissioners file their report with the clerk of the chancery court of the county where the greater portion of the lands are situated. *Sec. 4432:* There is a hearing on the petition similar to that for the original formation of the district. *Sec. 4433:* The procedure is the same and the subdistrict has all of the right and powers of a drainage district. The lands of a subdistrict that are also within a drainage district remain liable to the drainage district assessments, bonds, and liens. *Sec. 4434:* The county drainage commissioners are the commissioners of the subdistrict, with the same powers that they have as commissioners of the parent district.

ORGANIZATION—Powers

Secs. 4388 to 4390. Rights-of-way: When the petition is referred to the drainage commissioners by the court, they proceed to procure all rights-of-way for the works of the district as well as for all lateral ditches or levees, by agreement with the landowners if possible, and take releases of rights-of-way and record the same. If they are unable to procure releases, the drainage commissioners appraise the lands needed for rights-of-way and proceed under section 4389. If necessary to obtain outlets outside of the district, the drainage commissioners may do so by agreement or may exercise the right of eminent domain with approval of the court. *Sec. 4389:* When the drainage commissioners have made their appraisal of lands needed for rights-of-way, they certify same to the clerk of the chancery court of the county where the proceeding is had, and if the land be in another county they also certify the appraisal to the chancery court of that county. The clerk fixes a time for the hearing of objections to the appraisements so filed. He issues a summons directed to the sheriff of the county where any landowners reside, directing him to summon such landowners or interested persons to appear at the time and place named. If any landowners be nonresident or unknown, service may be had on any agent in charge of the lands or by publication. If any owner is not satisfied with the amount allowed by the drainage commissioners for the lands needed for rights-of-way, he must file written objection before the day of the hearing. *Sec. 4390:* If no objection is filed, a decree confirming the appraisal is entered, and upon payment of the amount of the appraisal to the chancery court clerk, the district may take possession of the property and appropriate it to the uses of the district and title to the easement thereof thereupon vests in the district. If objections are filed, the court hears the same and upon demand will impanel a jury to determine the damages due the objector. The appraisal of the drainage commissioners is declared to be *prima facie* correct. The court may hear objections in entirety or in severalty, and may enter a decree confirming the report as to any lands taken. The court may make such adjustments of the amounts stated in the report as will be just and equitable.

Sec. 4401. General powers: All drainage districts are bodies corporate and have authority to sue and be sued in their corporate names. They may make contracts and, generally, may do and perform all things necessary to carry out their purposes.

ORGANIZATION—Officers

Sec. 4400. Secretary-treasurer: After organization the commissioners elect a secretary-treasurer, who may be a member of

the board or other qualified person. He gives bond and receives compensation approved by the commissioners and the chancellor. With the approval of the court the commissioners may designate a depository for all funds of the district. The treasurer must keep accurate books of account. (L. 1938, ch. 256.)

Sec. 4409. Compensation of commissioners: The commissioners receive \$5 per day for each day actually served, but not to exceed 4 days in any calendar month, to be paid on an itemized account approved by the chancery court.

FINANCING—Assessments

Sec. 4387. Benefits assessed: The drainage commissioners view the lands and assess the benefits to be derived by each separate tract. They estimate the damages, if any, which will accrue to each tract by reason of the construction of the works of the district. They also make an estimate of the cost of draining the district, apportion such cost to each tract of land, and file a schedule thereof. The form is set forth in the statute.

Sec. 4391. Preliminary expense—Acreage tax: Money advanced for necessary expenses may be repaid by the drainage commissioners as part of the cost of the district if the district is organized. If organization is denied, the court, by such decrees as may be equitable and just to all parties, may assess an acreage tax against the lands of the persons signing the original petition to pay preliminary costs and expenses of the drainage commissioners. After the petition is referred to the commissioners, they are empowered to issue certificates of the district to raise funds for necessary expenses and for service and preliminary work. Such certificates bear 6 percent interest but may not run for a longer period than two years. Certificates are paid as soon as the district is organized and funds come into the hands of the commissioners. Where the petition is defeated by withdrawal of signers of the original petition to an extent which will leave insufficient signers or insufficient acreage, and the court so states in its decree, the entire cost of the proceedings, must be decreed against the lands of the petitioners so withdrawing on an acreage *pro rata* basis.

Secs. 4392 to 4394. Hearing: When the commissioners have completed their assessment of damages and benefits, they file the same with the clerk of the chancery court, who in accordance with the request of the commissioners and the convenience of the court, fixes the time for a hearing of any objections thereto and gives notice thereof by publication. *Sec. 4393:* At the time fixed, the court hears all objections that may be made by the commissioners, landowners, or other interested parties as to benefits assessed or damages allowed to any tracts of land or to the assessment as a whole. After hearing all evidence, the court directs the commissioners to make such alteration as is deemed just and equitable. Such changes by the court are final in the absence of appeal. *Sec. 4394:* Any party in interest may appeal to the Supreme Court of the state within 10 days. The appellant must give bond for costs. No appeal stops the proceeding with reference to organization and construction of the work, but such organization and work proceed as if no appeal had been taken. In cases of reversal, the error is corrected according to the mandate of the Supreme Court and so that no injustice will result.

Sec. 4395. Installments—Liens: At the time of confirming the assessment of benefits and damages and the estimate of cost, the court may order the assessments to be paid in installments at such times as may be convenient for the accomplishment of the work or the payment of bonds issued therefor. Otherwise, the whole amount is payable on confirmation. Assessments and installments bear interest from the date of confirmation. Any

owner may elect to pay the whole amount of the assessment and interest against all or any part of his property within 30 days after confirmation and before the issuance of bonds. Such property is then no longer liable for payment of those bonds or assessments. All assessments for benefits and assessments for construction are a lien upon the lands in the district. If not paid when due, the specific lands against which the assessment was made are sold by the sheriff in the same manner as for delinquent state and county taxes. All drainage assessments are collected by the tax collector at the same time as state and county taxes, and under the same penalties.

Sec. 4396. Estimate of cost—Levy—Bonds: As soon as the commissioners have procured the rights-of-way, they make an estimate of cost, including all expenses of organization and construction, and file a levy for the amount required by them for construction of the works. They may order that so much of the benefits assessed as necessary be paid in cash, or they may order that the same be paid in not more than 40 installments with interest on each at 6 percent. The commissioners may order that bonds of the district be issued and sold, in amount not exceeding 80 percent of the benefits assessed, payable in from 1 to 40 years and bearing 6 percent interest payable annually or semiannually as the court may direct. It is lawful to attach coupons for any part of a year to the bonds maturing the first year. When bonds are sold to the extent of 80 percent of the benefits, the commissioners may order the remaining 20 percent paid in cash. If the amount levied be not sufficient to complete the works, or if bonds are sold for an amount less than 80 percent of the benefits assessed and additional funds are required to complete the work, an additional levy may be made or additional bonds issued; but the additional levy when added to the original levy may not exceed the benefits assessed, and the additional bonds added to the original bonds may not exceed 80 percent of the assessed benefits. Such additional levy is payable in cash, or in not to exceed 15 installments which bear interest at 6 percent.

Secs. 4397 and 4398. Apportionment of tax: Before the first Monday in September in each year, the commissioners assess the tax on the original or supplemental assessment of benefits in the same proportion as the installments authorized by the court to become due that year, and certify their levy to the board of supervisors of the county where the lands are situated. It is the duty of the supervisors to make a levy in accordance with the assessment to meet the bond obligations and interest, with 10 percent added for contingent expenses; except that the 10 percent for contingent expenses may be omitted in any year when the contingent expense fund on hand exceeds 20 percent of the total bond and interest obligation. **Sec. 4398:** It is the duty of the board of supervisors of each county in which district lands are located, on the recommendation of the drainage commissioners, to make a levy each year in accordance with the assessment, sufficient to meet bond obligations. When bonds are issued they may not be sold at less than par except upon approval of the commissioners and the chancery court.

Sec. 4404. Maintenance assessments: The commissioners are charged with the duty of laying out, constructing, and maintaining the established drains. Additional assessments for maintenance and repair are made in the following manner: On or before the first Monday in September, the commissioners assess each tract of land or other property in the district, in proportion to the original and supplemental benefits assessed for construction, such amount as is necessary to pay the expense of maintenance. They certify their assessment to the supervisors of the county where the land is situated, and the supervisors

levy a tax in accordance therewith. As soon as the tax levy is made, the secretary of the commissioners, at the expense of the district, prepares an assessment record certified by the drainage commissioners which is filed with the sheriff of each county in which the lands are situated. Aggrieved persons have the same right of appeal as provided in the matter of county taxes. The tax is collected at the same time and in the same manner as state and county taxes.

Sec. 4419. Reassessment: If after the first assessment of benefits has been made, it develops that on account of additional work done or to be done, benefits to the whole or any part of the district will be greater than originally assessed, the commissioners may proceed to reassess and apportion the benefits so as to correct the same to conform to the benefits to be received; provided, the aggregate value of benefits so assessed shall not be less than the original assessment. Reassessments are made in the same manner as the original assessment.

FINANCING—Bonds

Secs. 4427 to 4429. Additional bonds: The commissioners of a district that has sold bonds for 80 percent of the assessment on the lands, and has provided for the collection of the additional 20 percent in cash are authorized to issue and sell bonds, notes, or other indebtedness of the district for the 20 percent or any part thereof which was provided to have been paid in cash and has not yet been paid. **Sec. 4428:** The bonds, notes, or other indebtedness issued under the provisions of this chapter, shall not bear interest exceeding 6 percent and shall be non-taxable. **Sec. 4429:** Before the sale of any bonds or other obligations, the commissioners must publish their intention for 10 days. After 10 days from the action of the chancellor in approving the issuance and sale of bonds, notes, or other evidences of indebtedness, they become liens on the lands assessed and such obligations are non-taxable.

Sec. 4437. Refunding bonds: Whenever a drainage district is unable to pay all or part of its bond and interest indebtedness, or where the best interests of the district may require, the drainage commissioners and the court may issue refunding bonds of such district in amount not exceeding the aggregate of the bonds to be refunded and accrued interest thereon. Refunding bonds may not run more than 50 years nor bear more than 6 percent interest. Refunding bonds may be exchanged for outstanding bonds or may be sold at such price and in such manner as the commissioners may determine, subject to the approval of the court. The governing authority of the district must give notice by publication of its intention to issue refunding bonds, and must hold a hearing on any objections of interested parties. The governing authority of the district conducts such hearing in a summary manner and its disposition of the objections is final and conclusive on all parties. (L. 1928, ch. 236.)

Sec. 4438. Tax for refunding bonds: The governing authority of a district and the county supervisors must annually levy a tax on all lands and property subject thereto in such district in proportion to the benefits originally assessed, and sufficient to pay the interest on the bonds and the principal of any bonds maturing during the ensuing year. They certify such tax to the tax collector of the county where the lands are situated for collection. The total of such tax, exclusive of taxes levied for interest on such bonds and on the bonds to be refunded, shall not exceed the benefits assessed upon any tract of land in said district. (L. 1928, ch. 49.)

Sec. 4439. Refunding legal indebtedness: For the purpose of funding any legal indebtedness of any drainage district to the extent that such indebtedness, when added to the outstanding bonded indebtedness, shall not exceed the balance due to the

district on the assessment of the lands in the district, the drainage commissioners and the court may issue bonds aggregating such amount; provided, that interest on such indebtedness may not be calculated against the district in determining the amount of such indebtedness. There is the usual notice of intention to issue bonds and the summary hearing on any objections.

DISSOLUTION

Sec. 4440, Suppl. 900: (1) Any drainage district that has constructed a drainage system and has no outstanding indebtedness and for which there is no necessity for maintenance, may be dissolved by the chancery court in which it was organized or by the chancellor in vacation. (2) Whenever a majority of the landowners owning a majority of the lands sign and file with the clerk of the chancery court where the district was organized a petition for dissolution, the clerk gives notice by publication of a hearing on the petition, at which hearing objectors must show cause why the district should not be dissolved. (3) The court hears the petition in the same manner as other causes in chancery, and if it appear that it is to the best interests of the landowners that the district be dissolved and that there is no outstanding indebtedness, the court enters an order dissolving the district. The order requires that no further expenses be incurred by the commissioners and that within 30 days they deposit with the clerk all papers and records of the district. If the contrary appears to the court, the petition will be dismissed at the cost of petitioners and no further petition may be filed within 2 years thereafter. (L. 1934, ch. 230.)

Suppl. 901. Cumulative method: Whenever 25 percent of the landowners owning a majority of the acreage of any drainage district desire to have same dissolved, the chancery court in which the district was organized or the chancery court in the county in which the lands are located, or the chancellor of either of said courts in vacation, is authorized to enter an order or decree that the said district be dissolved on such terms as the chancellor may deem meet and proper (a) whenever there is no outstanding indebtedness, or (b) whenever it is made to appear that the district owns easements and other properties that could be sold at a fair cash market value for sufficient to pay all obligations. (L. 1938, ch. 258.)

DISTRICTS WITH LOCAL COMMISSIONERS

(Article II)

ORGANIZATION—Petition

Sec. 4449. Petition—Temporary commissioners: One-fourth or more of the landowners in a proposed district may file a petition with the chancery court for the formation of a drainage district. Notice of a hearing on the petition is given by publication. Unless at the hearing a majority of the landowners owning one-half or more of the land shall object, then further proceedings on the petition are had in the following manner.

The court appoints three temporary commissioners who must be landowners and whose appointment expires on the organization of the district. The temporary commissioners immediately appoint an engineer to make a survey and ascertain the extent of the territory that will be benefited by the proposed improvements as well as the general character and cost of the drainage works required, all of which is reported to the chancery court. The preliminary expenses are paid by the county, to be refunded out of the proceeds of the first assessment levy. The temporary commissioners may, however, with the permission of the court, borrow money at 6 percent to pay expenses of survey, attorney's fees, and other costs and may issue negotiable notes signed by all of them, payable within or without the state in payment for

work done. They may pledge all assessments as security for payment. Such evidences of indebtedness may not run over two years. Such notes have priority in payment when an assessment of the lands is made, or, if the district is not organized, then the board of supervisors of the county may levy an acreage *ad valorem* tax against the land in the proposed district for the purpose of making payment.

Sec. 4450. Hearing: Immediately after the report of the temporary commissioners is filed, the clerk of court gives notice by publication of a hearing on the report. At the time fixed, the court, after hearing all persons interested, and deeming the formation of a district to be to the advantage of the landowners and to be of public benefit, enters an order establishing the drainage district. Upon organization thereafter, the district becomes a body corporate and through its commissioners has the powers of a corporation and may do all things necessary to accomplish the purpose for which it was organized.

If at this hearing a petition for the improvement is presented, signed by a majority of the landowners owning one-third of the land or one-third of the landowners owning a majority of the land, it is mandatory that the court establish the district without further inquiry; provided that if at this hearing a petition is presented, signed by the same number and ownership, praying that the improvement be not made, then the court must dismiss the proceeding.

In the absence of such petition the chancellor, being of opinion that the establishment of the district would be to the benefit of the landowners and the public, will establish the district.

Sec. 4453. Judgment: The order of the court establishing the district has the force of a judgment, and appeal therefrom is directly to the supreme court of the state within 20 days. If there be no appeal, judgment is conclusive and binding upon all the real property within the boundaries of the district. Appeal may also be taken from an order refusing to establish a district.

Sec. 4487. Existence of districts continued for maintenance of system: The district does not cease to exist upon completion of its drainage system, but continues as a body corporate for the purpose of preserving the system and keeping the ditches free from obstruction. For these purposes the commissioners may borrow money and issue bonds, and may apply to the chancery court for the levying of additional assessments upon the benefits to pay for the work or to retire the bonds issued. The petition is heard by the court after notice by publication. Any interested party may present objections within 10 days. In the absence of objection the levy stands with the force of a final judgment. Appeal is to the supreme court within 20 days.

Sec. 4511. Subdistricts: One-third of the landowners owning a majority of the land or a majority of the landowners owning one-third of the land within a proposed subdistrict composed of lands wholly within an organized district or partly within and partly without such district, may petition the chancery court in which the district was organized for establishment of the subdistrict. The petitioners give bond for costs, and the court directs the commissioners of the main district to cause a survey to be made of the subdistrict with an estimate of costs and to file same with the court clerk. With the same notice and procedure as in the original organization, the court either establishes the subdistrict or dismisses the petition. It is specifically provided that nothing in this section shall prohibit the formation of a drainage district wholly or partly within a district already organized, but a district independent of the original organization may be organized where a part or all of the lands are not in the original district; provided that one-third of the landowners owning a majority of the acreage, or

a majority of the landowners owning one-third of the acreage within such proposed district shall so petition the court. Thereafter the proceedings are the same as for original organization. When organized, the lands of the subdistrict included in any previously organized district are still liable for the assessments of the original district.

ORGANIZATION—Officers

Sec. 4455 to 4457. Commissioners: When the district has been established, the court appoints three owners of real property within the district as commissioners and they become a body politic and corporate by the name and style selected for the district. If a majority in number of owners of land in the district petition for the appointment of a particular person as commissioner, it is the duty of the judge to appoint the person so designated. Vacancies in the board of commissioners are filled by the court, and the court will remove any commissioner upon petition of a majority of the landowners who own a majority of the acreage.

Sec. 4459. Preliminary costs: When, for any reason the contemplated improvements are not made, the costs of organization are charged against the real property in the district and collected by assessment, and such assessment is levied by the county board of supervisors as an acreage or *ad valorem* tax. If the district is intercounty, the court apportions the assessment among the several counties.

Sec. 4451. Intercounty districts: If the land in the proposed district is situated in two or more counties, the petition may be addressed to the chancery court of any of the counties and all proceedings must be had in that court. Costs are apportioned between the counties by the court. All notices are published in all counties. Such districts must be numbered consecutively or must receive such names as the court may select.

FINANCING—Assessments

Secs. 4466 to 4480. Assessment of benefits—Special assessments: The commissioners of the district assess the benefits to each tract of land, give a description thereof, and make an estimate of the cost to the landowners during the first year. This assessment is on the land and on all railroad and other property that will be benefited by the drainage. The commissioners also assess damages that will accrue by reason of the construction of the works of the district. If additional lands not mentioned in the petition are found to be benefited, they also will be assessed and the court clerk gives the owners thereof the usual notice to show cause why they should not be included in the district.

When the assessments are completed, the commissioners sign and file the same with the clerk of the court, where they become a public record. Notice of such filing is given by publication, and any aggrieved person may appear before the court at the hearing on such commissioners report and present evidence. The order of the court on the hearing is final, with right of appeal by either side to the Supreme Court.

The assessment roll so prepared, when approved by the court, is a final assessment of benefits upon the land and so stands unless the commissioners find it necessary to raise the assessments to secure funds for additional improvements.

Any landowner may demand assessment of damages by jury by giving notice to the commissioners within 30 days of the filing of the assessment roll, and thereupon the commissioners must institute a proceeding in eminent domain to condemn the land. In such cases the commissioners may pay the amount of the award

into court and then proceed to take possession of the land and construct the works notwithstanding an appeal. Commissioners of any district have the right of eminent domain to secure rights-of-way for outlets outside of the district.

The court, at the time that assessments of benefits are made or at any time when requested so to do by the drainage commissioners, will enter an order for a special assessment to pay the estimated costs of the improvement with not less than 10 percent added for deficiency. This order has the effect of a judgment. This assessment is in the proportion which the assessment of benefits against any tract of land bears to the assessment of benefits against all the property in the district. Special assessments may be paid in 10 annual installments, or in cash prior to the issuance of bonds. They are a lien on all of the real property in the district from the date of the order of the court, in an amount not to exceed the total estimated benefits, and are entitled to preference to all demands, executions, encumbrances, or liens whatever, and so continue until paid. Appeal from such assessments is to the Supreme Court within 20 days.

FINANCING—Bonds

Commissioners may borrow money at 6 percent and issue negotiable evidences of indebtedness therefor or serial bonds not exceeding the total amount of the benefits assessed. The bonds are signed by the board of commissioners and are payable within or without the state or may be payable to bearer. They may not run more than 30 years and must mature in such yearly installments as the commissioners may fix. Bonds may not be sold at less than par.

All evidences of indebtedness issued by the commissioners are a lien upon the property in the district in an amount not to exceed the benefits assessed. The board of commissioners is required to see that assessments are levied annually so long as they be necessary for the payment of such obligations, and every interested party is given the right to enforce such levy by mandamus. All revenues of the district and all real estate in the district are specifically pledged by this act to the payment of the obligations of the district in an amount not to exceed the benefits assessed.

DISSOLUTION

Sec. 4508, Suppl. 913. Dissolution: Whenever after the expiration of three years from date of organization, five or more landowners of any district, or a majority of the landowners of a district excluding the state, or any landowner or landowners owning more than 50 percent of the total acreage of a district excluding the acreage owned by the state, shall sign and file with the clerk of the chancery court where the district was organized a petition for dissolution, the clerk will give notice by publication to all interested persons to appear and show cause, at a time and place named, why the district should not be dissolved. At the first publication of said notice, all proceedings of every kind in the district, and of the commissioners thereof, shall be discontinued until the hearing is concluded. If at the hearing it appears to the court that it is to the best interests of the landowners that the district be dissolved, the court will enter an order dissolving same and requiring that no further expense be incurred and that the records of the district be deposited with the court clerk within 10 days. The cost of the proceedings will be taxed by the court on an acreage basis. If the district is not dissolved, the costs are taxed against the petitioners.

MISSOURI

(Revised Statutes, Missouri, 1939, Volume II, ch. 79, p. 3226)

DRAINS, LEVEES, AND WATER SUPPLY DISTRICTS

(Article I)

ORGANIZATION—Petition

Sec. 12324. Formation: The owners of a majority of the acreage in any contiguous body of swamp or overflowed lands or lands subject to overflow, situated in one or more counties, may form a drainage district for reclamation or agricultural purposes, or when the same may be conducive to the public health, convenience or welfare, and they may make and sign articles of association. Such articles state the name of the district, the number of years the association is to continue, the boundaries, and the names of the owners of land or other property in the proposed district, with a description of their properties. Where the owner of land is unknown, that fact is stated. The articles must further state that the owners of real property and other property, whose names are subscribed, obligate themselves to pay the taxes that may be assessed against their respective lands or other property to meet all expenses of organization, construction, and maintenance. The articles contain a prayer that the property described therein be declared a drainage district. They are filed with the clerk of the circuit court of the county in which the greater portion of the lands and other property are situated.

Sec. 12325. Notice: The clerk gives notice of the filing of the articles by publication for four weeks, the last publication to be at least 15 days prior to the next regular term of the court at which the articles will be considered. The form of notice is set out in the statute. Thereafter the circuit court in which the articles were filed has original and exclusive jurisdiction coextensive with the boundaries of the district regardless of county lines. Where a district is intercounty, notice is published in each county but the notice so published does not necessarily include a description of lands in other counties.

Sec. 12326. Procedure: Any objections of landowners who have not signed the articles of association must be filed before the first day of the term of the court at which the cause is to be heard. Objections are limited to a denial of the statements of the articles of association and are heard by the court in a summary manner. If objections are overruled, the court by its decree of record declares said drainage district a public corporation for a term not exceeding that stated in the articles of association. If the court finds against the confirmation of the district, the articles are dismissed with costs against the signers thereof in proportion to their respective acreages. No person signing the articles has the right to have the proceedings dismissed as to him except by consent of a majority in acreage of the owners who signed the articles. When the district is decreed, the clerk within 60 days transmits to the secretary of state a certified copy of the decree, which is filed in the same manner as the articles of association of other corporations are filed. A copy of the decree and a plat of the district are filed also with the county recorder of each county interested.

Sec. 12338. Exceptions to commissioners' report: The district or any owner of land or other property may file exceptions to the report or to any assessment of benefits or damages within 10 days after the last publication and notice of the commissioners' report. (See sec. 12334 under "Organization—Officers.") All exceptions are heard by the court in a summary manner so as

to carry out liberally the purposes of the district. If after hearing all exceptions it appears to the court that the cost of constructing the improvements is less than the benefits assessed, then the court approves and confirms the report of the commissioners as made, or as modified and amended by the court. Before final confirmation, the court may refer the commissioners' report back to them with or without instructions; and when the report is again filed, notice is given in the same manner. Exceptions to the second report are heard and determined in a like summary manner. The court will adjudge and apportion the cost and will condemn any land or other property within or without the district that is shown by the report of the commissioners to be needed for the works of the district or that may be needed for material to be used for the construction of said works, following the established procedure for acquiring property for railroad and telegraph rights-of-way. The clerk of court transmits a certified copy of the confirmed report to the board of supervisors of the district and they in turn transmit a certified copy of the decree affecting lands in each county to the recorder of each county where the same becomes a permanent record. Any aggrieved party may appeal. Upon appeal the questions to be determined are: whether just compensation has been allowed for the property appropriated; and whether proper damages have been allowed for property prejudicially affected by the improvement.

See: 12 Fed. (2d) 909.

30 Fed. (2d) 700.

State *ex inf.* v. District, 290 Mo. 33; 234 S.W. 339.

Ry. Co. v. Dr. Dist., 12 F. (2d) 909.

Dr. Dist. v. Griswold, 225 (A) 1040; 16 S.W. (2d) 691.

Trust Co. v. Elliott, 30 F. (2d) 700.

Graves v. Dr. Dist., 134 S.W. (2d) 70.

ORGANIZATION—Powers

Sec. 12349. Powers of supervisors: The supervisors of a district may straighten, widen, deepen, or change the course of any watercourse or natural stream in or out of the district. They have broad powers to construct and maintain drainage works and improvements necessary to the purposes of the district. They may hold and control all water power developed by the construction of the district works and may construct and maintain power plants, using the funds of the district not otherwise appropriated, and may lease surplus water power. They have the right of eminent domain within and without the district where necessary to the purposes of the district.

See: Houck v. Dr. Dist., 119 S.W. (2d) 826.

Richards v. Earls, 138 S.W. (2d) 381.

Graves v. Dr. Dist., 134 S.W. (2d) 70.

Secs. 12350 to 12353. May amend plan: When it appears to the supervisors after the "plan of reclamation" has been filed and work has progressed thereunder that some of the improvements are inadequate, they have the power, upon the recommendation of the chief engineer, to enlarge and improve the works planned and to construct additional improvements necessary to afford outlets for drainage and protection from overflow substantially equal to like facilities afforded other lands equally taxed. A description of the additional improvements necessary is filed of record in the district and with the circuit court clerk, and thereafter becomes a part of the plan of reclamation. The cost is levied against the benefits assessed and confirmed, but no part of the costs may be assessed against land that has been annexed or added to the district after it was organized unless the additional improvements directly benefit such annexed land. **Sec. 12351:** The supervisors may employ an attorney, who conducts all legal proceedings for the district. **Sec. 12352:** The board must keep a record of all proceedings in a book provided for that purpose. **Sec. 12353:** Damages assessed must be paid direct

or paid into the office of the circuit court clerk for the use of the owner before appropriated lands or other property may be used by the district. [Houck v. Dr. Dist., 119 S.W. (2d) 826.]

Sec. 12373. Extending corporation existence: Whenever the board of supervisors find that to complete the plan of reclamation, to pay bonds outstanding, restore any works or construct works, or for any cause, the time for which the district was incorporated should be extended, the board will call a meeting of the landowners in the same manner as under section 12327. If a majority of the acres represented at such meeting vote in favor of extending the life of the corporation, a petition asking such extension is presented to the court that organized the district. The proceeding is then the same as for the original incorporation. If the petition is granted, the clerk transmits a copy of the court order to the supervisors and they send copies to the Secretary of State and the recorder of deeds in each county interested. If the court denies the petition for extension, the costs must be paid by the district. (In re Rayl; 289 S.W. 19.)

Sec. 12379. Reorganization: All drainage districts may reorganize under this article by proceedings similar to those for the organization of new districts. After the articles of incorporation have been filed in the circuit court of the county containing more district lands than any other county, the clerk gives notice in the form set out in the statute and the circuit court of the county where the petition is filed has exclusive jurisdiction coextensive with the boundaries of the district without regard to county lines. [Dr. Dist. v. Cherry Valley Twp., 325 Mo. 1197; 31 S.W. (2d) 201.]

Sec. 12368. Overseers: For the preservation and maintenance of any works constructed by a district under this chapter, the supervisors have the power to appoint an overseer or overseers to keep the works in good repair. They report to the supervisors as may be required on the condition of the levees, ditches, and other works. In time of emergency or danger to the levees or other works of which the overseer has charge, he may call out all able bodied men between the ages of 16 and 50 within the district and compel them to perform the necessary work in order to protect the works. Any person refusing is guilty of misdemeanor and subject to penalty and fine or imprisonment, or both. Persons so summoned are paid \$1.50 per day for the work performed. (R.S. 1929, sec. 10787.)

Sec. 12365. Inclusion of lands: The board of supervisors of any drainage district organized under this chapter, or the owners of a majority of the acres in any tract of adjacent land having an outlet for drainage in common with the district, may file a petition in the court organizing the district, asking that the boundary lines be changed or extended so as to include such adjacent lands. The petition gives the names of the owners of the lands to be annexed and describes the tracts owned by each. The clerk gives notice of the filing of the petition by publication in each county interested. The notice also states the purpose of the petition, the fact that such lands may become subject to taxation, and that any owner may file objections to the petition within 15 days. Owners not signing the petition, or the supervisors if they have not petitioned, have the right to file objections stating why the petition should not be granted. Objections are limited to denials of the statements of the petition and are heard by the court as soon as possible. The court must annex all lands described that are found to be swampy or wet and subject to overflow or having an outlet in common with the lands of the district. After the annexation the supervisors proceed to construct works to reclaim such land or to carry out improvements set out in the plan of reclamation

already adopted. The supervisors may also construct enlargements, additions, and extensions of works already constructed. Thereafter the supervisors proceed in the same manner as provided in section 12331. The supervisors or any landowner may appeal from the decision of the court extending or refusing to extend the boundary lines of the district. (R.S. 1929, sec. 10784.)

See: State ex rel v. Beals, 324 Mo. 689; 24 S.W. (2d) 629.
Dr. Dist. v. Griswold, 225 A. 1040; 16 S.W. (2d) 691.
In re Montgomery, 227 A. 444; 55 S.W. (2d) 1017.

ORGANIZATION—Officers

Secs. 12327 and 12328. Board of supervisors—Election: Within 30 days after incorporation of a district, the circuit court clerk of the county where the district was organized gives notice to the owners of land and other property in the district, by publication, of a place within the county and a time when they shall meet to elect a board of five supervisors for the district. The supervisors must be owners of real estate in the district, and two of them at least must be residents of a county within the district or an adjoining county. The assembled landowners organize by electing a chairman and secretary, who conduct the election. At the election each acre of land in the district represents one share, and each owner is entitled to one vote in person or by proxy for each acre of land owned by him. The five persons receiving the highest number of votes are declared elected supervisors and they determine their terms of office by lot, the terms running from 1 to 5 years respectively. **Sec. 12328:** Annually thereafter the supervisors call an election in the same manner; provided, that after the report of the commissioners has been confirmed by the court under section 12338, only the land and other property having benefits assessed against it shall be entitled to vote.

Secs. 12331 and 12332. Chief engineer—Plan: Within 60 days after organization the supervisors appoint a chief engineer of the district, who may be a person, partnership, or corporation. The chief engineer makes a survey of the land within the boundaries of the district and of all lands adjacent that may be improved by any system of drainage or levees that may be adopted. The chief engineer reports in writing to the supervisors with maps and profiles and a plan for draining, leveeing, and reclaiming lands and other property described in the Articles of Association or lands adjacent thereto. **Sec. 12332:** The chief engineer makes an annual report to the supervisors, and upon receipt of his formal report, the supervisors adopt same or any modification thereof approved by the engineer, and such adopted report becomes the plan of reclamation, to be recorded in the drainage records.

Secs. 12334 to 12336. Appointment of commissioners: Within 20 days after the adoption of the "plan," the supervisors must transmit a certified copy thereof to the circuit court clerk of the county wherein the district was organized, and file a petition asking the court to appoint three commissioners to appraise the lands within and without the district to be acquired for rights-of-way and drainage works and to assess benefits and damages accruing to all land and other property. The judge appoints three commissioners, who must be freeholders residing in the State of Missouri, and not landowners in the district nor kin to any landowner. **Sec. 12335:** The commissioners organize and receive from the supervisors a list of the lands and property together with the plan, maps, and profiles of the district. **Sec. 12336:** The commissioners thereupon, with the aid of the engineer, proceed to view the land and other property within the district and the land without the district to be acquired for rights-of-way, and they assess the benefits and damages accruing to each tract as well as to highways, railroads, and other

property. Highways, railroads, and other property are assessed according to increased physical efficiency and decreased maintenance cost by reason of the protection to be derived from the proposed works of the district. The commissioners may not change the plan of reclamation. They report their findings in tabular form and in detail. They also, with the assistance of the engineer, estimate the cost of the works set out in the plan. Their report is filed with the clerk of the circuit court, which organized the district.

See: District *v.* Township, 317 Mo. 933; 297 S.W. 1.
State *ex rel v.* District, 291 Mo. 267; 236 S.W. 848.
Drainage District *v.* Sharp (A), 59 S.W. (2d) 755.

Sec. 12337. Notice to landowners: Upon the filing of the commissioners' report, the circuit court clerk gives notice thereof by publication in each county. The form of the notice is set out in full in the statute. Where lands in several counties are included in the report, the notice is published in each county, accompanied by a list of the lands in that particular county. (State *ex rel v.* Trimble, 308 Mo. 123; 272 S.W. 66.)

FINANCING—Assessments

Sec. 12333. Cost of organization: As soon as they are organized, the supervisors levy a uniform tax of not more than 50 cents per acre on each acre as defined by the articles of association, for the purpose of paying the costs of organization, surveys, assessing benefits and damages and other necessary expenses before the board is empowered to provide funds to pay the entire cost of construction. As soon as additional acreage is annexed, the same uniform tax applies to such land and other property. This tax is due immediately and becomes delinquent December 31 of the year in which levied. It is a lien on the land and other property and is collected in the same manner as other taxes.

Sec. 12340. Supervisors levy annual tax: After the lists of the lands and other property, with the assessed benefits, have been filed with the recorder of each county interested, the supervisors levy a tax of such portion of said benefits on all lands and other property as may be found necessary to pay the costs of the proposed works as shown in the "plan," plus 10 percent of said total amount for contingencies. The tax is apportioned to and levied on each tract of land or other property in proportion to the benefits assessed and not in excess thereof. If bonds are issued, the amount of interest thereon is included and added to the tax; but interest is not construed as a part of the cost of construction in determining whether the costs equal or exceed the benefits assessed. The secretary of the supervisors prepares a "drainage tax record" in permanent form to be kept in his office as a public record.

See: Dr. Dist. *v.* Cherry Valley Twp., 325 Mo. 1197; 31 S.W. (2d) 20.
Dr. Dist. *v.* Sharp (A), 59 S.W. (2d) 755.
Bushnell *v.* Drg. Dist. (a), 111 S.W. (2d) 946.

Sec. 12341. Annual installments levied: Supervisors annually determine and levy the amount of the installment of total tax levied that shall become due during the year, and be collected at the same time that state and county taxes are collected. The levy is certified by the board, not later than September 1 each year, to the collector of revenue of each county interested. The form of certification of the levy is set out in full in the statute. This certificate, which is made in tabular form, becomes the "drainage tax book."

See: State *ex rel v.* District, 291 Mo. 267; 236 S.W. 848.
McAnally *v.* Drg. Dist. 325 Mo. 348; 28 S.W. (2d) 650.
Drg. Dist. *v.* Sharp (A), 59 S.W. (2d) 755.
Holly *v.* Rolwing, 87 S.W. (2d) 651.

Sec. 12342. Collection of tax: The collector of revenue in each county interested receives the drainage tax book and collects the tax on lands in his county therein set out. He collects the drainage tax at the same time that he collects state and county taxes. The collector returns all drainage tax books each year to the secretary of the board of supervisors and accounts for all money collected thereon. The secretary within 10 days certifies to the collector a "drainage back tax book" listing land and other property returned as delinquent. The collector is required to furnish bond equal to the probable amount of the tax to be collected, conditioned to account for such taxes according to law.

Sec. 12343. Delinquency: All taxes remaining unpaid after December 31 of the year for which they were levied, become delinquent and bear a penalty of 1 percent a month until paid.

Secs. 12345 to 12347. Tax lien: Drainage taxes and penalties and costs of delinquency, from the date of filing the certificate in the office of the recorder of the county where the lands and property are situated, are liens on the property taxed and only the lien of state and county taxes is paramount. The form of the certificate of lien is set out in the Statute. **Sec. 12346:** The drainage tax book is *prima facie* evidence of the lien of drainage taxes. The form of the procedure for collecting delinquent taxes by sale of the land and other property is described in detail. **Sec. 12347:** Supervisors may bid in lands and other property at tax sales for the amount of the delinquent taxes, penalties, and costs and receive sheriff's deed in the name of the district. They may dispose of such lands and property to the best interests of the district, and may protect the lien of the drainage district by paying general taxes on lands bid in by them. [Drainage District *v.* Reid, 341 Mo. 1246; 111 S.W. (2d) 151.]

Sec. 12374. Additional levy: When the works set out in the original plan of reclamation are found insufficient to reclaim any or all of the land in the district, the supervisors have the right to formulate new or amended plans containing new works or enlargement of old works, and additional assessments may be made as in section 12336 in proportion to the increased benefits accruing to the lands and other property because of the additional works. If it is found that the amount of the total tax levied under section 12340 is insufficient to pay the costs of the works set out in the plan, or additional work done under this provision, the supervisors may make an additional levy to complete the work, provided the total of all levies must not exceed the total of the benefits assessed.

See: State *ex rel v.* Dist. 284 Mo. 636; 224 S.W. 343.
Graves *v.* Dr. Dist. (Mo.), 134 S.W. (2d) 70.

Sec. 12370. Maintenance tax: For maintenance, repair, and administrative expenses the board of supervisors, after completion of the improvement and before September 1 of each year, levies a tax upon each parcel of land and upon corporation property, called a "maintenance tax." This tax is apportioned upon the basis of the net assessment of benefits accruing from original construction, and may not exceed 10 percent thereof in any one year. The taxes are certified to the collector of revenue of each county interested, in the same book and in the same manner as the annual installment tax is certified. It is collected in the same manner and at the same time as the annual tax.

After all annual installments of the total tax have become due, the supervisors may, by resolution, assess the maintenance tax on combined contiguous acreage according to each ownership instead of on each subdivision of the land, for the sake of convenience. The total taxes, however, must not be more than the aggregate of what the individual assessments would be.

Errors in description do not affect the validity of the tax. (R.S. 1929, sec. 10789, as amended by L. 1937, p. 228.)

Sec. 12371. Readjustment of assessments: Whenever owners of 75 percent or more of the acreage in the district file a petition in the circuit court where the articles of association were filed, stating that there has been a material change in the value of the property in the district since the last assessment of benefits, and praying for a readjustment of the assessment on a more equitable basis for the levy of maintenance taxes, the clerk of the court will give notice of a hearing on such petition in the same manner as the hearing on the original articles. The form is provided in the statute. Upon the hearing, if the court finds that there has been a material change in value, it orders a readjustment of the assessment of benefits as the basis for the maintenance tax. The procedure is the same as for the assessment of benefits for original construction; provided, in the adjustment the supervisors are not limited to the aggregate amount of the original or any previous assessment of benefits. After the readjustment is made, the limitation of 10 percent of the annual maintenance tax which may be levied applies to the readjusted amount of benefits. There may not be a readjustment oftener than once in five years. (R.S. 1929, sec. 10790.)

FINANCING—Bonds

Sec. 12369. Supervisors may issue bonds: If in their judgment it is best, the supervisors may issue bonds not to exceed 90 percent of the total taxes levied under the provisions of section 12340. The bonds bear interest at 6 percent and are issued in multiples of \$100. Bonds must mature at annual intervals within 20 years, commencing after a period not later than 5 years, to be determined by the supervisors. Bonds may not be sold for less than 95 percent of face value with accrued interest. An amount of drainage taxes sufficient to pay bonds and interest must be preserved in a separate fund for that purpose. Delinquent bonds and coupons bear interest at 6 percent, and such interest must be appropriated by the supervisors out of penalties and interest collected on delinquent taxes or any other available funds. In making the annual tax levy the supervisors must make ample provision in advance for the payment of maturing bonds and interest. Should the original tax levy be insufficient to pay bonds and interest, the supervisors must make such additional levy upon the benefits assessed as may be necessary. Under no circumstances may any tax levy be made which will in any manner and to any extent impair the security of the bonds or the fund available for payment of the same. The treasurer must give bond to faithfully account for all money received by him from the sale of district bonds and to return all unsold bonds, duly cancelled, to the supervisors.

See: *McAnally v. Dr. Dist.* 325 Mo. 348; 28 S.W. (2d) 650.
Dr. Dist. v. Reid, 341 Mo. 1246; 111 S.W. (2d) 151.
Duncan v. Drg. Dist., 69 F. (2d) 342.
Bank v. Dr. Dist., 334 Mo. 753; 68 S.W. (2d) 671.

CONSTRUCTION

Sec. 12339. Supervisors construct works: The supervisors of the drainage district have full power to construct the works and improvements to carry out and maintain the "plan of reclamation." They may construct same under their own supervision or may let contracts for the whole or any part of the work. Contracts are let after advertising and to the lowest bidder. The plan and specifications to accompany any contract are prepared by the chief engineer and made a part of the contract. The chief engineer is superintendent of all of the works. He reports to the supervisors when required, and at least annually.

DISSOLUTION

Sec. 12361: The incorporation of every district must be dissolved if, at any time before bonds are issued to construct the improvements, the owners of a majority of acres of land within the district petition the court for dissolution; provided, upon the filing of any such petition, the court must ascertain and determine the amount of the debts and obligations of the district. If the assets of the district exceed its obligations, the court orders all debts paid and any surplus distributed to the landowners who paid same into the treasury, *pro rata*. If the assets are insufficient to pay the obligations of the district, the court orders the supervisors to collect a uniform tax on each acre, sufficient to pay the deficiency. At any time in the life of a district, when all outstanding bonds and obligations have been paid or there is in the treasury sufficient money to pay all obligations and the cost of dissolution, the supervisors may, and on petition of one-tenth of the landowners owning one-tenth of the land shall, call a meeting to determine whether the district shall be dissolved. Not more than one such meeting may be held in any one year. If a majority of the landowners voting, who own a majority of the acres, vote in favor of dissolution of the incorporation of the district, the supervisors file in the circuit court where the district was incorporated a petition setting forth the facts. The court gives notice by publication of the filing of the petition and of a hearing thereon, and orders interested parties to show cause why the corporation should not be dissolved. If the court finds the required facts, it will enter its order of dissolution. (L. 1935, p. 228, amended by L. 1939, p. 362.)

ORGANIZATION BY COUNTY COURTS

(Article III, secs. 12398 to 12454)

Under this article the county courts are given authority to establish drainage districts when found to be conducive to the public health, convenience, or welfare. Land owners may organize to straighten, widen, or alter any ditch or natural stream when that becomes necessary to protect any land or other property. One or more landowners may file a petition in the county court setting forth substantially the same facts as required under article 1, (sec. 12324.) No landowner signing the petition may withdraw from the organization without the written consent of the owners of a majority of the acreage represented by those signing the petition. The court appoints an attorney, with the consent of the majority of the owners signing the petition, to handle the legal affairs of the district. The court also appoints an engineer, and three viewers who shall not be landowners within the said district. They report in writing the necessary location, description, and estimated cost of the improvement, and after notice by publication and hearing of objections, if the court determines that a majority in acres in the proposed district have joined in the petition, the court finds in favor of establishing a district. If less than a majority have signed, the court may still find for the district if in its judgment the district should be formed. Upon a favorable finding by the court the district becomes a body politic and corporate with the usual powers of corporations. For the organization expenses the court levies a uniform tax of not more than 50 cents per acre. After organization the court directs the viewers and the engineer previously appointed to select other viewers equally qualified, who shall view the land, and establish the precise location of the improvements and assess the benefits and damages in the form prescribed in the statute. The report of these viewers is filed with the county clerk and a hearing is had thereon after notice by publication.

Taxes are levied by the court on each tract of land in proportion to the benefits assessed, and are collected in the same manner as other drainage taxes. The county court, however, has the privilege of issuing bonds.

Maintenance: The county court has the management and control of these drainage districts for the purposes of maintenance, and may levy and collect the maintenance taxes. Any construction work for maintenance or enlargement is done by petition to the county court in the same manner as for organization.

DRAINAGE OF LAND BY INDIVIDUALS FOR AGRICULTURAL AND SANITARY PURPOSES

The owner of any tract of land needing drainage, whether within or without an organized district, has the right to drain or protect such land for agricultural purposes without forming a drainage district, by constructing an open ditch, laying tile or building a levee through or across any tract of land situated between the land to be drained and any depression into which it can be drained; provided, that the owner must have paid for the land taken and the actual damages of such construction.

Where the owner of intervening land and the owner desiring to drain can not agree on damages and value, the party desiring to drain may petition the county court for a board of commissioners to view the land and report with recommendations. The commissioners, when appointed, report to the court with a plat and the court issues an order in the premises and retains its jurisdiction in the interest of all parties.

MONTANA

(Revised Code of Montana, 1935, and Pocket Part, 1939; Volume III, ch. 94, secs. 7265 to 7364.29)

ORGANIZATION—Petition

Sec. 7265. Petition—Contents: Whenever a majority of the adult owners of lands within any district who represent one-third in area of lands within the territory to be benefited, or whenever the adult owners of more than one-half of the lands, desire to construct drainage works or to alter any stream or water course not navigable, for the promotion of the public health or welfare and to drain said lands, or desire to keep in repair any drainage works already constructed, they may file a petition therefor in the district court of any county in which any part of the lands are situated. The petition must set forth the name of the district, the necessity for the work, a general description of the route and termini of the proposed work, a description of the land to be included in the district, the names of the owners of the land when known, and a prayer for the organization of a drainage district and the appointment of commissioners to execute the proposed work. If any land within the proposed district belongs to the state that fact must be stated. If the petition is for repair, it must give a general description of the works sought to be repaired.

See: In re Mossman Irr. D., 90 M. 1; 300 P. 280.

In re Valley Center D. C., 64 M. 545; 211 P. 218.

State v. Board of Co. Comrs. et al, 100 M. 581; 51 P. (2d) 635.

Sec. 7266. Amending petition: No petition having the required signers may be declared void, but the court may at any time permit the petition to be amended to conform to the facts if the facts justify the formation of a drainage district. Several similar petitions for the formation of the same district may be filed and will be consolidated at the hearing. The aggregate number of adult signers of the several petitions determines whether sufficient landowners have signed.

Sec. 7267. Territory included: The territory need not be contiguous, provided the public welfare will be promoted by the

draining of each part thereof and the benefits in each district will exceed the damages and costs; provided also that the court be satisfied that the work can be more cheaply done if in a single district than otherwise.

Secs. 7268 to 7271 and 7274. Hearing: Upon the filing of the petition the court fixes a hearing thereon, and notice is given by the clerk of the court for the county in which the proceedings are instituted, by publication, and by service on each owner, and by posting. The notice gives the general allegations of the petition. *Sec. 7269:* Nonresident landowners are served by mail. *Sec. 7270:* The certificate of the clerk or other public officer or the affidavit of any person knowing the facts is sufficient evidence of service of the notice. *Sec. 7271:* Personal service or service by leaving at the last place of abode gives the court complete jurisdiction regardless of the posting, publication, or mailing. *Sec. 7274:* The court may adjourn the hearing for such time as necessary to permit proper notice to be given where there has been failure to either publish or post the notice.

Sec. 7275. Contests: At the hearing on the petition, interested parties may contest the same as to (1) sufficiency of the petition, (2) sufficiency of the signers, (3) sufficiency of the notice, (4) constitutionality of the law, or (5) jurisdiction of the court. Contestants may offer competent evidence in regard to their allegations.

Secs. 7276 to 7279. Sufficiency of petition: The court determines whether the petition contains the signatures of a majority of the adult landowners who represent one-third in area of the land, or the signatures of more than one-half of the adult landowners, and determines all questions of law arising. *Sec. 7277:* Affidavits of 10 or more signers that they are acquainted with the territory of the proposed district and that the petition is signed by a sufficient number, are taken by the court as *prima facie* evidence of the facts stated. The affidavit of any petitioner as to his age is sufficient. *Sec. 7278:* Deeds made for the purpose of establishing or defeating the petition, and not in good faith and for valuable consideration, are fraudulent and the holders thereof will not be considered landowners within the district. *Sec. 7279:* If the court determines at the hearing that the petition has not been signed as provided by this act, it will be dismissed at the cost of the petitioners and judgment will be entered against them therefor.

ORGANIZATION—Officers

Secs. 7280 and 7282. Commissioners—Divisions: If the petition is in proper form, the court divides the district into three divisions as nearly equal in area as possible and appoints one suitable commissioner from each division. Each commissioner must be an actual landowner and resident in the division for which appointed. If the district is intercounty, no more than two commissioners may come from the same county. Ownership of land in the district does not disqualify a person from acting as commissioner. In districts already created, a separation into divisions may be made upon petition of 10 percent of the adult landowners or authorized guardians of minors. *Sec. 7282:* The commissioners appointed by the court hold office until the first Tuesday in May thereafter and until their successors are elected.

Sec. 7283-1 to 7283-3. Election: The regular election of commissioners is held on the first Tuesday in April of each year, and one commissioner is elected from each division and must be an actual resident and landowner of the county. The first elected commissioners determine by lot their terms of office of from one to three years, and thereafter one commissioner is elected

each year for a three-year term. The person elected as commissioner in each year to succeed the commissioner whose term is expiring must be elected from the same division as the commissioner whom he is to succeed. *Sec. 7283-1*: Notice of the election is given each landowner by mail 15 days prior to the date fixed. *Sec. 7283-2*: Elections are conducted as nearly as possible in conformity with the election laws of the state. *Sec. 7283-3*: Persons holding title or evidence of title to lands in the district and who are qualified voters of the state may vote. Guardians, administrators, executors, and trustees residing in the state, and corporations, by their appointed agents, may also vote. Each elector is permitted to cast one vote for each 40 acres or major fraction thereof owned by him, and an elector owning 20 acres or less is entitled to one vote.

Secs. 7291 and 7292. Commissioners—Attorney—Engineer: The commissioners organize by electing one of their number president, and a secretary who may or may not be one of the commissioners. They appoint an attorney, whose compensation is fixed by the court and taxed as costs in the proceeding. They also appoint an engineer, who may be an individual, partnership, or corporation, to make surveys, profiles, and maps. The compensation of the engineer may also be taxed as costs by the court.

The commissioners personally examine the lands in the district and make a preliminary report to the court, stating whether the proposed work is necessary and would be of public utility; whether it will promote the public welfare; whether the total benefit will exceed the costs and damages, including all benefits and all damages both within and without the district; and fixing, as near as may be, the boundaries of the district. The boundaries may not be changed from those in the petition so as to deprive the court of jurisdiction. *Sec. 7292*: If the work as described in the petition is not best suited to carry out its purposes, they report to the court a plan better adapted to their problem.

Secs. 7293, 7294, 7296, and 7297. Preliminary report of commissioners—Hearing: Upon the filing of the preliminary report, the court fixes the time and place for a hearing thereon, notice of which is given by publication in each county interested. The notice describes all lands included therein but not included in the petition and all lands included which were in the petition. *Sec. 7294*: Any of the parties may remonstrate against the report in writing under oath, setting forth the facts on which the remonstrance is based. *Sec. 7296*: When lands are added by the report, the same notice is given the owners as in the case of notice of the filing of the petition. *Sec. 7297*: All issues are tried by the court without jury. If the court finds in favor of the remonstrance or that the work will not promote the public welfare or that the benefit will not exceed the damages and costs, the petition is dismissed and the costs taxed against the petitioners and judgment entered therefor.

ORGANIZATION—Powers

Secs. 7298 to 7300. Confirmation of commissioners' report: If the court finds from the report of the commissioners that the benefits will exceed the damages and costs of construction and that the works will promote the public welfare, and no remonstrances are filed, or if the court so finds on trial of the issue, it will file its findings in writing and make an order confirming the report as made or as amended and direct the commissioners to proceed with the work. *Sec. 7299*: The order is final and conclusive unless appeal is taken within 30 days. *Sec. 7300*: Upon entering the order of confirmation of the commissioners' report, the drainage district is declared organized by the name in the petition or as fixed by the court, and with the boundaries fixed by the court order, as a body corporate

with perpetual succession and the usual powers of corporations. The commissioners constitute the corporate authority of the district.

Sec. 7303. Commissioners' duties: The commissioners proceed to have all necessary surveys, profiles, and maps made, and they report to the court as to (1) whether the route and termini contained in the petition are proper and feasible, and if not what route and termini are feasible; (2) any change in the boundaries, and the names and addresses of the landowners affected by such change; (3) the lands and other property that will be injured and the amount of damages thereto; (4) what property shall be assessed for the payment of costs of construction, maintenance, and incidental expenses. No change of boundaries may be made which will deprive the court of jurisdiction. Owners petitioning to be brought into the district are considered the same as original petitioners. The statute sets out in detail the points to be considered by the commissioners in determining and apportioning assessments, and the manner in which they shall be reported in tabular form to be known as the "assessment roll." The commissioners determine as nearly as possible and report the total costs and damages, preliminary expenses, and attorney's fees, which are thereafter known as the "cost of construction."

See: *In re Mossman Irr. D.*, 90 M. 1; 300 P. 280.

State v. Bd. Co. Comrs., 100 M. 581; 51 Pac. (2d) 635.

Secs. 7309 and 7310. Commissioners' duties (Continued): If the costs of construction of any particular part of the work should be assessed against any particular tracts of land or any corporation, the commissioners so specify and fix the amount of the assessment. *Sec. 7310*: If any corporation would derive special benefit from the whole or any part of the work, the commissioners so report and assess the benefits to be derived. Corporations include railroads, towns, other districts, or counties.

Secs. 7311 and 7312. Apportionment of costs: The commissioners apportion and assess the costs of construction, not separately assessed against specially benefited tracts and easements, in proportion to the benefit to each tract of land or other property. This assessment is called the "assessment for construction." *Sec. 7312*: The commissioners report the probable cost of maintenance and repair of the works after construction.

Sec. 7314 and 7315. Plan: The commissioners are not confined to routes, termini, size, or extent of works set out in the petition but may adopt the most feasible plan that will promote the public welfare and drain or protect the land in the district with the least damages and the greatest benefit. Any plan reported may be altered by the court by written order. *Sec. 7315*: If the commissioners find that lands not embraced in the petition will be benefited, or that lands mentioned in the petition will not be benefited and are not necessary to the district, they may include or exclude all such lands, provided that any alteration of boundaries may not have the effect of so enlarging or contracting the boundaries as to make the petition dismissible.

Sec. 7316 and 7319. Hearing on commissioners' report: The court fixes a time and place for a hearing on the commissioners' report, notice of which is given by publication for three weeks, and by mail to all interested parties, stating the amount of benefits or damages assessed to each tract. *Sec. 7319*: If there be no remonstrance or if the findings upon the hearing be in favor of the validity of the proceeding, the report is confirmed by order of the court and the work is established and assessments approved, which order is final and conclusive in the absence of appeal within 30 days to the Supreme Court.

Secs. 7349 to 7352, 7354 and 7355. Inclusion: When lands outside of a district are receiving the benefit of the drainage of the district by direct or indirect, natural or artificial, connections therewith, the commissioners may report that fact to the court and ask that the outside land be brought into the district and assessed for the benefits being received. **Sec. 7350:** The court will order the owners of the outside lands to show cause why their land should not be brought into the district and assessed. **Sec. 7351:** Owners may remonstrate at the time of hearing in writing, verified under oath, and set forth the facts on which the remonstrance is based. The court hears all issues without jury. **Sec. 7352:** If the court finds that the lands are receiving benefit from the works of the district, it must order them annexed to and made a part of the district. The order is conclusive unless appealed from within 30 days. **Sec. 7354:** After the time for appeal has expired, the commissioners assess reasonable and just benefits against each parcel or easement of the annexed land and levy such taxes for construction and repair as may be just. They assess annexed lands an amount proportionate to like benefits assessed against similar lands in the district. **Sec. 7355:** The commissioners file their assessment in court and a hearing is had thereon, at which a trial by jury may be demanded on the issues of benefits and damages but on those only. The court will take the verdict of the jury, make findings of fact, amend the report, and confirm it.

Sec. 7356. Court—Supervisors—Commissioners: The court at all times has supervision of the commissioners, and may require them to make report on any matter at any time. The court may remove commissioners from office for good cause, after hearing.

FINANCING—Assessments

Secs. 7322 to 7324. Costs on dismissal: If the proceedings are dismissed on remonstrance, a judgment is entered against the petitioners in favor of the commissioners for the costs of the proceeding and for the benefit of those who have advanced money thereon. In case the proceedings are dismissed at any time or are discontinued for any cause, a judgment is entered directing the commissioners to assess the costs and liabilities incurred on an acreage basis, which assessment is a lien superior to any other judgment, mortgage, or mechanic's lien. Such assessments are spread upon the tax rolls of the counties in which the lands are situated and collected by the county treasurers of such counties. The money so collected is paid out on warrants of the commissioners. **Sec. 7323:** Before a judgment is entered for costs, the commissioners file an itemized statement thereof with the clerk of the district court having jurisdiction, and an order issues requiring the landowners to show cause why judgment should not be entered. Notice is by mail 20 days prior to the hearing and by publication. **Sec. 7324:** Petitioners contribute to the payment of such judgment in proportion to the number of acres they owned at the time of the filing of the petition. [State *ex rel* Young *v.* Dist. Court, *et al.*, 102 M. 487; 58 P. (2d) 1243.]

Sec. 7325. Assessment for construction—Installments: At the time of confirmation of the assessment for construction, the court may order assessments to be paid in not more than 15 annual installments at such times and in such amounts as will be convenient to pay for construction and for principal and interest on notes and bonds of the district. The court also fixes the date when the first installment shall become due, which may not be more than five years after the date of the order. Installments draw interest at 7 percent from the date of the order.

Sec. 7326. Lien—State lands: From the time of the entry of the order the assessments and interest are a lien, until paid. Any person may pay his assessment in full within 30 days after the order is issued, and his property will thereby be relieved from the lien. Upon presentation of the court order to the state auditor, he will draw a warrant on the school fund in favor of the district commissioners for the total assessment against state lands in the district.

Secs. 7329 to 7331. Collection of assessments: On or before the first Monday of September in each year the district commissioners certify to the county treasurer of each county interested a list of all of the district lands and the owners thereof together with the total tax assessed against the lands for district purposes. The county treasurer collects the drainage tax at the same time and in the same manner as county and state taxes. **Sec. 7330:** In intercounty districts the taxes collected in all counties must be remitted to the county treasurer of the county wherein the court having jurisdiction of such district is situated, before January 1 of each year. **Sec. 7331:** The rules of law applying to the sale of lands for delinquent taxes in Montana are made applicable to delinquent drainage district taxes.

Sec. 7338: If the first assessment for construction proves insufficient, additional assessments may be made, proportioned on the last assessment of benefits approved by the court, when it is so ordered by the court; provided, that the total assessment other than for maintenance and interest may not exceed the benefits assessed. Notice of the application for additional assessment is given by publication in each county affected. Additional assessments may be made payable in installments in the same manner as the original assessments.

Sec. 7357. Judgment of assessment: Every assessment for construction, additional assessment, or assessment for repairs against any land or any corporation, as soon as confirmed by the court becomes a judgment of the district court in favor of the drainage district against the land or corporation, and may be collected in the same manner as any other judgment; provided, when such judgment is a lien on the land it may only be collected out of such land.

FINANCING—Bonds

Sec. 7343. May issue notes and bonds: The commissioners may borrow not to exceed the amount of the assessments for construction and additional assessments unpaid at the time of borrowing, for the construction or repair of any authorized work or the payment of any lawful indebtedness. They may issue notes or negotiable coupon bonds of the district bearing not more than 6 percent interest and not running beyond one year after the payment of the last installment of the assessment on account of which the money is borrowed. Bonds are deposited with the county treasurer, who registers them and keeps a complete record thereof. Bonds may be sold at either private or public sale, with or without advertising as the commissioners may deem to the best interests of the district. Bonds and notes may not be sold at less than 90 percent of their face value. Bonds constitute a lien upon the assessments against which they are issued.

Sec. 7344. Refunding indebtedness: The court, on petition of the commissioners, may order them to issue refunding bonds in lieu of notes or bonds of the district, payable in such longer time as the court may deem proper. They shall not exceed in the aggregate the amount of all notes and bonds outstanding and accrued interest thereon, and shall not bear interest at more than 6 percent.

CONSTRUCTION

Sec. 7345. Bids for construction: In all cases where the work to be done at any one time will exceed \$2500 in cost, the commissioners must advertise for sealed bids and let the work to the lowest responsible bidder. They may reject all bids. Commissioners may not have any interest directly or indirectly in any contract.

DISSOLUTION

Sec. 7265-1. Dissolution: Whenever the adult owners of more than one-half of the lands of a drainage district present a petition to the district court having jurisdiction praying that the district be dissolved, the judge of said court will cause notice to be served on the commissioners of the district to show cause at a time fixed why said petition should not be granted. The court also orders that the commissioners refrain from incurring any further expense or proceeding with any work until the hearing. If it appear at the hearing that more than one-half of the adult landowners have signed the petition, it is granted as a matter of course. The court then directs the commissioners to file a written report under oath, setting forth the debts or obligations of the district. The court then spreads a levy against all of the land of the district in accordance with the confirmed commissioner's report or, if there be no report, on an acreage basis, and enters judgment dissolving the district and authorizing the commissioners to settle its business.

NEBRASKA

(Compiled Statutes of Nebraska, 1929;
Supplement, 1939; Chapter 31)

- Article 1—Drainage by County Authorities, sections 31-101 to 138.
Article 2—Drainage by Incorporated Companies, sections 31-201 to 215.
Article 3—Drainage by Individual Landowner, sections 31-301 to 326.
Article 4—Drainage Districts Organized by Proceedings in District Court, sections 31-401 to 474.
Article 5—Drainage Districts Organized by Vote of Landowners, sections 31-501 to 551.

ARTICLE 1—DRAINAGE BY COUNTY AUTHORITIES

ORGANIZATION—Petition

Secs. 31-101 to 103. Jurisdiction: The county board of any county may at any session cause to be located and constructed any drain, or straighten, widen, or deepen any watercourse, when necessary to drain lands, roads, or railroads, and when conducive to the public welfare. *Sec. 102:* The word "ditch" is construed to include drains or watercourses or laterals and spurs of same. No improvement may be located unless sufficient outlet is provided. *Sec. 103:* When the proposed improvement will benefit any public road or railroad, such road or railroad must bear the proper share of the cost thereof.

Sec. 31-104. Petition: Petition for the improvement must be made to the county board and signed by one or more owners of lands that will be benefited. The petition is filed with the county clerk, sets forth the necessity for the improvement, describes the route and termini with reasonable certainty, and must be accompanied by a bond to pay cost if the board shall find against the improvement.

See: *Morris v. Washington Co.*, 72 N. 174; 100 N.W. 144.
Thompson v. Colfax Co., 106 N. 351; 183 N.W. 571.
Seng v. Payne, 87 N. 812; 128 N.W. 625.
Dodge Co. v. Acom, 61 N. 376; 85 N.W. 292.

Secs. 31-105 to 109. Survey: The board employs a competent surveyor, if necessary, and proceeds to view the line of the

proposed improvement and determine by actual view whether the improvement is necessary or conducive to the public welfare and whether the line described is the best route. They report their findings in writing and enter them in their journal. *Sec. 106:* Finding by actual view that the route proposed is not the best route, they may change same and establish the route and dimensions of the improvement; provided, the change may not exceed 160 rods from the route described in the petition. *Sec. 107:* If the board finds for the improvement, it directs the county surveyor or another engineer to make surveys and take levels, set stakes every 100 feet numbered downstream, note the intersections of section lines, roads and boundary lines of precincts and counties, and makes a report. Profiles and plats must accompany the report and an estimate of the number of cubic yards of excavation in each section. *Sec. 108:* The scale of the plat must be large enough to represent all of the meanderings of the improvement and the boundary lines of each lot or tract of land and road and railroad benefited thereby, and the name of the owner thereof. The profile must show the surface and grade line and the gradient fixed. The surveyor files his report with the county clerk. *Sec. 109:* The board also directs the engineer to return a schedule of all roads, lands, public or corporate roads or railroads that will be benefited, whether the same abut on the line of the improvement or not, and an apportionment of a number of linear feet and cubic yards of excavation to each lot, tract, or road according to the benefit that will result to each, and an estimate of the cost of the location and construction to each.

Secs. 31-110 to 113. Hearing on petition: Upon the filing of the engineer's report, the county clerk fixes the day for a hearing thereon, not more than 40 days thereafter, and gives notice in writing to all interested parties affected, setting forth the substance of the petition together with a tabulated statement of the apportionment made by the surveyor or engineer. He delivers same to the sheriff, who serves a copy on each landowner or other interested party. The clerk notifies each known nonresident landowner, and gives notice by publication to those unknown. *Sec. 111:* At the hearing the board determines whether proper notice has been given. Finding that notice has been given, it examines the report of the engineer and the apportionment made by him, and if fair and just according to benefits, approves and confirms the report. Otherwise the board amends the report to make it fair and just. *Sec. 112:* After notice has been received, and at any time before the hearing any person affected by the improvement may make application in writing to the commissioners for compensation and damages. Failure to make such application is a waiver of the right thereto. *Sec. 113:* The board on actual view of the premises, fixes and allows compensation and assesses damages.

See: *O. & N.P. Ry. v. Sarpy Co.*, 82 N. 140; 117 N.W. 116.
Costello v. Colfax Co., 112 N. 40; 198 N.W. 357.
Gutschow v. Washington Co., 81 N. 275; 116 N.W. 46.

Secs. 31-114 to 117. Objections to apportionment: Parties to the proceedings may file exceptions to the apportionment, or any claim for compensation or damages, at any time before the final hearing on the report and apportionment. The board may hear testimony and examine witnesses, and compel their attendance by subpoena. Its decisions are entered in its journal. If the exceptions are sustained, the cost is paid out of the county treasury; if they are overruled the cost is paid by the parties bringing them. *Sec. 115:* Any aggrieved party may appeal to the district court for the proper county from the final order of the board on the question of: (1) whether the work will be conducive to the public welfare; (2) whether the route is practicable; (3) compensation for lands appropriated; (4) damages

to property affected by the improvement. The appeal is in the same manner as appeals from the decision of the board in county matters. *Sec. 116:* No appeal affects the progress of the construction; provided, the petitioners for the district must give bond to pay damages and costs awarded on trial of the appeal. *Sec. 117:* The clerk of the district court certifies a transcript of the proceedings to the county board, which enters the same on its journal and gives effect to the judgment of the district court.

See: *Tyson v. Washington Co.*, 78 N. 211; 110 N.W. 634.
Johannes v. Thayer Co., 83 N. 689; 120 N.W. 176.
U.P.R. v. Colfax Co., 84 N. 778; 122 N.W. 29.
Loup River Pub. Power District, v. Platte Co., 135 N. 21; 280 N.W. 430.

Sec. 31-131. Intercounty ditches: When a ditch will be located in more than one county, application must be made to the county board of each county affected, and the surveyor or engineer must make a report for each county. Appeals from the findings of joint boards are taken to the district court of the county in which the lands affected are situated. A majority of the board of each county in joint session is competent to locate and establish the improvement.

FINANCING—Assessments

Secs. 31-121 and 122. Installments: When the cost of location, construction, and damages have been ascertained, and the contract for construction has been let the board determines at what time and in what number of installments the cost shall be paid. They then order that the assessments be placed on the duplicate tax list of the county against the lands and other property assessed. *Sec. 122:* In case of deficiencies appearing after the original assessment, supplemental assessments in the same proportion may be made on the lands benefited to make up such deficiency. Payment of annual interest on bonds must be made from annual levies on the lands benefited.

Secs. 31-123 and 124. Assessments—Collection—Liens: When the county board has made an assessment, they direct the clerk to furnish the county treasurer with a special duplicate with the assessment thereon. All assessments are collected and accounted for by the treasurer. Assessments not paid remain a perpetual lien against the premises assessed, and the treasurer may sell such lands or so much thereof as may be necessary to pay such assessments and costs in the same manner in which real estate is sold for delinquent county taxes. The board may extend the time of payment of said assessments without interest to correspond with any extension of time granted any contractor. Assessments not paid when due draw 9 percent interest until paid. (L. 1933, p. 536.) *Sec. 124:* The collection of assessments for location and construction of any ditch shall not be enjoined nor declared void, nor shall they be set aside in consequence of any error or irregularity appearing in any of the proceedings, and no injunction shall be allowed restraining the collection of any assessment, until the parties complaining shall first pay to the county treasurer the amount of their assessment, which may be recovered if the injunction is made perpetual.

See: *Dodge Co. v. Acom*, 61 N. 376; 85 N.W. 292.
Darst v. Griffin, 31 N. 668; 48 N.W. 819.

Sec. 31-132. County levy and maintenance tax: The county court, if necessary, may levy a tax not exceeding 1 mill on the dollar of the assessed valuation of the property, sufficient to pay for the location and construction of such portion of the ditch located by them or by the joint boards of two or more counties as may be apportioned to the county, and for the

removal of obstructions. When improvements are completed or any district has been dissolved, the drainage works remain under the direct control and supervision of the county board, which keeps the same in repair out of the county ditch fund. Upon dissolution of any district, the right-of-way interests thereof pass to the county in which it is located.

Sec. 31-133. Ditch fund: The county board is authorized, whenever they deem it necessary, to create a county ditch fund to consist of taxes collected from county levies and all balances remaining unexpended from special ditch funds. The board is authorized to borrow from the county general fund for the purpose of the ditch fund, returning same as soon as practicable.

Sec. 31-135-38. Cleaning and repair: A petition for repair and cleaning may be filed by 5 percent of the landowners benefited, and thereupon the cost is estimated by the county board, notice of a hearing is given, and the proceedings are similar to those for original construction. The cost of cleaning and repair is apportioned according to the benefits confirmed for the original construction.

FINANCING—Bonds

Secs. 31-125 to 129. Bonds—When issued: When, in the judgment of the board, the assessments are too large for immediate payment, it may issue negotiable bonds of the county at not to exceed 6 percent interest, which bonds are to be paid in not more than 10 yearly installments. Proceeds of the bonds may be used to pay the cost of location and construction and all compensation and damages. *Sec. 126:* The board, having determined to issue bonds, gives notice of its purpose by publication. *Sec. 127:* Bonds may be sold at not less than par and are a first lien upon the property found to be benefited, and each part and parcel remains under the lien of the bonds until the amount apportioned thereof is paid. All bonds must be registered. *Sec. 128:* Any landowner may pay his assessment in cash, in which case the bonds issued are not a lien against his land. *Sec. 129:* Bonds are limited to the amount actually required after taking into consideration cash payments of assessments.

CONSTRUCTION

Secs. 31-118 to 120. Awarding contract: Immediately after filing of the bond on appeal, (sec. 116), or receiving the transcript of the judgment of the district court, or, if there is no appeal, immediately after the final hearing on the engineers report, the board proceeds to advertise for sealed bids for construction of the ditch, in working sections not less than the number of linear feet apportioned to each tract of land or road or railroad; and fixes a time when bids will be opened. Contract is let to the lowest bidder, who gives bond fixed by the board. The board fixes the time for completion, but not more than 150 days. No bid may be entertained which exceeds the estimated cost of the working sections upon which the bid was made. *Sec. 119:* Work is done under the supervision of the surveyor or engineer. When a portion of not less than one-quarter is completed, the surveyor gives the contractor a certificate thereof, showing the proportional amount that he is entitled to be paid, and the clerk, upon presentation of such certificate, draws his warrant on the county treasurer for 75 percent of said amount. No proportional amount may be certified unless the whole of the contract exceeds 2,000 linear feet. *Sec. 120:* Any contract not completed within the time specified is relet, but not for a sum greater than the estimate and not to the same bidder. The board for good cause may extend the time of completion of a contract, but not to exceed 2 years.

ARTICLE 2—DRAINAGE BY INCORPORATED COMPANIES

ORGANIZATION

Secs. 31-201 to 204. Incorporated companies: Any number of persons not less than three, being the owners of land wet or liable to be overflowed, may organize a company for the purpose of draining, reclaiming, and protecting such land and may have power to straighten, widen, or deepen and make new channels for any watercourse, and construct works to accomplish the purposes for which organized. *Sec. 202:* They must sign articles of association giving the name and purposes of the company, and elect not less than three nor more than seven directors after notice to all members by posting. Vacancies may be filled by the remaining directors. *Sec. 203:* The articles of association must be recorded in the county clerk's office of any county having lands affected, and from the date of the filing of same for record in either of the counties, such company becomes a body corporate with the usual powers of corporations. Any landowner affected may become a member of the company by signing the articles of association. *Sec. 204:* An annual election of directors is held after 20 days' notice by publication in each county affected. A majority of the directors constitutes a quorum.

Secs. 31-207 and 208. Surveys—Estimate of cost: Before actual construction is begun, surveys and estimates of cost must be made and an appraisers' schedule of assessments returned to the secretary; and if the estimated cost exceeds the aggregate amount of the assessments, the work may not be further prosecuted. *Sec. 208:* The work must be divided into divisions not exceeding six miles in length, and have set apart and appropriated exclusively to each division its proportionate share of the total cost of the works. Any surplus may be applied to the legitimate purposes of the company. The work must be prosecuted simultaneously in the whole line thereof.

ORGANIZATION—Officers

Sec. 31-205. Officers: A majority of the directors is a quorum. They appoint one of their members president and appoint a secretary and treasurer and such other agents as they see fit. The treasurer gives bond for the faithful performance of his duties. All officers hold office for one year and until their successors are elected and qualified.

Sec. 31-206. Appraisers: The company may apply to the district court or the county court or to any judge in vacation in any county in which any part of the proposed work is situated, and the court will appoint three disinterested appraisers to examine all lands that will be affected or expropriated, and all material required by the company, and they make out separate schedules of assessment on the smallest U. S. Government subdivision of all lands situated in each county. They assess to each tract the amount of benefits it will receive without regard to the cost of the works or the injury which the land may sustain. A majority of the appraisers controls. They return their sworn report to the court and it is recorded in the office of the county clerk in the county in which the lands described are situated. From the date of the filing thereof such assessments are a lien on the land on which they are assessed for the amount of the benefits less the damages allowed. Reassessments of all lands may be made at any time upon request of the company by the same appraisers and their schedules are handled in the same way and likewise become a lien on the lands reassessed. Vacancies in the office of appraiser are filled by the court upon the application of the company. When the appraisers' schedules are filed for record, the secretary gives notice

thereof by posting, and any aggrieved party has 30 days to appeal to the district or county court. Any two appraisers may perform all of the services required by this section and all acts concurred in by two appraisers are valid and binding.

FINANCING—Assessments

Secs. 31-209 and 210. Notice to landowners: Landowners liable to be affected by the works must have notice of the time and place when the appraisers will begin the assessment of benefits and damages. Notice is by publication. *Sec. 210:* The board of directors may order the payment of assessments in installments, not exceeding 10 percent per month. No more may be collected than shall, in the opinion of the directors, be necessary for the legitimate purposes of the company in prosecuting the work. Unless the main line of the company works exceeds 20 miles in length, no part of the assessment may be collected by the company until the company has given bond to the state, conditioned for the faithful application of the assessments collected to the legitimate purposes of the company. Any person aggrieved by any breach of condition of the bonds has right of action thereon.

Secs. 31-211 and 212. Payment of assessments: Payment of assessments of benefits may be enforced by foreclosure of the lien in any court of competent jurisdiction in the same manner that mortgages are foreclosed. Payment of damages assessed may be likewise enforced by court action. *Sec. 212:* The company may appropriate lands or material necessary for construction purposes by first paying to the county treasurer for the use of the owner of said land or material the amount of the damages assessed by the appraisers.

FINANCING—Bonds

Sec. 31-213. Bonds—When issued: Any company whose work is estimated to cost \$3,000 or more may issue bonds with or without coupons, not exceeding the aggregate estimated cost. Such bonds may be payable anywhere and of any denomination, but bear not to exceed 10 percent interest. The company may secure same by a pledge of the assessment of benefits, which pledge may provide for a sinking fund for the gradual extinguishment of the debt. Bonds may be sold at a discount of not more than 10 percent. After bonds have been negotiated, no proceeding may be instituted nor defense made having the object or tendency to impair the validity or security of such bond.

Sec. 31-214. Limitation: After three years from the recording of the appraisers' schedule of assessments, no action may be instituted to foreclose any lien on lands unless the assessment secured by such lien has been pledged as security for one or more bonds outstanding. No tract of land, after three years, shall be liable for more than its fair proportion of the assessment pledged as security for bonds.

ARTICLE 3—DRAINAGE BY INDIVIDUAL LANDOWNERS

ORGANIZATION

Secs. 31-301 and 302. Drainage by landowners: Owners of land may drain same in the general course of natural drainage by constructing open ditches or tile drains, discharging the water into any natural watercourse or any natural depression or draw whereby said water may be carried to some natural watercourse; and when such drain is wholly on the owner's land, he is not liable for damages therefor to any person. *Sec. 302:* Any depression two feet below surrounding land and having a continuous outlet to a stream or river is deemed a watercourse.

See: *Bares v. Stephens*, 122 N. 751; 241 N.W. 542.
Hall v. City of Friend, 134 N. 652; 279 N.W. 346.
Warner v. Berggren, 122 N. 86; 239 N.W. 473.
Fairman v. City of Omaha, 131 N. 870; 270 N.W. 484.

ORGANIZATION—Petition

Secs. 31-304 to 307. Petition for construction: Any person or persons desiring the construction of any drains or repair and maintenance of same may file a petition with the county board accompanied by approved bond to pay costs in case such drain shall not be deemed necessary for the public welfare or for agricultural or sanitary purposes. *Sec. 305:* The petition must state the boundaries of the drainage, give the sections affected, and state that the drain will empty into a watercourse or depression whereby the water will be carried into a natural watercourse and that such drain is necessary and will be conducive to the public welfare. *Sec. 306:* When such petition and bond has been filed, the county board causes the drain and the land affected thereby to be surveyed, and may employ a surveyor other than the county surveyor. The surveyor reports with plats and estimates required by the county board. *Sec. 307:* The county board examines the surveyor's report, and finding that the drain is necessary and conducive to the public welfare and that the benefit to be derived will equal or exceed the costs of same, will have the county clerk notify all landowners affected at least five days prior to a hearing on the report. Notice is in writing by personal service or by leaving a copy at the usual place of residence of each landowner affected. Nonresident owners are notified by publication or by service on their resident agent or on the occupant of the land. (Board of Commissioners v. Northwestern Mutual Life Insurance Co., 114 N. 596; 209 N.W. 256.)

ORGANIZATION—Officers

Sec. 31-303. Supervisors: The county board shall be the drainage supervisors in and for their respective counties, and as such are a body politic and corporate and are the corporate authority of all of the drainage districts within their respective counties.

Secs. 31-308 to 310. Appraisers: At the hearing, if requested by an interested party, the board may again consider the advisability of the improvement although it is found to be of public utility. Upon finding the construction advisable and of public utility, the board appoints as appraisers three disinterested freeholders, residents of the county. *Sec. 309:* The appraisers, after being duly sworn, proceed to procure the rights-of-way for the drain from the owners of lands that must be crossed, by agreement if possible. The releases must be in writing, duly acknowledged and recorded, and are a perpetual bar to further claims. *Sec. 310:* Failing to obtain rights-of-way by mutual agreement, the appraisers assess all damages sustained or benefits accruing by reason of the construction of the works, and they have the right to go on the lands and examine the same and the line of the proposed works.

FINANCING—Assessments

Secs. 31-311 to 316. Appraisers' report: The appraisers estimate the entire cost of the proposed improvement and ascertain to the best of their judgment the amount of benefits to accrue to each tract; determine the damages sustained by each landowner and award same; and assess to each tract of land benefited its proportionate share of the cost. They thereupon file with the county clerk a complete report showing the releases obtained and the cost thereof, and an assessment roll in tabular form with name of owner, description of land, number of acres, value thereof, and amounts of damages awarded and benefits assessed on each tract. *Sec. 312:* The appraisers determine the benefits to public highways and to counties or townships and they are assessed and must pay their *pro rata* share of the cost of

construction. *Sec. 313:* The appraisers file their report and assessment roll within 20 days, and any landowner affected may file objections with the county clerk within 10 more days. If no objections are made within the time allowed, the county court confirms the report and assessment roll as made. *Sec. 314:* When objections are filed, notice of a hearing thereon is given by the county clerk and personally served on county residents at least three days prior to consideration by the board. Notice to nonresidents is by publication for 10 days. *Sec. 315:* At the hearing the board determines all matters in relation to the objections and hears testimony introduced by interested parties. In their discretion they may change the assessment and the damages awarded. *Sec. 316:* Any interested party aggrieved may appeal from the decision of the board to the district court within 10 days upon giving bond to pay costs if the decision of the board be sustained.

Secs. 31-317 and 318. Assessment roll: If there are no objections filed or no appeal from its decision, the board directs the county clerk to place the assessment roll upon the tax books of the county against the land affected together with the costs of all proceedings relating thereto. It confirms in whole or in part the report of the appraisers as to the voluntary releases. The assessment must be collected by the county treasurer in the same manner as other taxes. *Sec. 318:* Any interested party may pay his assessment before it is placed upon the tax book.

Sec. 31-323. Additional assessments: When assessments are found to be inadequate to complete the proposed work, or when necessary for maintenance and repair, each tract is assessed by the county board such proportion of the additional cost as its original assessments bore to the total original assessment, and such additional assessments are collected in the same manner.

Sec. 31-324-26. Cleaning: These sections provide for the annual removal of obstructions by the landowners and tenants, annual deepening and cleaning by same, and penalty for failure to clean out watercourses.

ARTICLE 4—DRAINAGE DISTRICTS ORGANIZED BY PROCEEDINGS IN DISTRICT COURT

ORGANIZATION—Petition

Sec. 31-401. Proceedings: A majority in interest of the owners in any contiguous body of swamp or overflowed lands, in one or more counties, may form a drainage district and may make and sign articles of association, stating the name of the district, the number of years it is to continue, the limits of the district, which may not be less than 160 acres, the names of the landowners, and a description of the several tracts of land owned by the signers and by others that will be benefited. Unknown owners may be set out as such. The articles of association state that the owners forming the district are willing to obligate themselves to pay the taxes assessed against them for the expenses of the improvement. The articles are filed in the office of the clerk of the district court of the county in which the greater portion of said lands are situated, with a prayer that the signers may be declared a drainage district.

See: Latham v. C.B. & Q. R. Co., 100 N. 173; 158 N.W. 923.
O'Neill v. Leamer, 93 N. 796; 239 U.S. 244.
Nemaha Valley D.D. v. Marcornit, 90 N. 514; 134 N.W. 177.
Miller v. D.D., 112 N. 206; 199 N.W. 28.
Monney v. D.D., 126 N. 219; 252 N.W. 910.
Same v. Same, 134 N. 192; 278 N.W. 368.

Sec. 31-402. Notice to landowners: Immediately after the articles of association have been filed, the clerk of the district court of the county in which the greater portion of the lands are situated issues a summons returnable at the next term,

directed to the landowners in the proposed district, who are alleged to be benefited but have not signed the articles. The summons is served as in civil cases. Owners not known or not resident are notified as nonresident defendants are by law notified in actions in the district court.

See: *Latham v. C.B. & Q.R. Co.*, 100 N. 173; 158 N.W. 923.
Catron v. Dailey, 84 N. 487; 121 N.W. 462.

Secs. 31-403 and 404. Objections: The landowners who have not signed the articles may object in writing to the formation of the district as a public corporation. They may state the reasons why their lands will not be benefited and should not be included in the district. The objections are heard by the court in a summary manner and if overruled, the court by order of record declares the drainage district a public corporation of the state. The fact that the district contains 160 acres or more of wet, overflowed, or submerged land, is sufficient cause for declaring the public utility of the improvement and sufficient ground for declaring the organization a public corporation. Any lands not benefited will be excluded by the court and the remainder of the land will be declared a drainage district. *Sec. 404:* Within 20 days the court clerk transmits to the secretary of state a certified copy of the record, which is filed in his office in the same manner as articles of incorporation are filed under the general law. A copy of the record together with a plat of the district is filed with the county clerk of each county interested.

See: *Henderson v. Halliman*, 108 N. 67; 187 N.W. 128.
Shepherdson v. Pugin, 116 N. 806; 219 N.W. 187.

Sec. 31-470. Election—Abandonment: After having adopted detailed plans and specifications and estimates of cost and filed the same with the clerk of the county in which the district is being organized, the supervisors must publish for three weeks in each county affected a notice of an election to vote on the question of proceeding with the work. If a majority of the voters are in favor of proceeding, then the board shall not incur indebtedness in a total sum in excess of the estimated cost so found and published. No change in plans and specifications may thereafter be made which will cost in the aggregate more than the estimated cost. If the majority of the votes be against proceeding and incurring the liabilities, the board must abandon same and thereupon certify to the county clerks a tax levy on all tracts by valuation, sufficient to pay the liabilities of said district to and including the date of such abandonment. (L. 1929, p. 478.)

ORGANIZATION—Officers

Secs. 31-405 to 407. Supervisors: Within 30 days after the district court has declared the district organized, the clerk upon 15 days' notice calls a meeting of the landowners in the county in which the district was organized for the purpose of electing a board of five supervisors to be composed of landowners in the district, a majority of whom must be residents of the county or counties in which the district is situated. At such election each acre represents one share and each owner is entitled to one vote for each acre owned by him. The five persons receiving the highest number of votes are declared elected supervisors. Their terms of office of from 1 to 5 years are determined by lot. At any time thereafter, but not oftener than once in 12 months, upon petition of at least 20 percent of the land acreage in the district, a special election may be called for the election of a new board of supervisors, which special election is held in the same manner as the regular election. *Sec. 406:* Annual elections are held thereafter on 15 days' notice by service or publication for the election of one

supervisor. Vacancies are filled by the remaining supervisors until the next annual election. *Sec. 407:* Supervisors must subscribe to an oath of office. The president and secretary of the drainage board each give bond for \$10,000 for the faithful performance of their duties and the remaining members of the board give bond for \$2,000. Premiums are paid by the district. Upon completion of the improvement the bonds are reduced to \$1,500 each.

Secs. 31-409 and 410. Engineer: The supervisors cause a topographical survey of the district to be made by a competent engineer, who reports to the board with maps, profiles, and a full and complete plan for draining, reclaiming, and protecting the lands. The engineer also reports on the physical characteristics of any railroad property in the district and the location of all public highways which may be crossed by the right-of-way of any ditch or levee. *Sec. 410:* The engineer makes an estimate of the cost of the entire work and improvement.

Sec. 31-417. Maps and plans: The maps and plans must be drawn on a scale large enough to show all of the meanderings of the improvement and must show the boundary lines of each tract of land and each highway and railroad benefited; the name of the owner as it appears on the deed records; the controlling authority of each public or private corporation; the length of the works through each tract; and the acreage. Profiles must show the surface, grade line, gradients, and the fixed and working sections.

Sec. 31-418. Drain commissioners: The board of supervisors must appoint some competent person to be known as the "drain commissioner," to award all contracts to the lowest bidder, subject to the approval of the supervisors. He holds office for one year and has general supervision of all works under contract; reports the same when completed according to the contract; and certifies same to the supervisors for review and acceptance or rejection. He gives bond of from \$2,000 to \$10,000 and takes the proper oath of office which is filed with the county clerk where the district was organized.

Sec. 31-459. Treasurer: The treasurer of the county where the district was organized is *ex officio* treasurer of the drainage district for collecting and disbursing assessments. The treasurer of the counties having a smaller portion of the district within their borders must pay over to the first treasurer all funds collected for the benefit of the district. The treasurer pays out district funds only on warrants signed by the chairman of the board of supervisors and attested by the secretary.

Secs. 31-464 and 465. Overseers: For the preservation of the works constructed, the supervisors may appoint not more than three overseers for a term of one year each to keep the works in good repair and remove obstructions therefrom. It is the duty of the overseer to cause the arrest of all persons known to have obstructed any ditch or drain or watercourse or having damaged any of the works. *Sec. 465:* Wilfully obstructing any ditch is a misdemeanor.

ORGANIZATION—Powers

Sec. 31-419. Inclusion of lands: If it appear from the engineer's report that lands other than those incorporated by the court into the district will be benefited by the improvement, it is the duty of the chairman of the supervisors to file petition in the district court of the county where the district was organized, describing the land, giving the names of the owners and their residences, and alleging such land will be benefited and ought to bear a portion of the expense of the improvement, and praying that such land be included. Notice to the owners is given in the same manner as for original incorporation and

the same proceedings are had. Owners may waive notice and consent to the entry of the necessary decree. After the decree is entered, the lands are included in the district as fully as if they had been incorporated in the original petition and decree; provided, no land may be included or subject to taxation except wet, submerged, and swamp land within a district subject to overflow.

Secs. 31-420 and 421. Rights-of-way—Condemnation: When the supervisors have agreed upon a route and plan for the work, they have the right to acquire and, if necessary, condemn any real estate, easement, or franchise, whether within or without the district, that may be necessary for a right-of-way upon which to construct the ditches and other works contemplated. When supervisors are unable to agree with owners, they may petition the court for a board of appraisers to ascertain the compensation which should be made. *Sec. 421:* Upon filing such petition, the same proceedings may be had for condemnation as provided by law for railroad rights-of-way. The district may not enter upon and appropriate any right-of-way until the damages awarded are paid into court. The action abates unless such damages are paid within two years. The supervisors have the power in like manner to condemn natural or artificial obstructions in any existing watercourse.

See: *Latham v. C.B. & Q.R. Co.*, 100 N. 173; 158 N.W. 923.
D.D. v. C.B. & Q.R. Co., 96 N. 1; 146 N.W. 1055.
Nemaha Valley D.D. v. Marconit, 90 N. 514; 134 N.W. 177.

Secs. 31-451 to 453, and 455. Watercourses—Cleaning: In order to effect drainage the supervisors are authorized to clean and remove obstructions in any stream or watercourse and to shorten, deepen, or widen the course of any stream or construct a new channel therefor. *Sec. 452:* The board may construct the works across any stream, highway, railroad, canal, or other works which the route of the ditch may intersect, but must restore same to its former state as near as may be and not unnecessarily impair its usefulness. Failing to agree on the amount to be paid therefor, the district may resort to condemnation. *Sec. 453:* Rights-of-way through state lands are dedicated. *Sec. 455:* Nothing in this act may be construed as authorizing the diversion of any stream to the detriment of persons having vested interests therein without previous compensation under the state statutes for taking private property for public uses.

See: *Richardson Co. v. D.D. #1*, 113 N. 662; 204 N.W. 376.
State v. Papillion D.D., 89 N. 808; 132 N.W. 398.
Richardson Co. v. D.D., 92 N. 776; 139 N.W. 648.

Sec. 31-456. Joint outlets: When two or more districts discharge into the same natural watercourse and it becomes necessary to enlarge such watercourse, each district will be assessed for the cost in the same ratio to such total cost as the discharge of water of such district bears to the combined discharge of water of the several districts into such watercourse. No district is liable for improvement to such natural watercourse above the point of discharge of the waters of such district into same.

See: *Mooney v. D.D.*, 126 N. 219; 252 N.W. 910.
Mooney v. D.D., #1, 134 N. 192; 278 N.W. 368.

Sec. 31-458. Subdistricts: Any landowner assessed for benefits, separated from the drain for which assessed by intervening lands of others, and desiring to drain across such land, and being unable to agree on the terms and conditions of such drainage with the intervening landowners, may file with the district court a petition describing the lands and asking to establish a district within the limits of the original district for the purpose of securing more complete drainage; and thereafter the proceeding is the same as for original organization of a

district. When established such subdistrict becomes a part of the drainage system under control of the board of supervisors.

FINANCING—Assessments

Secs. 31-412 to 415. Assessment by engineer: The engineer estimates the benefits which will accrue to each tract of land and corporate property by reason of the improvement. Each piece of property in the district must bear its proportionate share of the costs of the improvement in proportion to the benefits assessed whether the improvement be on the land, roadbed, or right-of-way of any property or not. *Sec. 413:* In estimating benefits to land and other property not traversed by the works, the engineer shall not consider what benefit will be derived by such property after other drainage improvements have been constructed but only the benefits which will be derived by the aforesaid improvement as it affords drainage or outlet for drainage. *Sec. 414:* No assessment shall be made on any principle except that of benefits derived. *Sec. 415:* Benefits to highways, railroad property, rights-of-way, and roadbeds are assessed according to the increased efficiency and value added thereto by the improvement and the protection derived from the works.

See: *Nemaha Valley D.D. v. Stocker*, 90 N. 507; 134 N.W. 183.
Same v. Higgins, 90 N. 513; 134 N.W. 185.
Morehouse v. Elkhorn River, D.D., 90 N. 406; 133 N.W. 446.
Schobert-Zimmerman D.D. v. Soll, 132 N. 629; 272 N.W. 775.

Sec. 31-416. Lands classified: The engineer must classify all tracts of land and other property according to the benefits that each may receive from the improvement. The lands and other property receiving the greatest percentage of benefits are classified at 100 and those receiving a less percentage of benefits at such less number as its benefits may determine. Property of public and private corporations may be classified in a separate list, each according to the relation its total benefit bears to the total benefits in the district.

Secs. 31-422 to 428. Objections to engineer's report: Within 10 days the board fixes a place and time, between 40 and 50 days thereafter, where and when it will hear objections to the report of the engineer or the classification of the lands. *Sec. 423:* Notice of such meeting is by publication and the form of the notice is set out in the statute. *Sec. 424:* A copy of the notice and the resolution adopting same, as well as the engineer's report, are spread at large on the minutes of the board; and the maps and profiles are filed with the secretary and open to the inspection of interested parties. *Sec. 425:* The district or any landowner may file objections to the classification or assessment within 10 days. All objections are heard by the court fully and fairly and as expeditiously as may be to carry out the purposes and needs of the district. The hearing may be adjourned for not exceeding two weeks. *Sec. 426:* The board has the power to determine whether due notice has been given and to adjourn until same is given; it may subpoena witnesses and hear evidence; it examines the maps and profiles and estimated cost of the improvement, the classification of lands, and the assessment of benefits; it determines and adjudicates the total benefits that will accrue to each tract of land or other property. The board may modify or amend the engineer's report as to classification and assessment of benefits in any respect where same is inequitable. When the board has adjudged, equalized, and determined the classifications and assessments, they enter an order on their minutes confirming same. *Sec. 427:* The costs of the hearing are assessed by the board as may be just and equitable. *Sec. 428:* Parties aggrieved by the board's decision may appeal to the district court upon giving bond in the same manner as in civil actions in justices' courts, and in addition

undertaking to pay any damages which may accrue to the district by reason of the appeal. All appeals are heard together and the decision of the district court is certified to the supervisors for their guidance.

See: Richardson Co. v. D.D., 113 N. 662; 204 N.W. 376.
Nemaha Valley D.D. v. Skeen, 90 N. 510; 134 N.W. 184.
Nemaha Valley D.D. v. Marconit, 90 N. 514; 134 N.W. 177.
D.D. v. Richardson Co., 86 N. 355; 125 N.W. 796.

Sec. 31-429. Drainage taxes—How levied: As soon as the supervisors have established the classification and benefits, they at once levy a tax on the land and other property in the district to which benefits have been assessed, equal to the cost of the work as estimated by the engineer and confirmed by the board plus the actual expense of organization of the district, probable working and administrative expenses and damages, and in case bonds are to be issued the amount of the interest is added. The tax is apportioned to and levied on each tract of land or other property in proportion to the benefits assessed and not in excess thereof.

The board determines whether the taxes shall be paid in a single assessment or in annual installments not to exceed 20. If the whole assessment or any part be declared invalid for any reason, it is the duty of the supervisors to reassess the property after the same procedure as required in the original assessment of benefits. The reassessment takes into account all payments made under the first assessment. If at any time funds have been accumulated over and above the cost of construction and maintenance, the supervisors may cause so much of said fund as may not be required to be prorated to each tract or other property in proportion to the benefits assessed, and paid over to the owners. (Mooney v. D.D., 134 N. 192; 278 N.W. 368.)

Sec. 31-430. Certificate of levy: When the tax is fixed and determined by the supervisors, it is certified to the county clerk of each county interested on a form set out in the statute, and the county clerk files and records same.

Sec. 31-431. Additional assessments: If for any reason the cost of the improvement exceeds the amount of the taxes levied, the supervisors may levy such other installments as may be necessary to complete the work; but the total levy may not exceed the assessed benefits. The additional tax is in the same proportion as the original tax and the procedure is the same as for the original tax levy.

Secs. 31-432 to 434. Annual installment levy: The supervisors annually levy the amount of drainage taxes required for that year, which become due at the same time as state and county taxes. In case bonds are issued, the amount of the interest which will accrue on same is included in the tax. Such tax is levied and certified by the board not later than September 1 to the county clerk of each county affected. The form of the certificate is set out in the statute. The tax is extended by the county clerk on the tax book of the county against the real estate, right-of-way, roads, or property to be benefited, in the same manner as other taxes are extended. The taxes are collected by the treasurer of the county in which the property is situated. **Sec. 433:** When supplemental or additional assessments become necessary, they are levied and certified in the same manner. When supplemental assessments are levied before any bonds are issued, they are divided into installments, payable when the first installments are payable and are collected therewith; and together they constitute one fund against which bonds may be issued. **Sec. 434:** Assessments against railroads, highways, and corporate roads benefited are apportioned in the same manner as assessments against private individuals and in proportion to benefits conferred. They are enforced and

collected in the same manner as state and county taxes under the general revenue laws.

Sec. 31-442. Cash payment of levy: Before bonds are issued, any party assessed for benefits may pay the total amount of the costs and expenses apportioned to and levied as a tax against his property. The amount of the bonds issued must be reduced by the amount of tax thus paid. Upon such payment the assessed lands and property are released from any lien of such tax and bonds. A list of such payments is filed with the county clerk.

Sec. 31-450. Lien of assessments—Sinking fund: All assessments on real property and easements are a lien against the property assessed from and after the first Monday in April in the year in which assessed and draw interest at 9 percent *per annum* from the first day of May in the year following said assessment, and such lien is not removed until the assessment is paid or the property sold for the payment thereof. Revenue laws of the state for the sale of lands for taxes are applicable to collection of drainage assessments. When bonds have been issued, taxes collected to pay same constitute a sinking fund to be used only for the payment of such bonds and interest. (L. 1933, p. 537.)

Sec. 31-463. Maintenance levy: When repairs are needed, the supervisors may order an assessment upon the property benefited for the purpose of placing the works in proper condition for drainage purposes. The original assessment in the district determines the amount levied against each tract or other property in proportion to the whole amount levied. The assessment is limited to the amount necessary to remedy such defect in the system and is levied and collected in the same manner as assessments for original construction; provided, the supervisors may, if they deem it advisable or if ordered to do so by a majority vote of the landowners, levy an annual tax sufficient to pay for the items of repair and upkeep, without an estimate by the engineer, and the same will be extended on the tax rolls and collected as other taxes are collected. All such annual assessments must be based on the original apportionment of benefits. (L. 1935, p. 258.)

FINANCING—Bonds

Secs. 31-435 to 441. Authority to issue: If in their judgment they deem it best, the supervisors may issue negotiable bonds, not to exceed the amount of the total tax levy certified to the county clerk and at not to exceed 6 percent interest. Bonds mature annually beginning five years and running not more than twenty years after their date. Assessments must be divided in as many installments as there are dates of maturity of bonds. **Sec. 436:** Maturity of bonds is fixed on the 1st of July of the year in which they mature. **Sec. 437:** Before issuing bonds the supervisors, by resolution duly recorded in the minutes of a meeting specially held for that purpose, order and direct the issuance of such bonds. Such minutes and a record of the bonds are open for inspection of all parties interested, either taxpayers or bondholders. Payment of any bond must be recorded in the drainage record. **Sec. 438:** Bonds may not be sold for less than par with accrued interest and must show that they are payable out of money derived from the drainage assessments. **Sec. 439:** In making the annual tax levy, ample provision must be made for maturing bonds and interest. **Sec. 440:** Bonds must be presented to the auditor of public accounts for examination before issue. If satisfied that they have been legally issued, he registers them in his office and certifies under seal that they have been legally issued and registered. **Sec. 441:** The secretary of the board of supervisors certifies to the auditor a transcript of the proceedings relative to the bonds and it is

his duty to furnish like transcript to the holder of any bonds when demanded.

Secs. 31-444 to 446. Installments: The board by resolution divides the total tax levy into convenient installments, setting opposite each the year in which it becomes due and payable. The board then authorizes the bonds which they propose to issue, fixing maturities so that they will coincide with the payment of corresponding installments of taxes, and asserts in the same resolution that it will cause the annual levy to be made to pay the bonds. Thereupon the fund, to the extent that may be necessary to pay bonds, shall be pledged and hypothecated to payment of the bonds, which pledge is superior to any other charge against that fund. *Sec. 445:* Before funds are raised from taxes or bonds, the supervisors may borrow up to \$5,000, pledging the credit of the district for same, to pay necessary expenses of organization. *Sec. 446:* Supervisors may sell bonds as necessary and advantageous to raise money for construction and the acquisition of rights-of-way. They declare their intention to sell a specific amount of bonds, by resolution, stating the time and place of the sale and giving notice by publication in a newspaper published in the city of Lincoln, and in other papers at their discretion. At the time appointed, the supervisors open proposals and award the purchase to the highest responsible bidder. They may not sell bonds for less than par.

Secs. 31-471 to 474. Refunding bonds: Where there are bonds of a district outstanding and unpaid, the supervisors are authorized to take up and pay such bonds when it can be done by issuing refunding bonds. Such refunding bonds may not exceed the amount lawfully owing upon the bonds sought to be taken up and paid. Refunding bonds may not bear a greater interest than those sought to be taken up and paid, and may run not more than 20 years. *Sec. 472:* Whenever it is desired to issue refunding bonds, the supervisors give notice thereof, stating the details of the bonds to be refunded, and the date and place where any taxpayer of the district may file objections thereto. Notice must be published for four weeks as well as posted at least 30 days. If there be no objections offered, the supervisors may sell or exchange the refunding bonds thus authorized, not exceeding the amount of the actual bonded indebtedness then outstanding, including unpaid interest. *Sec. 473:* Any written objection filed will be heard by the supervisors, and from their decision an appeal may be taken to the district court. *Sec. 474:* The assessment of benefits conferred and taxes levied by any such drainage district remains a valid and binding obligation upon the several tracts of land, but the time of payment of such taxes is extended to the same extent as the time of payment of the bonds refunded. (L. 1929, p. 485.)

CONSTRUCTION

Sec. 31-454. Award of contract: After the certification of the total levy and costs to the county clerk, the supervisors may proceed to let contract for construction. They give notice by publication in the counties interested and in such other newspapers as they deem advisable, calling for sealed bids for construction of all or any part of the works, and stating the time and place where such bids will be opened. Contract is let to the lowest responsible bidder, but all bids may be rejected and the work readvertised, or the supervisors may construct the works under their own supervision. Contractors must give bond for 25 percent of the contract price. The work is done under the supervision of the drainage commissioner and subject to the approval of the board. (D.D. v. C.B. & Q.R. Co., 96 N. 1; 146 N.W. 1055.)

DISSOLUTION

Sec. 31-475. How dissolved: There being no outstanding indebtedness, the supervisors may, on their own motion or upon a request in writing signed by 15 electors of the district, order an election on the question of dissolution. A certified copy of such action of the board is filed with the clerk of the district court of the county in which the district was organized. The said clerk then calls an election and gives notice thereof by publication. At such election each acre represents one share and each owner is entitled to one vote for each acre he owns. If a majority favor dissolution, then the district stands dissolved and the clerk of the district court certifies such result and dissolution to the county clerk of each county. (L. 1933, p. 268.)

ARTICLE 5—DRAINAGE DISTRICTS ORGANIZED BY VOTE OF LANDOWNERS

ORGANIZATION—Petition

Sec. 31-501. Drainage district by vote of landowners: Whenever it will be conducive to the public welfare to drain either wet land or land subject to overflow or any land that will be improved by drainage, or to build any drainage works or straighten and improve any watercourse or improve any system of drainage, or to do any of these things jointly, then a drainage district may be established for the purpose of constructing such works of public improvement.

See: *Compton v. Elkhorn Valley D.D.*, 120 N. 94; 231 N.W. 685.
Mooney v. D.D., 126 N. 219; 252 N.W. 910.
Flader v. Central Realty & Indemnity Co., 114 N. 161; 206 N.W. 965.
White v. D.D., 96 N. 241; 147 N.W. 218.
State v. Hanson, 80 N. 724; 115 N.W. 294.
O'Brien v. Schneider, 88 N. 479; 129 N.W. 1002.

Secs. 31-502 to 508. Petition—Election: When the proposed district contains real estate owned by less than 20 persons or corporations, one-fourth of said number is sufficient to petition for the formation of a district. When there are more than 20, 10 or more landowners may sign the petition and file same with the county clerk of the county having the largest body of land within the proposed district. The petition must suggest the boundaries of the district, the number of directors, and the amount of the bond each shall give. *Sec. 503:* The petitioners must file approved bond conditioned to pay all expenses if the district is not formed. *Sec. 504:* The county board with the assistance of the county surveyor determines whether the boundaries of the proposed district are reasonable and proper and they may change such boundaries in the interests of the district and of doing justice and equity to all persons. Any person may be heard as to the proper boundaries. The number of directors of the district is determined by the board. *Sec. 505:* The county clerk publishes notice of the petition for three weeks and calls an election in the proposed district at a time and place fixed, on the question of establishment and to elect a board of directors if the district is established. *Sec. 506:* The election is by ballot signed by the voters and giving a list of the lands owned by them. The form of the ballot is set out in the statute. *Sec. 507:* The county clerk of the county having the largest acreage and an assistant selected by him constitute the election board and the canvassing board. Landowners within the district may cast one vote for each acre or fraction owned by them and for each plotted lot which they may own or have an easement in as shown by the official records of the county where situated. The election board decides contests in ownership and has power to reject ballots not cast by proper parties. *Sec. 508:* If a majority of the votes cast be in favor

of the formation of the district, that fact is conclusive that the work to be done will be conducive to the public welfare. The county clerk files in his office all records and proceedings in the matter and the district is thereupon fully organized. Where there is more than one county interested, the record and proceedings are recorded in each county.

See: O'Brien v. Schneider, 88 N. 479; 129 N.W. 1002.
State v. Fuller, 83 N. 784; 120 N.W. 495.
State v. Hanson, 80 N. 724; 115 N.W. 294.
State v. D.D., 100 N. 625; 160 N.W. 997.

Sec. 31-550. Election against continuance: This article has a provision for an election to determine whether the proceedings shall continue, similar to article 4, section 31-470, *ante*.

ORGANIZATION—Officers

Sec. 31-509. Directors: A majority of the directors elected at the first election must be residents of the county or counties in which the district is located. Any person or the officer of any corporation owning or controlling land that will be assessed may be a director. The terms of directors are adjusted so as to have one director elected each year. Directors give bond as fixed by the county board.

ORGANIZATION—Powers

Sec. 31-515. Eminent domain: The district has power to purchase real estate or easements therein for its purposes, and on failure to agree on the purchase price it may condemn same under the law providing for the condemnation of railroad rights-of-way. (L. 1937, p. 266.)

Secs. 31-529 to 531. Use of district ditches: Lands assessed for benefits may, under rules and regulations made by the directors, be drained by tile or otherwise into the main or lateral ditches. Lands within the district not assessed, or lands without the district, may drain into the system upon terms agreed on with the directors, but not otherwise. *Sec. 530:* The district may cross railroads and highways with its works. *Sec. 531:* The originals of all contracts of every kind for construction or use of the works must be recorded with the county clerk.

Sec. 31-533. Appeals: Any appeal to the Supreme Court must be taken within 90 days but no such appeal shall operate to stay the proceedings.

Sec. 31-538. Enlarging the district: A district may enlarge its boundaries on petition of 10 landowners affected thereby, or if there be less than 20 landowners, then by petition of one-fourth of the number and signed by a majority of the directors. After filing the petition, the proceeding is the same as for original organization. (Secs. 31-502 to 508.)

Sec. 31-539. Detaching territory: When the board of directors deems it advisable to detach any portion of the district, which portion has not been assessed for benefits, or all of the benefits have been paid, the directors submit the question to an annual election; and if a majority of the votes cast are in favor thereof, the territory thereupon ceases to be within the district and that fact is recorded with the county clerk.

Sec. 31-544. Outlet: A district may go beyond its borders for proper outlet for its system and has the power of eminent domain to acquire necessary real estate for that purpose.

FINANCING—Assessments

Secs. 31-511 to 514. Apportionment of benefits: After the directors have, with the aid of the surveyor and engineer, made detailed plans of the public work to be done, they apportion the benefits accruing therefrom to the several tracts of land within the district on a system of units. The land least benefited is apportioned one unit of the assessment, and each tract

receiving a greater benefit is apportioned a greater number of units or fractions thereof according to the benefits received.

Sec. 512: Notice of the time and place for a hearing on the apportionment is published for at least one week, and any written objections to the apportionment will be heard by the directors and they will adjust the apportionment as may be fair and according to the benefits received. The directors then file a detailed report of the apportioned benefits with the county clerk, and publish for three weeks a copy of said apportionment and a statement of the total number of units of benefit in the district. *Sec. 513:* Any person aggrieved by the published apportionment of benefits may file complaint with the county clerk within 20 days, with bond for costs if appeal be not sustained. A transcript of the complaint is filed with the district court within 10 days and that court determines the objections in a summary manner and may adjust the benefits on an equitable basis. All objections are heard as one proceeding and only one transcript of the report of apportionments is required. *Sec. 514:* The apportionment when adjusted continues as the basis of all levies of special assessments to pay all of the expenses and obligations of the district. If the plans are changed so as to make a different apportionment necessary, such apportionment is made in the same manner.

See: Scotts Bluff D.D. v. Scotts Bluff Co., 113 N. 187; 202 N.W. 455.
C.B. & Q.R. Co. v. Platte Valley D.D., 113 N. 49; 201 N.W. 648.
Bancroft D.D. v. C. St. P.M. & O.R. Co., 102 N. 455; 167 N.W. 731.
Sandy v. D.D., 102 N. 713; 169 N.W. 268.

Sec. 31-524. Collection of Assessments: The board of directors each year determines the amount of money necessary to be raised to pay bonds and interest thereon, and apportions same in dollars and cents against the tracts of land remaining charged therewith. They also annually determine the amounts necessary to be raised for other expenses and apportion the same against each tract benefited according to the units of assessment. The secretary returns such assessments, keeping them separate, to the county clerk of the county in which the lands are situated and he places same on the duplicate tax list. Such taxes are collected and accounted for by the county treasurer at the same time as general real estate taxes are collected. Such assessments are a perpetual lien against the real estate until paid and draw interest at 9 percent from the date of any delinquency. All provisions of law for foreclosure, sale and redemption in ordinary tax matters apply to drainage assessments. The district may by court action, recover from any municipal or other corporation the amount assessed against the same. (L. 1933, p. 537.)

FINANCING—Bonds

Secs. 31-517 to 521. When issued: Whenever the district shall need the sum of \$5,000 to pay outstanding warrants or to refund bonds issued to provide funds for construction, the directors may issue negotiable bonds, but not exceeding the amount that the engineer of the district certifies to be required in the case of an original issue, nor exceeding the amount of outstanding bonds in the case of refunding bonds. Bonds may not be sold at less than par and may not bear more than 6 percent interest. (L. 1933, p. 194.) *Sec. 518:* The directors give notice by publication of the proposed issuance of bonds. *Sec. 519:* At any time within 60 days after publication of such notice, any landowner may pay his proportionate share of the principal amount of said bonds. The issue will be reduced by the amount so paid, and that owner's lands will not be chargeable

with payment of the bonds or interest thereon. Sec. 520: Any deficit from any cause is a charge upon all of the lands assessed, according to the apportionment of benefits. Sec. 521: The treasurer must make a sworn statement of lands that have not made payment to him in lieu of bonds, and the same is recorded by the county clerk. He also makes and records a similar sworn statement as to the date, amount, maturity, and interest of bonds sold. (Scotts Bluff D.D. v. Scotts Bluff Co., 113 N. 187; 202 N.W. 455.)

Sec. 31-522. **Power to borrow:** The president and treasurer, with the approval of the board of directors, may borrow money for not exceeding 5 years on the notes of the district signed by them, negotiated at not less than par and bearing not to exceed 7 percent interest, to pay costs of organization, but not to exceed the cost as estimated by the engineer. They may borrow further amounts for construction on the "same terms." At the time of signing any such note, the treasurer files and records with the county clerk a sworn statement, giving the date, amount, maturity, and rate of interest of said note. The board of directors makes suitable provision for the payment of said borrowed money.

CONSTRUCTION

Sec. 31-526. **Contracts:** The directors employ an engineer, surveyor, or other assistants deemed necessary and proceed to carry out the work. Before any contract is let, an estimate of the cost must be made and the contract price may not exceed the estimate. The directors may in their judgment purchase and acquire machinery, equipment, and material and labor for construction and maintenance. (Compton v. Elkhorn Valley D.D., 120 N. 94; 231 N.W. 685.)

DISSOLUTION

Sec. 31-536. **How accomplished:** There being no debts outstanding, the board of directors may on their own motion or on the request in writing of 10 electors, give notice by publication of an election to submit the question of dissolution of the organization. If three-fifths of the votes cast are in favor of dissolution, the directors cause a record of the election and the vote thereon to be recorded in the county clerk's office of the proper county, and the district thereupon stands dissolved.

NEVADA

[Nevada Compiled Laws, 1929 (Hillyer),
and Pocket Part, 1939]

NEVADA DRAINAGE DISTRICT LAW

(Act of March 31, 1913, as amended
March 6, 1915, March 27, 1917, and
April 1, 1919)

ORGANIZATION—Petition

Sec. 1. **Who may petition:** When a majority of the owners of title or evidence of title, who own or control not less than one-third in area of lands sought to be reclaimed, or whenever one-third of the owners of title who own or control a major portion in area of lands that are susceptible of drainage, desire to provide for the drainage of their lands, they may propose the organization of a drainage district; and when so organized, the district shall have the powers conferred by the act. The equalized county assessment roll next preceding the presentation of a petition shall be sufficient evidence of title.

Sec. 2. **Petition:** The petition is presented to the board of county commissioners of the county in which the land is situated, or, if in more than one county, then to the commissioners

of the county in which the greatest portion of the lands are situated. The petition must particularly describe the proposed boundaries of the district, must be presented at a regular meeting of the board of county commissioners, and due notice thereof must be given as provided in the act. The petitioners must also file with the county commissioners a bond in the sum of 2 percent of the estimated cost of the improvement, conditioned to pay the costs if the commissioners find no merit in the petition or that the cost of the proposed improvement shall be in excess of the benefits to be derived therefrom. The petition must also contain the name of the proposed district.

Sec. 3. Upon filing the petition, the county clerk gives notice to all interested persons by posting and publication. If any portion of the district be in another county or counties, notice must be given in each county. The notice must give the route, termini, and a general description of the proposed work, and describe the boundaries by legal subdivision. If any landowners are nonresidents, the petition is accompanied by an affidavit giving the names and places of residence of such nonresidents, and the county clerk sends a copy of the notice to each nonresident.

Secs. 4 and 5. **Hearing:** The county commissioners hear the petition at a regular or special meeting, and determine all matters pertaining to it and to all subsequent proceedings of the district when organized. No petitioner may withdraw his name from the petition except by the consent of a majority of the other petitioners or unless it be shown that his signature was obtained by fraud. Sec. 5: At the hearing all parties through or upon whose lands the proposed work may be constructed, or whose lands may be damaged or benefited, may appear and contest the necessity or utility of the proposed work and may offer competent evidence in regard thereto. It is the duty of the commissioners to determine whether the petition is properly signed, and the affidavit of any three or more signers to that effect may be taken as *prima facie* evidence of that fact. Any deeds made for the purpose of establishing or defeating the petition are held to be fraudulent and are void, and the holders thereof will not be considered as landowners. If the county commissioners find the petition not properly signed, it will be dismissed at the cost of the petitioners. If the county commissioners find the petition to be regular in all respects, they must make a finding to that effect, which is conclusive upon the landowners. The county commissioners may change the proposed boundaries and establish and define them but may not modify the boundaries so as to except any territory that is susceptible of drainage by the system of works. The commissioners may not include any land that will not be benefited by drainage by the proposed system. Any persons whose lands are susceptible of drainage from the same source may, upon application, have their lands included in the district.

ORGANIZATION—Officers

Sec. 5. **Supervisors:** If it appear to the county commissioners that the proposed drain is necessary or useful for the drainage of lands for agricultural or sanitary purposes, or conducive to the public health, welfare, and convenience, they so find. They then appoint three competent persons to be a board of supervisors for the district, who have terms of office from one to three years respectively. It is the duty of these supervisors to lay out and construct the proposed work, and to levy a tax therefor upon the lands in the district, subject to the approval of the commissioners. If the lands are in more than one county, not more than two members of the board of supervisors may be chosen from one county. If the board of commissioners find that the establishment and creation of such drainage

district will be of benefit, then within 10 days, they proclaim such district as created and publish their proclamation for 10 days by posting or publication in a newspaper printed in the English language and having a general circulation within the county or counties. The form of notice is set out in the statute.

The statute declares that upon the entry of this proclamation of record the district is organized as a drainage district by the name mentioned in the petition, and with boundaries as fixed by the board of supervisors, and becomes a body corporate with perpetual succession and the general rights of corporations. The board of supervisors constitutes the corporate authority of the drainage district and exercises all of its functions. The order of the county commissioners is final and conclusive.

Secs. 6 and 7. Appeal: No action shall be maintained affecting the validity of the organization unless it is commenced within 60 days after the entering of the order declaring the district to be organized. A copy of such order must be immediately filed in the office of the county recorder of each county and be forwarded to the county clerk of each county in which any portion of the district may be situated. The county commissioners of any county may not allow another district to be formed including any of the same lands, except with the consent of the board of supervisors. The organization is complete from and after the date of filing the order. **Sec. 7:** After the district has been established by proclamation and the supervisors have been duly appointed, they subscribe to an official oath to faithfully discharge the duties of their office and to render a true account to the county commissioners by whom they were appointed, which oath is filed with the county clerk. They also execute official bond in an amount fixed by the county commissioners.

Secs. 15, 22, and 26. Report of supervisors: The board of supervisors, after its examination of the district as elsewhere provided, make a report of its findings to the board of county commissioners. If the supervisors find, even though the district has been formally proclaimed, that the costs of construction and maintenance and damages are more than equal to the benefits that may accrue, they shall so report and proceedings will be dismissed at the cost of the petitioners. But if the supervisors find that the benefits will exceed the cost, they so report and the county commissioners enter an order confirming their report. The board of supervisors thereupon proceeds with construction of the proposed works. **Sec. 22:** The supervisors, at least once a year and as often as the county commissioners require, must report to the commissioners all work done and all money collected and the manner in which the same has been expended. Upon the filing of this report the commissioners set the time and place for a hearing thereon, and give at least 10 days' notice by posting or publication. At the hearing the commissioners consider the report of the supervisors and all objections thereto, and may require evidence to be produced by the supervisors in support of the report. If the report is found correct, it is confirmed by the commissioners. Upon failure of the supervisors to make report, they may on application of any interested party, be removed by the commissioners. **Sec. 26:** The county commissioners may at any time for cause remove any supervisor and fill the vacancy.

ORGANIZATION—Powers

Sec. 8. Engineer—Bylaws: Within 30 days after their qualification, the supervisors organize as a board and elect a president, secretary, and treasurer from their number. They appoint a competent drainage engineer. They have power to adopt a code of bylaws governing the affairs of the district as a corporation,

and regulating the use of the drainage system. They also have power to make all necessary contracts, or enter into contract with the state or Federal government, and to employ such agents and assistants as may be required.

The supervisors or their agents and employees have the right to enter upon any lands to make surveys, and may locate necessary works on any lands that may be deemed best for such location. They also have the right to acquire on behalf of the district, by purchase or condemnation, all lands and other property necessary for the construction and maintenance of the improvement. The value of the land or other property taken for use of the district will be determined by arbitration if possible, the arbiters to be selected in the usual manner. But if the owner of such lands will not consent to arbitration, then the supervisors have the power to acquire such land by condemnation. In condemnation proceedings, supervisors act in the corporate name of the district under the provisions of the law of eminent domain. The act grants right-of-way without cost across any land owned by the state.

Sec. 14. Plan: Immediately after their appointment, the board of supervisors examine all lands proposed to be drained or protected and all land over which the proposed works are to be constructed. They determine (1) whether the location, route, and termini of the proposed work are in all respects proper and feasible; (2) the probable cost of the work proposed, including incidental expense and cost of the proceedings; (3) the probable annual cost of maintenance; (4) what lands will be injured by the proposed work, and the probable aggregate amount of all damages; (5) what lands will be benefited by the proposed work, and whether the aggregate amount of benefits will equal or exceed the cost of construction including incidental expenses, damages, and costs of the proceeding; and (6) whether the proposed district will embrace all the lands that may be damaged or benefited and what additional lands will be so affected.

Sec. 14a. Irrigated lands: In the event that damages are claimed as the result of the drainage of sub-irrigated lands that have no, or inadequate, water supply for surface irrigation, the supervisors may elect to furnish such surface water supply in lieu of paying cash damages, and for such purpose may appropriate sufficient waters developed by drainage, condemn the necessary rights of way, and construct the necessary works to divert the water to such lands.

Sec. 23. Entry on lands: The use of any canal or ditch created under the provisions of this act is deemed a public use and for the public benefit. The supervisors may go upon the land lying within the district for the purpose of examining it and making surveys, and after the organization of the district and payment or tender of the compensation allowed for damages they may go upon the lands with their equipment for the purpose of construction, and may forever thereafter enter upon said lands for the purposes of maintenance and repair.

Sec. 29. Highways: Supervisors have the right to use any part of the right-of-way of any public highway for the purposes of the district; provided, they may not permanently impair any highway for public use. If the construction of the district works benefit a highway or a railroad, the supervisors may assess the benefits.

Sec. 31. Waterways: The word "ditch" is held to include any drain or water course, and a petition for any drainage district is held to include any laterals or branches, whether open or tile, or any natural watercourse into which the drainage may enter for the purpose of outlet, whether the watercourse is situated in or outside of the district. To obtain complete drainage within the district, supervisors are vested with power

to widen or to straighten or enlarge any watercourse or remove any obstruction therefrom, whether in or outside of the district. When necessary, they may straighten such watercourse by cutting new channels upon other lands, but the value of any land used is to be paid in the same manner as in the exercise of the right of eminent domain. The expenses of such work are paid from assessments upon the lands within the district.

FINANCING—Assessments

Sec. 16. Benefits and damages: The board of supervisors, as soon as may be, view each tract of land within the district and carefully consider all the damages and benefits that it will receive from the construction and maintenance of the drainage system. They assess each tract in accordance with the benefits to be received, making proper allowance for damage if there be any. After the assessment is made, the secretary of the supervisors transmits it to the board of commissioners, who within 15 days give notice by mail to each owner stating amount of benefits assessed upon his land and the time and place where they will hold a hearing on the report of the supervisors and will meet as a board of equalization of benefits. After such equalization hearing the assessments immediately attach and become a lien upon the lands. The board of supervisors, before the first Monday in February of each year, prepares a statement and estimate of the amount of money to be raised by taxation within the district for the purpose of constructing the works and maintaining them, paying district warrants, interest upon bonded indebtedness, and for creating a sinking fund to redeem the bonds. To the sum so computed they add 15 percent to provide for incidentals and possible delinquencies, and certify the entire amount to the county assessor of the county or of each county in which the district is situated. It is the duty of the assessor to levy the entire amount against all of the lands in the district in proportion to the equalized assessment of benefits, and the taxes so levied are placed on the regular assessment rolls as separate items and are collected at the same time and in the same manner as state and county taxes. The county treasurer pays over such drainage taxes to the treasurer of the board of supervisors.

Secs. 17 and 18. Lien: All drainage taxes levied and assessed attach and become a lien on the real property on the day upon which the tax is levied. **Sec. 18:** At the time of computing the tax, the county auditor places upon the assessment roll the drainage taxes of the several districts in his county as certified by the board of supervisors.

Sec. 21. Warrants: Supervisors have no power to incur any debt by issuing bonds or otherwise in excess of the express provisions of this act, and such debt if so incurred becomes absolutely void unless it be for the purpose of organization. The board of supervisors may, however, before the collection of the first annual tax, issue warrants of the district, bearing interest at not to exceed 7 percent. Exception is made also where money has been loaned to the district and actually expended by the supervisors for the benefit of the district, and in cases of great necessity or emergency. When emergency arises, the supervisors may apply to the state board of finance for permission to make a temporary loan to meet it. Any indebtedness of this kind is in no sense the personal obligation of the supervisors, but it constitutes a lien upon the lands in the district. The limit of any fund for this purpose is an amount equivalent to an average of \$1.50 per acre throughout the district. It is the duty of the supervisors, in the preparation of the next annual budget, to make provision for the payment of all warrants. (As amended, Statutes of 1927, p. 33.)

FINANCING—Bonds

Sec. 32. Bonds—Election: Whenever the board of supervisors deem it expedient, for the purpose of constructing drains or other improvements they may issue bonds of the district to run not more than 20 years and to bear interest at a rate not exceeding 6 percent, to be called drainage district bonds. Such bonds may not be sold for less than 90 percent of their par value, and the proceeds may be used for no other purpose than paying the cost of construction, expenses of organization and administration, and interest; provided, that before such bonds are issued they must be authorized by vote of the freeholders at a special election called by the county commissioners on request of the supervisors. The election must be held in the district, and after due notice. *No person may vote at the election unless he be a freeholder* in the district, and none may have more than one vote regardless of the amount of land he owns. Persons natural or artificial, whether resident or not, are entitled to vote, and may vote in person or by proxy. The commissioners appoint the judges of election and conduct it, as nearly as practicable, in accordance with the general laws of the State. The commissioners canvass the vote, and if it appear that a majority be in favor, they declare that the bonds shall be issued. Any property owner may pay the full amount of the benefits assessed against his property before bonds are issued and receive a receipt in full. Payments in full are made to the county treasurer, who enters them upon the tax lists and furnishes the county clerk with duplicate receipts showing all assessments so paid. The terms and times of payment of the bonds are fixed by the board of commissioners. The bonds of the district must be numbered by the supervisors and recorded by the county clerk, and the record must show specifically the lands embraced in the district upon which the tax has not been paid in full. Each bond must show on its face that it is to be paid only by a tax assessed and collected on lands within the district designated, and no tax may be collected for the payment of said bonds or interest from any property outside of the district. In no case may the amount of the bonds exceed the benefits assessed.

Sec. 33. Lien: Whenever any drainage district bonds are issued, they constitute a lien upon all of the lands and improvements within the boundaries of the district, and the board of supervisors must levy a tax sufficient to pay the annual interest charge and in addition to build up a sinking fund that will ultimately liquidate and redeem said bonds.

CONSTRUCTION

Sec. 20. Plan: After adopting a plan for the drainage works, the supervisors give notice by publication, calling for bids for construction. The notice states that the plans and specifications may be seen in the office of the supervisors, and that sealed proposals will be received and contracts awarded to the lowest responsible bidder. The bids are opened in public, and the supervisors let the work as a whole or in portions to the lowest responsible bidder or bidders. They may reject all bids and cause the necessary work to be done by contract approved by the supervisors and ratified by the county commissioners. All contractors must enter into bond for 50 percent of the contract price, conditioned for faithful performance. Supervisors may not be interested directly or indirectly in any contract.

NEW MEXICO

[*New Mexico Compiled Statutes, 1929; Supplement 1938; and Session Laws (Chapter 40, secs. 101 to 504)*]

ORGANIZATION—Petition

Sec. 40-101. Jurisdiction: The district court of any county in which a portion of lands sought to be included in a drainage

district are situated has jurisdiction to establish the district upon proper petition therefor. The petition must be signed by 25 percent of the adult owners of the lands to be included, who own at least one-fourth of the total in the district. The petition may be for the construction of drains or ditches, for the acquisition by purchase or otherwise of drains already constructed, for construction of outlets, or for the maintenance and repair of drains.

Secs. 40-102 and 40-103. Petition: The petition must set forth the name of the district; a description of the necessity for the work; a general description of the works theretofore constructed and of the land to be included in the proposed district; the names of the owners where known; and, if the purpose is for enlargement and maintenance of drains already constructed, there must be a general description of such drains. The prayer of the petition is for the organization of a district and the appointment of commissioners to manage and control the same. (L. 1921, ch. 166.) The court will at any time permit the amendment of the petition in form and substance to conform to the facts if the facts justify the organization of a district. **Sec. 40-103:** The territory to be included in the district need not be contiguous, provided that agricultural interests will be promoted by drainage of each part thereof and the benefits from the proposed work in each part will exceed the costs, and if the court shall be satisfied that the work can be more cheaply constructed in a single district.

Secs. 40-104 to 40-116. Hearing: The court fixes a hearing on the petition after 20 days' notice by posting, personal service, and publication. Nonresidents are notified by mail. The notice states generally the contents of the petition, and interested parties may object to the form, the number of signers, the sufficiency of notice, the constitutionality of the law, or the jurisdiction of the court.

ORGANIZATION—Officers

Secs. 40-117 to 40-119. Election: If it appears that the petition is in due form, the court certifies that fact to the board of county commissioners of each county affected and the commissioners call an election within 30 days to elect drainage commissioners for the district. The election is held in conformity with the general election laws of the state. All resident freeholders who are owners of land in the district and who are qualified electors under state laws are entitled to vote. After the first election there is a regular election of commissioners every second year on the first Monday in December. Vacancies are filled by the district court. The removal of a commissioner from the county or counties in which the district is situated renders his office vacant. The commissioners are at all times under the control and direction of the district court.

Secs. 40-133 to 40-143. Preliminary report of commissioners: The commissioners organize by electing a president and a secretary from their own number. They personally examine the land in the proposed district, and make a preliminary report to the court showing whether the proposed work is necessary and will be a public utility, whether it promotes agricultural interests, whether there are lands described in the petition that would not be benefited, and whether the total benefits will exceed the costs, damages, and preliminary expenses. The commissioners fix the boundaries in their report, but such boundaries may not be so changed as to deprive the court of jurisdiction. If the work as proposed in the petition is not feasible, the commissioners may suggest and report another plan to the court.

Upon the filing of the preliminary report of the commissioners, the court fixes the time and place for a hearing thereon

and gives notice to all interested parties by publication, describing the lands included in the commissioners' report that have not been mentioned in the petition. Interested parties may remonstrate at the hearing against any part of the report, such remonstrance to be in writing under oath. When land has been added to the district by the commissioners' report, the owners thereof must be personally served with notice of the hearing. The court tries the issues raised without a jury, and if it finds for the remonstrants or that the benefits to be derived will not equal or exceed the costs, damages, and preliminary expenses, the petition is dismissed at the cost of the petitioners. If the court finds that the benefits will exceed the damages and costs and that agricultural interests will be promoted, it makes that finding in writing and enters an order confirming the report and directing the commissioners to proceed with the work. The findings are final and conclusive in the absence of appeal to the Supreme Court within 30 days. Upon the entering of the order of confirmation, the drainage district thereby becomes organized by the name mentioned in the petition with the boundaries fixed by the order and is a body corporate with perpetual succession. The commissioners of the district become the corporate authority and exercise all of the functions of a corporation.

Sec. 40-186. Eminent domain: Any person, firm, corporation, or association may exercise the right of eminent domain to acquire lands for rights-of-way for the construction, maintenance, and operation of a drainage ditch, and such ditch shall be located so as to do the least damage to private property consistent with proper use and construction. Such land and rights-of-way must be acquired in the manner provided by law.

FINANCING—Assessments

Secs. 40-144 and 40-145. Assessment of benefits: After the confirmation of the preliminary report, the drainage commissioners employ an engineer to make surveys, lay out the proposed works, and furnish maps, profiles, plans, and specifications. After completion of the engineer's work, the commissioners report in writing to the court whether the route is feasible; what land must be brought into the district, and the owners thereof; what land within the district will be damaged, and the amount of damage; and the land that will be benefited by the proposed work. They assess against all lands the benefits that will be derived. They estimate the total cost of the work, including expenses of organization and damages to land both within and without the district. They report the amount that should be assessed against every particular tract or corporation, and if any land or corporation will derive special benefits from the whole or any part of the work, the commissioners assess the same. This applies to railroads, private corporations, towns, cities, villages, and other drainage districts. The cost of construction that is not thus specially assessed is apportioned by the commissioners against the remainder of the land in proportion to the benefits.

Secs. 40-148 to 40-159. Hearing on assessments: Upon the filing of the drainage commissioners' report, the court fixes the time and place of the hearing thereon, and notice as given by publication for three weeks in each county and by serving a copy of the notice on each person or corporation who will be assessed or whose lands will be included in the district. Interested parties may remonstrate against the confirmation of the report, which may be referred back to the commissioners for modification or amendment if necessary. If there be no remonstrance or if the finding of the court is in favor of the validity of the proceeding, the court confirms the report and such order of confirmation is final and conclusive in the absence of

appeal to the Supreme Court within 30 days. The order of confirmation may be revised or modified by the court at any subsequent term upon notice to parties adversely affected. At any time prior to the order confirming the report, or thereafter, the court may permit the drainage commissioners to file a supplemental report or amend the original report.

Sec. 40-159. Installments—Lien: At the time of confirmation of the assessments the court may order them paid in not more than 15 installments, in such amounts and at such times as will be convenient for the accomplishment of the work or the payment of notes and bonds that the court may grant authority to issue. The court may fix the date on which the first installment will become due, not more than 5 years after the date of the order. Installments bear interest at 8 percent from the date of the order. Unless otherwise provided by the order, assessments for construction and interest thereon become a lien upon the land until paid. Any landowner may within 30 days pay the assessments in cash and thereby relieve his land from the lien.

Secs. 40-165 to 40-168. Additional assessments: If the first assessment be insufficient to complete the work or to pay the interest on the lawful indebtedness of the district, additional assessments on the lands and corporations, apportioned upon the last confirmed assessment of benefits, may be made by the drainage commissioners upon order of the court, without notice, and such assessments may be made payable in installments and collected in the same manner as the original assessment.

Secs. 40-174 to 40-180. Inclusion of lands: Whenever outside lands are receiving benefits from the district by natural or artificial connection with its drains, or are damaging lands in the district, the commissioners may report such fact to the court and ask that such land be brought into the district and assessed for the benefits received by it from the drains of the district or that they be charged with the damages inflicted. If after notice and hearing the court finds the land benefited, it issues an order annexing said land and assessing benefits against it. This order is final in the absence of appeal to the Supreme Court within 30 days. The commissioners then assess just and reasonable benefits against such included land and such sum as may be just for construction or repair of damages.

Sec. 40-402. Collection of drainage assessments: The drainage commissioners may at any time certify drainage assessments and interest due, to the official whose duty it is to collect county and state taxes; and such official must enter the same on the tax roll in a separate column and collect the drainage assessments in the same manner as state and county taxes are collected, except only that personal property and all lands other than those against which the assessments were made shall not be liable to seizure and sale therefor.

Secs. 40-161 to 40-164. Maintenance assessments: Assessments for repairs and maintenance are due on the first Tuesday in September of each year. The commissioners having charge of a completed drain file an annual report with the clerk of the court having jurisdiction, specifying in detail the repairs necessary and the sum to be assessed against each tract to pay the expense thereof. All such assessments are apportioned on the last confirmed assessments of benefits. Within 30 days after the filing of the commissioners' report the court fixes the time for hearing all objections thereto; hears such objections, if any; and determines the amount of the assessments, which are then entered on the records of the court, and a certified copy thereof delivered to the commissioners. The commissioners have the right of entry on lands at all times for construction and maintenance purposes. A district may condemn rights-of-way over lands and railroads to reach a proper outlet, whether they be within or without the district.

FINANCING—Bonds

Secs. 40-169 to 40-182. Notes—Bonds—Refunding bonds: The commissioners may borrow money necessary for preliminary expenses, and secure the same by notes bearing interest at not to exceed 8 percent and running not beyond one year from their date. They may further borrow money, not exceeding the amount of the assessments outstanding at the time of borrowing, for construction or repair of any work authorized or for payment of any lawful indebtedness. They may secure payment of loans by notes or bonds bearing not to exceed 8 percent interest and running not beyond one year after the last installment of the assessments on account of which the money is borrowed shall fall due. Notes and bonds may not be sold for less than 90 percent of their face value. They constitute a lien upon the assessments against which issued, for the payment of both principal and interest. No commissions other than the discount provided shall be allowed for the sale of said bonds, and they are not subject to taxation by the state or any subdivision thereof. All sales of bonds must be approved by the court. Any surplus from bonds sold for original construction may be used to pay maintenance expenses.

The court may, upon petition of the commissioners, order the issuance of new bonds or notes payable in such longer time as the court may deem proper, not to exceed in the aggregate the amount of all bonds or notes then outstanding and interest thereon. Such new bonds may be used only to take up and cancel the obligations of the district. They may not bear more than 8 percent interest. No bonds or obligation issued by the district shall be adversely affected by any subsequent change in the assessment of benefits.

DRAINAGE DISTRICTS ON FEDERAL RECLAMATION PROJECTS

(Laws of 1917, ch. 22)

ORGANIZATION—Petition

When a majority of the residents owning one-third of a body of land within the limits of a Federal reclamation project desire to drain the same, they may propose the organization of a drainage district. The district may be formed to cooperate with the United States through the construction of drainage works necessary to maintain the irrigability of land within the district or for the purchase, extension, operation, or maintenance of works necessary for that purpose, or for the assumption as principal or guarantor of the indebtedness to the United States on account of the drainage of such district lands.

A petition is addressed to the board of county commissioners of the county having the largest acreage in the proposed district. It states the purposes of the district, a general description of its boundaries, its name, and designates a committee of three petitioners to present it. The petition contains a prayer that the board will establish the boundaries and submit the question of organization of the district to a vote of the qualified electors residing within the proposed district. The notice is published for four weeks in both English and Spanish, setting the time and place for a hearing on the petition. Upon the hearing, if the petition is found to be regular in all respects, the commissioners proceed to fix and define the boundaries of said district; provided, they may not modify the boundaries stated in the petition so as to change the objects of the petition or so as to exempt any land susceptible of being drained by the same system; nor shall any land which will not be benefited be included if the owner makes application for exemption. Contiguous lands not included in the petition may upon the application of the owners thereof be

included. When the boundaries have been fixed, the board enters an order granting the prayer of the petition, giving the district a name, and calling an election on the question of whether the district shall be organized. They submit the names of one or more persons from each division of the district to be voted for as directors.

For the purpose of the election the district is divided into a number of divisions determined by the acreage in the proposed district as follows: For districts having 25,000 acres or less, 3 directors; more than 25,000 acres and less than 50,000 acres, 5 directors; more than 50,000 and less than 75,000 acres, 7 directors; and 75,000 acres or more, 9 directors. At the election all resident freeholders who are the owners of land within the district and who are qualified electors may vote.

The directors elected manage and conduct the affairs of the district and establish bylaws and regulations for the operation and maintenance of the system. They may also enter into obligations or contract with the United States for the construction, operation, and maintenance of drainage works, and for the purpose of fully carrying into effect the purposes of this act including the drainage of district lands. In case contracts are made with the United States, bonds of the district may be deposited with the United States at 95 percent of their face value to the amount to be paid to the United States under any such contract, the interest on such bonds not to exceed 6 percent *per annum* and such interest to be provided for by assessment and levy. If the bonds of the district are not so deposited, it is the duty of the board of directors to include each year, as a part of any levy or assessment provided for by law, an amount sufficient to meet all payments accruing under the terms of any such contract. (Sec. 40-219.)

For the construction of drainage works, or the acquisition of rights-of-way, or the maintenance of works already constructed, or the assumption of the indebtedness to the United States for drainage district lands, or the purpose of paying the first year's interest on bonds, the board of directors as soon as possible estimate the amount necessary to be raised or the amount of the indebtedness necessary to be assumed and forthwith call a special election on the question of whether or not bonds shall be issued in the amount determined to be necessary. (Sec. 40-223.)

Should bonds be issued, the principal and interest thereof and all payments due or to become due the ensuing year to the United States under any contract shall be paid by revenue derived from an annual assessment upon the real property of the district, and such real property is liable for assessments for such payment. (Sec. 40-224.)

The board of directors files with the board of county commissioners an annual statement of the amount needed for the ensuing year, and the county assessor enters on the tax rolls the names of the owners and a description of the land subject to taxation under this act. The county commissioners fix the rate per acre necessary to be assessed to raise the required fund, and certify this rate to the board of county commissioners of each county having land in the district. The treasurer of county where the office of the district is located is *ex officio* treasurer of the district, and the other county treasurers affected remit to the district treasurer monthly the amounts collected in their counties. The general revenue laws of the state are applicable to the collection of drainage taxes. (Secs. 40-226 to 40-231.)

When a majority of the freeholders owning one-third of the land shall petition the directors to call a special election on the question of dissolution of the district, setting forth in

the petition that all obligations of every kind have been fully paid and the necessity for the continuance of the organization no longer exists, the directors, if satisfied with the correctness of the showing, give notice by publication of an election on the question of dissolution. The directors may not entertain such a petition so long as any contract with the United States remains in force, without the written consent of the Secretary of the Interior filed with the county clerk of the county wherein the district office is located. If a majority vote in favor of dissolution, the district is declared by the directors to be disorganized and the board forwards to each county clerk affected a certificate showing the results of the election, which certificate is recorded in each county. (Secs. 40-252 to 40-253.)

The board of directors must by petition to the district court institute special proceedings to have the validity of the organization of the district and all acts of the directors judicially examined; approved, and confirmed. In these proceedings all interested persons may appear and file their objections.

The final judgment of the court is *res adjudicata*, subject to appeal to the Supreme Court within 30 days, in all cases arising in connection with the organization of the district and the collection of taxes therein. (Secs. 40-254 to 40-258.)

NORTH CAROLINA

(North Carolina Code of 1939, Subchapter III, ch. 94)

DRAINAGE DISTRICTS

(Subchapters I and II relate to drainage by individuals or corporations through intervening lands belonging to others, and are not of importance in this synopsis dealing exclusively with organized drainage districts in aid of agriculture.)

ORGANIZATION—Petition

Sec. 5312. Jurisdiction to establish: The clerk of the superior court of any county has authority to establish levee or drainage districts, either wholly or partly located in his county. He may locate and establish drainage works or straighten, widen, or deepen any drain or watercourse, for the purpose of reclaiming wet, swamp, or overflowed lands. It is declared that the drainage of swamp lands, removing surface water from agricultural lands, and the reclaiming of tidal marshes is a public use and benefit and conducive to the public health and welfare. Drainage districts constitute political subdivisions of the state with authority to levy assessments and taxes for construction and maintenance.

See: *Sanderlin v. Luken*, 152 N.C. 738; 68 S.E. 225.
Taylor v. Comrs., 176 N.C. 217; 96 S.E. 1027.
Leary v. Board, 172 N.C. 25; 89 S.E. 803.
Oden v. Bell, 185 N.C. 403; 127 S.E. 340.

Sec. 5313. Venue: When the lands proposed to be created into a drainage district are in two or more counties, the clerk of the superior court of either county is authorized to exercise the jurisdiction herein conferred, and the venue is in that county in which the petition is first filed. The law of special proceedings is applicable in this proceeding, and the proceedings hereunder may be *ex parte* or adversary.

ORGANIZATION—Petition

Sec. 5314. Petition filed: A petition signed by a majority of the resident landowners in a proposed district, or by the owners of three-fifths of all of the lands that will be affected or assessed, may be filed in the office of the clerk of the superior court of any county in which a part of the land is situated. (There is a special provision for Rowan, Robeson, and

Iredell counties, permitting the petition to be signed by less than a majority of the landowners, or by landowners who own less than three-fifths of the land, if such petition is first approved by the board of county commissioners and the board of health of the county in which it is filed.) The petition sets out that a body of land in the county and adjoining counties, described so as to convey an intelligent idea of the location of the land, is subject to overflow or too wet for cultivation and that public utility, health, and welfare will be promoted by draining the same. The petition also sets out the route and termini of the proposed work and its lateral branches. The petition must also state whether the proposed drainage is for the reclamation of lands or for the improvement of land already under cultivation. If a reclamation district is proposed, the petition must state that the reclaimed lands would be of a value to justify the reclamation.

Sec. 5315. Bond and summons: Upon the filing of an approved bond in the sum of \$50 per mile of the proposed improvement, conditioned to pay costs if the petition is not granted, the clerk of the superior court will issue a summons to all of the defendant landowners who have not signed the petition. The summons may be served by publication where personal service cannot be had. (Dover Lumber Co. v. Bd. of Comrs., 173 N.C. 117; 91 S.E. 714.)

Sec. 5316. Publication of summons: When it is made to appear to the court by affidavit or otherwise that owners of any portions of the lands involved are unknown and cannot be found after due diligence, the court will cause the summons to be published for four weeks and to be posted. If no owner appears after publication, the court assumes jurisdiction of said land to the same extent as if the true owner were present. If such owners appear later in the proceedings, they may be made parties defendant on their own motion and without personal service.

ORGANIZATION—Officers

Sec. 5317. Viewers: Upon the return day of the summons the clerk appoints a disinterested drainage engineer and two resident freeholders of the county or counties in which the lands are situated as a board of viewers to examine the land and make a preliminary report thereon. The engineer is appointed on the recommendation of the state geologist and no member of the board may own any land within the proposed district. (Bd. of Agric. v. Drg. Dist., 177 N.C. 222; 98 S.E. 597.)

Sec. 5318. Attorney: The petitioners may select an attorney to represent them and prosecute the proceedings; and if they fail to agree on such attorney, the clerk of the superior court will make the appointment. Any individual may select his own attorney in addition.

Sec. 5320. Viewers' report: The viewers proceed to examine the lands mentioned and other lands necessary to properly locate the improvement, and may make any modification of the plan that is more feasible. They may make surveys and determine boundaries, and they report in writing to the clerk within 30 days unless the time is extended. The report must show (1) whether the drainage is practicable; (2) whether it will benefit the public health or any public highway or be conducive to the general welfare; (3) whether it will benefit the lands sought to be benefited; (4) whether all of the lands benefited are included in the district; and (5) whether the district is a reclamation district or an improvement district. (A reclamation district is defined as a district principally for reclaiming land not already under cultivation, and an improvement district as one organized principally for the improvement of lands already under cultivation.) If it is a reclamation district the viewers report whether the drainage would be justified by the

resulting value of the reclaimed land. The viewers also file a map of the district showing the location of the works and other improvements.

Secs. 5337 and 5339. Drainage commissioners: After the district is established, the board appoints a board of three drainage commissioners. They must first be elected by a majority of landowners, in such manner as the court may prescribe. If any one or more of the proposed drainage commissioners does not receive the vote of a majority of the landowners, the court completes the board by appointment from those voted for in the election. Vacancies are filled in like manner. The commissioners thereupon become a body corporate under the title of "The Board of Drainage Commissioners of _____ District" and have the usual powers of a corporation. The drainage commissioners elect a chairman and vice-chairman, and a secretary who may or may not be a commissioner. The treasurer of the county is *ex officio* treasurer of the board. In all districts the name must contain the name of the county and a serial number. **Sec. 5339:** In the election of the drainage commissioners each landowner is entitled to cast a number of votes equal to the number of acres owned by him and benefited, as appears by the final report of the viewers. Each landowner may vote for three persons for drainage commissioner. If any landowner in any district owns an area greater than one-half of the district, he is permitted to elect only two of the drainage commissioners and a separate election is held by the minority in area to elect one member. (Peoples Loan Etc. Bank v. King, 212 N.C. 345; 193 S.E. 663.)

Sec. 5377. Auditor: The county commissioners of each county having one or more drainage districts shall annually appoint one of the members of the finance committee of the county, where the county has a finance committee, as "auditor for drainage districts." If the county has no finance committee, then a competent person of sufficient experience is appointed. The county commissioners fix the auditor's compensation, which may not exceed \$50 per annum.

Sec. 5378: The auditor examines all the assessment records and the records of the treasurer and sheriff or tax collector, pertaining to the district, and reports to the board of county commissioners.

ORGANIZATION—Powers

Sec. 5321. Hearing on viewers' preliminary report: The clerk considers the preliminary report of the viewers and determines, with the approval of the court, whether the requirements of benefit and public welfare have been met. If not, the petition will be dismissed at the cost of petitioners. (For a reclamation district, if the report fails to show also that the cost of the drainage will be justified by the resulting value of the reclaimed land, the petition will be dismissed.) The petition may be again instituted by the same or additional landowners after six months upon allegations that the conditions have changed or that material facts were overlooked. If the viewers report favorably as to the necessary elements of practicability, benefit, and public utility, and the court so finds, then the court fixes the day when the petition will be further heard.

Secs. 5322 and 5323. Notice and further hearing on viewers' report: Notice is given, by publication and posting, of the date when the court will consider and pass upon the report of the viewers, which date may not be less than 15 days after publication and posting. **Sec. 5323:** At the hearing the court will consider and determine any objections that may be offered to the viewers' report. If it appears that there are lands that will not be affected by the drainage works, they will be excluded by the court. If it appears that land not within the proposed district will be affected by the drainage works, the boundaries of the

district are changed to include that land and the owners thereof are made parties and summoned to appear. After such change in boundaries, the sufficiency of the petition must be verified to conform to the requirements for the original petition. Beneficial modifications and changes in the proposed work may be ascertained and made. If necessary, the petition is referred back to the viewers for further report. The above facts having been determined to the satisfaction of the court and the boundaries fixed, the court will declare the establishment of the district, which will be designated by a name and number. If excluded lands are so situated as to be necessarily within the boundaries of the district, that fact does not prevent the establishment of the district and those lands are not assessed. The district may, however, acquire rights-of-way across them. The court will further determine, if it is a reclamation district, whether the increased value of the particular land will justify the expense of reclamation.

See: *Oneal v. Mann*, 193 N.C. 153; 136 S.E. 379.
Shelton v. White, 163 N.C. 90; 79 S.E. 427.
Drg. Comrs. v. Eastern Home Assn., 165 N.C. 697; 81 S.E. 947.

Sec. 5324. Appeals: Any person owning land within the district who thinks he will not be benefited and should not be included within the district may appeal to the superior court of the county in term time by filing a bond to pay costs should the appeal be decided against him.

Sec. 5325. Condemnation of land: If it be necessary to acquire rights-of-way or an outlet over lands not affected by drainage, and it cannot be acquired by purchase, then the right of eminent domain is conferred and the land may be condemned. The procedure is substantially the same as for condemnations of rights-of-way of railroads. The damages awarded must be paid by the board of drainage commissioners out of the first funds received by them from bonds or otherwise.

Secs. 5326 and 5327. Complete survey: After the district is established the court refers the viewers' report back to them for a complete survey, plans, and specifications, and fixes the time when they shall again report, but not more than 60 days later. *Sec. 5327:* The engineer and viewers enter upon the lands and make a complete survey of the main and lateral drains, marking same substantially on the ground. All details are shown on maps and plats with levels and profiles. Bench marks are established on permanent objects along the route of the works, and their elevations recorded. All channels are cross-sectioned so as to compute the difference in cubic yardage of excavation that would be saved by the use of such channels. The location of highways and towns must be shown on the map. The cubic yards of excavation required for each mile must also be shown on the map. The viewers prepare an estimate of the cost of the entire improvement and any other work required to be done.

Sec. 5373. Subdistricts: Subdistricts may be formed by landowners within a district in the same manner as the main district was formed. They have the right to use the ditches of the main district for outlets. Formation of a subdistrict does not relieve the land from the assessments of the main district nor give it any claim on the funds of the main district.

FINANCING—Assessments

Sec. 5319. Preliminary expense: The clerk of the superior court makes an estimate of the aggregate expense of the viewers, attorney, and engineer, and court costs, embracing the period of the survey up to the establishment of the drainage district and the election of the drainage commissioners. He then estimates, without survey, the acreage owned or represented by the petitioners, and assesses each acre so represented a level rate

per acre, to the end that such assessments will realize the required costs as estimated. The viewers, including the engineer, are not required to enter on their duties until this sum of money is paid in cash to the clerk of court, where it is retained in a court fund. Unless all assessments are paid within a time fixed by the court, no further proceedings will be had but the petition will be dismissed at the cost of the petitioners; money already collected will be returned *pro rata* after paying whatever expense has already been incurred. Any petitioner has the privilege of making up the deficiency arising from the delinquency of other petitioners.

After the drainage district is established and the board of drainage commissioners appointed, the board shall refund to each petitioner the amount so paid by him out of the first money coming into the hands of the board from the sale of bonds or otherwise, and the sum so refunded is included in ascertaining the total cost of the improvement.

Sec. 5328. Assessment of damages: The engineer and viewers assess the damages caused by construction of the improvement, and any other legal damages sustained. Damages are considered separate and apart from benefits because of the proposed works, and must be paid by the board of drainage commissioners when funds come into their hands.

See: *Spencer v. Wills*, 179 N.C. 175; 102 S.E. 275.
Sawyer v. Drg. Dist., 179 N.C. 182; 102 S.E. 273.
Lumber Co. v. Drg. Comrs., 174 N.C. 647; 94 S.E. 457.

Sec. 5329. Classification of lands: The engineer and viewers personally view the lands and classify them according to the benefits that they will receive from the construction of the works. In the case of a drainage district, the degree of wetness of the land, its proximity to the ditch or a natural outlet, and the fertility of the soil shall be considered in determining the amount of the benefits the land will receive. There are five classes designated, A to E, A being the highest. Holdings of any one landowner need not be all in one class, but the number of acres in each class is ascertained though its boundaries need not be marked on the ground or upon the map. The total number of acres owned by one person in each class and the total number of acres benefited must be determined. The total acreage in each class in the district is reported in tabular form. The scale of assessment is in the ratio of 5-4-3-2-1; that is, as often as five mills per acre is assessed against the land in class A, four mills per acre is assessed against class B, and so on. This forms the basis of assessment of lands for drainage purposes. Lands may be included that are not benefited for agricultural crop production but will receive benefit in health conditions. These lands may be assessed without regard to the ratio and at such sum per acre as will fairly represent the benefit. Village and town lots requiring drainage may be included and assessed without regard to the ratio, at a higher rate per acre by reason of the greater benefit. If the streets of a corporation are benefited, the corporation may be assessed in proportion to the benefit, and the assessment is a liability against the corporation and may be enforced. (*Mitchen v. Drg. Comrs.*, 182 N.C. 511; 109 S.E. 551.)

Secs. 5331 to 5333. Final report—Hearing: If the court finds the final report in due form and in accordance with law, it will confirm the same. When the report is accepted by the court, a date not less than 20 days thereafter is fixed for a final hearing thereon and notice is given by publication and posting. A copy of the report is filed with the clerk of the superior court for public inspection. *Sec. 5332:* Any landowner may object in writing to the report of the viewers. The court will carefully review the report and all objections, and make any changes

that may be necessary to render substantial justice to all of the landowners. If the court is of the opinion that the costs, damages, and expenses are not greater than the benefits to be derived, it will confirm the report. Finding the contrary, the court will dismiss the petition at the cost of the petitioners; provided, the state geological and economic survey may remit to the petitioners the costs expended by the board on account of the engineer and his assistants. *Sec. 5333*: Any aggrieved party may appeal within 10 days to the superior court in term time. The appeal is solely on the exceptions filed and no additional exceptions may be considered. Appeals have precedence in consideration and trial by the court.

Secs. 5351 and 5352. Assessment—Bond issue: After classification of the land, and after the ratio of assessment of the different classes has been confirmed by the court, the drainage commissioners ascertain the total cost of the improvement, including damages, incidental expenses, and an amount sufficient to pay the necessary maintenance cost for a period of three years after completion not exceeding 10 percent of the estimated actual cost of construction or the contract price if contract has been awarded. After deducting therefrom any special assessments made against any railroad or highway, they certify the total cost so ascertained to the clerk of the superior court. The certificate is forthwith recorded in the "drainage record" kept by the clerk and is open to inspection of any landowner. *Sec. 5352*: If the total cost of the improvement is less than 25 cents per acre on all the land in the district, the drainage commissioners forthwith assess the land in accordance with their classification and collect such assessment in one installment. If the total cost exceeds an average of 25 cents per acre on the land in the district, the drainage commissioners give notice by publication and posting that they propose to issue bonds for the payment of the total cost of the improvement. Any landowner not wanting to pay interest on the bonds may pay the county treasurer within 15 days the full amount for which his land is liable, and have such land released from the liability to be assessed for the improvement. But such land continues liable for future maintenance assessments and for additional assessments.

See: *Drg. Comrs. v. Davis*, 182 N.C. 140; 108 S.E. 506.
Taylor v. Comrs., 176 N.C. 217; 96 S.E. 1027.
Va.-Carolina Jt. Stk. Land Bk. v. Watt, 207 N.C. 577; 177 S.E. 228.
Mitchem v. Drg. Comrs., 182 N.C. 511; 109 S.E. 551.

Sec. 5360. Assessment roll: The drainage commissioners prepare an assessment roll or drainage tax list giving the name of the owner, a brief description of the land, and the amount assessed against it. The first assessment roll is due on the first Monday in September following the date of the bonds and provides for interest on the bonds for one year. The second assessment roll is the same. Annual assessment rolls thereafter provide for interest for one year on the issue of bonds outstanding, and for the installment due on the principal; this continues until the whole of the principal and interest is paid. The assessment roll must include 10 percent additional as provided in section 5355. (See Financing Bonds.) The amount assessed against the various tracts of land must be in accordance with benefits received as shown by the classification and ratio of assessment made by the viewers. One copy of the roll is delivered to the sheriff or tax collector after the clerk of the superior court has appended thereto an order directing the collection of such assessments, and thereupon the assessments have the force and effect of a judgment, as in the case of county and state taxes. The statute again declares that drainage

districts are created for public use and are political subdivisions of the state.

Sec. 5361. Lien—Collection—Sale of Land: The assessments constitute a first and paramount lien, second only to state and county taxes, and are to be used for the payment of bonds as they become due and interest thereon. Assessments are collected in the same manner and by the same officers as state and county taxes. They become delinquent on the 31st of December, and it is the duty of the sheriff or tax collector to sell the land so delinquent. No order from any court for sale or resale is required. The existing general tax law has application in the redemption of land so sold, and in all other respects except as to the time of the sale of the land. The existing law as to collection of state and county taxes applies to drainage assessments.

See: *Bd. Drg. Comrs. v. Lafayette Southside Bank*, 27 Fed. (2d) 286.

Pate v. Banks, 178 N.C. 139; 100 S.E. 251.

Comrs. v. Lewis, 174 N.C. 528; 94 S.E. 8.

Drg. Comrs. v. Eastern Home etc., 165 N.C. 697; 81 S.E. 947.

Sec. 5362. Lien on land only: Only the land assessed for the drainage proceeding is liable for drainage taxes or assessments, and no other property of the landowner may be sold for the drainage tax or assessment; provided, this section does not apply to any drainage bonds sold and delivered prior to the ratification hereof or to any litigation pending. (L. 1919, ch. 282; L. 1927, ch. 139.)

Sec. 5370. Conveyance of land: The statute provides that the boundaries of the district and the classification and assessment of the lands therein shall remain as of the time when the district was established, and no conveyance or devise shall affect the status or liability of the land except as provided in the statute. Provision is then made for conveyance before final report and confirmation, and the method whereby the new holder of title becomes a party to the proceeding is set out in the statute. Conveyances after the district is established are accomplished by elaborate provisions, the ultimate result being that no amendment of the assessment roll shall be valid unless the number of acres and the classification assessed against the new owners shall equal the area and classification as it appears in the original assessment roll. (L. 1917, ch. 152; L. 1919, ch. 208.)

Sec. 5372. Modification of assessments: (1) Where the court has confirmed an assessment which is subsequently modified by a court of superior jurisdiction and for some reason cannot be collected, the drainage commissioners have power to modify the assessments originally confirmed to conform to the superior judgment, and to cover the deficit by a relevy on the lands benefited in the same ratio as the original assessment was made. (2) When land is sold for assessments, the proceeds are paid to the county treasurer and by him used to pay current and future assessments so far as the funds may be sufficient. When the fund is exhausted, the treasurer gives written notice to the drainage commissioners and to the clerk of the superior court. The drainage commissioners institute an investigation to determine the market value of such land, and if they find it is not equal to all future annual assessments to cover its share of installments on outstanding bonds and interest, they, with the approval of the clerk, make new reassessment rolls on the remaining lands in the district and increase them sufficiently to equal the deficit created; and the new rolls constitute the future rolls until changed according to law. The land sold continues on the assessment roll in the name of the new owner, but reassessed upon the new basis, so long as it has sufficient market value out of which to collect the annual drainage taxes. When the

land ceases to have sufficient value or is abandoned by the person claiming title thereto, the commissioners may drop it from the assessment roll, with the approval of the clerk of the superior court. The lands may be restored to the assessment roll at any time in the same manner. (3) If the fund in the hands of the county treasurer at any time becomes more than sufficient to pay annual installments of principal and interest, or the annual cost of maintenance, or both, the surplus is held by the treasurer for future disbursement for other purposes as provided herein or subject to the order of the drainage commissioners. (Foil v. Board, 192 N.C. 652; 135 S.E. 781.) (4) If for unforeseen reasons or unavoidable causes, or default of the contractor without sufficient recovery on his bond, it becomes necessary to raise more money to complete the plan, the drainage commissioners with the approval of the court clerk prepare new assessment rolls upon all of the lands in the district upon the original basis of classification of benefits, and increase the assessment in sufficient sum to equal the deficit. These remain the new assessment rolls until changed according to law. (5) If for any of the causes above recited a sum of money greater than the proceeds of bonds becomes necessary to complete the system, and the drainage commissioners determine that the amount is greater than can be realized from the collection of one annual assessment without imposing undue burden upon the land, or if it is advisable to raise the money more expeditiously, additional bonds may be issued in such aggregate sum as may be necessary. (6) The method of issuing additional bonds is for the drainage commissioners to file their petition with the clerk of the superior court, setting forth all the facts, whereupon the court will issue notice to the landowners to appear on a day certain, not less than 20 days thereafter, and show cause why the additional bonds should not be authorized. Personal service of this notice is required, where possible; otherwise, service is in the manner authorized by law. At the hearing the court hears the petition and answers, and if it finds the allegations are true and the issuance of the bonds advisable, it authorizes same by appropriate order. Any landowner may appeal, and on the appeal only the issues raised in the answer may be considered. After the court has ordered the bonds issued, the proceeding is the same as in the establishment of a district. The additional bonds may not exceed 25 percent of the total amount originally issued. They bear 6 percent interest, and may be made payable in 10 installments or less as recommended by the drainage board and approved by the court.

Secs. 5373-1 to 5373-4. Adjustment of delinquent assessments: The drainage board may, in connection with the issuance of refunding bonds, when the bonds so refunded constitute all of the bonds of the district for which assessments have been made, adjust the uncollected delinquent installments of assessments for the payment of principal and interest on the bonds so refunded, before said bonds are refunded. The adjustment may include reduction of principal amount of delinquent installments, not exceeding 50 percent thereof, to which reduced installment is added interest, at not less than the rate of interest on the refunding bonds, from the date of the delinquency to the date of refunding, and including costs; provided, all delinquent installments of such assessments shall be adjusted on the same basis and by the same method. (L. 1935, ch. 469, sec. 1.) **Sec. 5373-2:** The payment of all delinquent installments so adjusted may be extended over a period not exceeding the life of the issue of the refunding bonds and not exceeding 20 years. Assessment rolls are prepared which provide for payment of installments so adjusted in equal annual installments due September 1 in accordance with the original assessment, and they bear

interest at 4 percent from December 1 following their due date. Such assessments are collected in the same manner as other assessments. **Sec. 5373-3:** The collections from assessments adjusted under this article, and interest thereon, are set aside in a fund to be applied as follows: one-third may be used solely for operating and administration expenses of the district, but the remaining two-thirds shall be reserved as additional security for the payment of the refunding bonds or for the purchase and retirement of such bonds at prices not exceeding par and accrued interest. (L. 1935, ch. 469.) **Sec. 5373-4:** Any such adjustment of delinquent assessments is effective only upon approval of the local governing commission. (L. 1935, ch. 469.)

Sec. 5373-5. Assessments limited: The assessments made under this article shall in no instance, and against no piece of property, be greater in amount than that percentage which the present assessment authorized by this article bears to the unpaid original assessment upon each piece or tract of property within the district. In no instance, under any law, shall any reassessment be made upon any piece of property for the purpose of providing money for the same purpose for which the original assessment was made when the original assessment has been paid, nor to the extent that the original assessment has been paid. (L. 1935, ch. 469, sec. 4-b.)

FINANCING—Bonds

Sec. 5353. Consent to bond issue: Every landowner failing to pay to the county treasurer within 15 days the full amount for which his land is liable, is deemed to consent to the issuance of drainage bonds, and in consideration of the right to pay in installments he waives his right of defense to the payment of any assessment that may be levied for the payment of bonds because of any prior defect in the proceedings, except in the case of appeal as hereafter provided.

Sec. 5354. Bonds issued: At the expiration of 15 days after publication of notice of bond issue, the drainage commissioners may issue bonds equal to the total cost of the improvement less the assessments that have been paid in cash to the county treasurer. The first annual installment of the principal of bonds falls due in not less than 3 years nor more than 6 years after their date; and each annual installment of principal shall not be less than 5 percent nor more than 10 percent of the total bonds issued.

Sec. 5355 and 5356. Levy to pay bonds: To meet any possible deficit in the annual collection of assessments, there is levied each year in which principal and interest on outstanding bonds are due, an assessment to yield 10 percent more than the principal and interest due. When this excess assessment accumulates in the hands of the treasurer to more than 15 percent of the outstanding principal of bonds, then such surplus above said 15 percent may be available to the drainage commissioners for maintenance and upkeep. **Sec. 5356:** The drainage commissioners may sell bonds at not less than par, and devote the proceeds to the payment of the expenses as provided for in this chapter. The bonds are for the exclusive use of the district named on their faces. If any installment of principal or interest represented by the bonds be delinquent for 6 months, bondholders have the right to ask a writ of mandamus against the district and its officers, directing the levy of a tax or special assessment to meet such delinquency. Holders of defaulted bonds are given the right to institute suit against any officer for failure to perform his duties.

Sec. 5357. Sale of bonds: Detailed provisions for the sale of bonds are set out in the statute. They may not be sold for less than par and accrued interest.

Secs. 5358 and 5359. Refunding bonds: The drainage commissioners have authority to refund the outstanding bonds or any part thereof, and issue new bonds in equal amount, when in their judgment payment of the outstanding bonds at maturity will be an unreasonable burden on the landowners assessed for the payment or when it appears that the welfare of the district and the landowners will be promoted thereby. Refunding bonds bear not to exceed 6 percent interest. They are divided into annual installments not exceeding 10 percent and not less than 5 percent of the outstanding bonds refunded. The first installment of principal of refunded bonds may be made payable at not exceeding 6 years from the date of the refunding. Assessments are collected annually for payment of the interest. *Sec. 5359:* The state treasurer is authorized to receive drainage bonds as deposits from banks, insurance companies, and other corporations where deposits are required, provided the attorney general has approved the form of such bond.

Secs. 5373-a to 5373-e. Bonds for maintenance: The drainage commissioners have the right to issue bonds for maintenance or improvements if it is their opinion that it would be an unreasonable burden on any of the landowners to levy an assessment as provided in section 5349 sufficient to do the necessary maintenance or improvement work; provided, the drainage commissioners must petition the clerk of the superior court where the district was organized, setting forth the fact that the works are ineffective or need repair or improvement or that additional work should be done which will cost more than an average of \$1 per acre for all of the land in the district, and that to levy such amount in one assessment would be an unreasonable burden on the landowners. *Sec. 5373-b:* The clerk of the superior court appoints viewers as in the original organization of the district. *Sec. 5373-c:* If the viewers do not favor the bond issue, the clerk will not permit issuance, but the petition may be presented again after 6 months. If the viewers represent that the bond issue will be for the best interest of the landowners of the district, they proceed as in an original organization. If a new map of the district is necessary because of subdivisions of the district, they prepare the same and reclassify all lands that have been subdivided since the original map was made. *Sec. 5373-d:* Aggrieved parties have the right of appeal. *Sec. 5373-e:* If in the opinion of the drainage board it would help to sell bonds, or if they deem it necessary, with the approval of the clerk of the superior court they may add to the amount estimated by the viewers an amount sufficient to pay off all outstanding obligations of the district, leaving this their only bond issue. (L. 1923, ch. 231.)

CONSTRUCTION

Secs. 5340 to 5342, 5345, and 5346. Superintendent of construction: The drainage board employ a competent engineer as superintendent of construction, with the approval and recommendation of the state geologist. The superintendent furnishes copies of his monthly estimate of work done to the state geologist. *Sec. 5341:* The drainage commissioners give notice of the time and place where bids for construction will be received, and let a contract to the lowest responsible bidder either as a whole or in sections. No bid may be entertained that exceeds the estimated costs unless the original estimate is shown to be erroneous. The successful bidder gives bond of 25 percent of the estimated cost of the work allotted to him. The contract is based on the plans and specifications submitted by the viewers in their final report as confirmed, the original of which is open to inspection at the office of the clerk of the superior court. *Sec. 5342:* The superintendent of construction makes monthly estimates of the work done, furnishing a copy to the

contractor and to the board. The commissioners within 5 days draw a warrant in favor of the contractor for 90 percent of the work done. Upon presentation of the warrant, the treasurer pays the same. *Sec. 5345:* The district pays the cost of constructing its works across highways. Highways within the district that will be benefited may be assessed after notice to the board of county commissioners, who may object in the same manner as any landowner. When ditches intersect private roads or cartways, the actual cost of constructing a bridge is paid by the district but the bridge is thereafter maintained by the landowners affected. *Sec. 5346:* Where drainage works cross the right-of-way of a railroad, the company is notified of a conference with relation to the manner and place of crossing the right-of-way. The crossing is by agreement if possible, but otherwise the viewers fix the place and manner of crossing and the damages if any. That the railroad company may be required to build a new bridge or culvert or strengthen an old one shall not be considered as damages. The viewers also assess the benefits accruing to the railroad right-of-way, road bed, and other property by better drainage or outlet. No benefit may be assessed for increase of business coming to the road by reason of the construction.

Sec. 5349. Maintenance and repair: Completed districts are under the supervision of the board of drainage commissioners, who must keep the drain in repair and may levy assessments for that purpose in the same manner and in the same proportion as the original assessment.

NORTH DAKOTA

(Compiled Laws of 1913, Supplement 1925, and Session Laws, Sections 2461 to 2495)

ARTICLE I—COUNTY DRAINS

ORGANIZATION—Petition

Sec. 2461. When drains may be constructed: Water courses, ditches, and drains for the drainage of lowlands may be constructed and maintained whenever the same are conducive to the public health, convenience, and welfare.

Sec. 2464. How drain established: A petition for the construction of a drain may be presented to the board of drain commissioners, (see "Organization—Officers," sec. 2462 post), giving the termini and general course of the works. If among the leading purposes of the drain are benefit to public health and welfare of the population of any city or other municipality, the petition must be signed by a sufficient number of the citizens of such municipality to satisfy the drain commissioners that there is a public demand for such drain. The petition must be signed by at least six freeholders whose property will be affected. The drain commissioners proceed as soon as practicable to examine the line of the proposed drain, and if they find that a drainage ditch is necessary for the public good they declare that fact by a resolution on their minutes. They also designate a competent surveyor to determine the dimensions and cost of the ditch. The drain commissioners require a bond from the petitioners sufficient to cover the cost of survey. Should it be determined that the drain will cost more than the benefits derived therefrom, or if a majority of the landowners whose lands are subject to assessment for construction petition the drain commissioners to discontinue the proceedings, they will dismiss the petition. The drain commissioners may enter upon lands that will be traversed by the proposed drain, or other lands where necessary, for the purpose of establishing the works. The surveyor prepares duplicate plans, specifications, and estimates of the cost, with a plat of the lands to be drained showing the regular subdivisions thereof. One copy is

filed with the county auditor and the other with the drain commissioners where it is open to inspection. In locating a drain the commissioners may vary from the lines shown in the petition, and they may carry the outlet far enough to secure the proper fall of water to drain the lands. Drains must be located as far as possible on dividing lines between sections or regular subdivisions, without sacrificing utility. The drain commissioners fix a time and place for hearing on the surveyor's report, notice of which is by posting and registered mail. All interested parties may appear and offer evidence for or against the proceedings. If a majority of the landowners whose lands will be assessed believe the benefits to be derived are not equal to the expense of construction, the board will discontinue the proceedings upon petition of such majority.

Sec. 2465. Requirements to establish: If upon examination by the drain commissioners or upon the hearing on the petition or trial in the district court it appears that there was not sufficient cause for making the petition, or that the drain would cost more than the benefit to be derived therefrom, the drain commissioners deny the petition, and the petitioners are jointly and severally liable for the expenses incurred, which may be recovered by the commissioners by court action. If the contrary appears, the commissioners will establish the drain, describing it and giving it a name by which it is recorded. Any party whose land is or may be assessed for construction has the right of appeal to the district court within 30 days. Appellants must give notice of the appeal and give bond for \$250 for the payment of costs if unsuccessful. The appeal is tried in all respects as a court case without jury. The court may try the question of whether there was sufficient cause for making the petition and whether the drain would cost more than the benefits to be derived.

ORGANIZATION—Officers

Secs. 2462 and 2463. Board of drain commissioners: The board of county commissioners of any county have the power on their own motion or on petition of any party interested to appoint three freeholders of the county as a board of drain commissioners. They are appointed for one, two, and three years respectively, and thereafter for a term of three years. The county commissioners may remove any or all of the drain commissioners and fill any vacancy on the board. **Sec. 2463:** The drain board takes the oath of office, gives bond approved by the auditor, and organizes by electing one of their number chairman. They also elect a secretary to keep the drainage records. The State's Attorney acts as their counsel, but they may employ additional counsel.

ORGANIZATION—Powers

Sec. 2466. Right-of-way: The right-of-way, if not conveyed to the county by the owners thereof, may be acquired as prescribed by law; and where lands assessed for benefits are not contiguous to the drain, access over the lands of others may be acquired in the same manner. Such right-of-way becomes the property of the county.

Sec. 2478—Suppl. Commissioners' powers: The power conferred on drain commissioners to establish and construct drains is extended to include the deepening or widening of drains or other necessary improvements. They also have power to construct and maintain and repair levees and dikes for the purpose of drainage. They may establish and construct lateral drains. In all cases the proceeding is the same as for original construction.

Sec. 2479, C. L. 1913. Intercountry drains: When the drain commissioners find it necessary to extend a drain into two or

more counties, the several boards of drain commissioners are empowered to establish same. There is presented to the board in each of the counties a petition to establish the drain in their county, and each board determines the necessity therefor. The boards of all counties affected then meet and agree upon the proportion of benefits and damages to accrue to the land in each county, and they consider the entire cost of the drain through all counties as one drain. They apportion the cost ratably and equitably on the land in each county in proportion to the benefits to accrue, and make written report of such apportionment to the auditors of the several counties. Such reports are signed by the drain commissioners of all interested counties. The several boards assess against the land in their respective counties an amount sufficient to pay the proportion of cost in each county.

Sec. 2480—Suppl. Condemning right-of-way under certain conditions: Any person or corporation, alone or with others, may petition the drain commissioners for a drain, depositing an approved bond to pay all costs thereof. The board within 10 days commences proceedings under this act. No one except the petitioners may dig a lateral drain discharging into the ditch so constructed; provided, any person may petition the drain commissioners for the privilege of connecting with the original ditch by laterals. The drain board estimates and determines the proportionate share of cost of the original drain and the exact amount that should be paid by the petitioner. Petitioners pay into the county treasury the amount so determined, and then are permitted to construct laterals into the main ditch at their own expense and under the supervision of the drain board. The money paid into the treasury is divided among the persons who paid for the original main drain in proportion to the amount paid by each.

Sec. 2481. Duty of railroads and roads: Drains may be laid along or across public roads or when any road shall thereafter be constructed along or across drains it is the duty of the board of county commissioners or the township supervisors to keep such drains free from obstruction. Drains may be laid along any railroad but not to the injury of the road. When necessary to cross a railroad, it is the duty of such railroad company, when notified by the drain commissioners, to make the necessary opening and provide suitable culverts and bridges.

Sec. 2487—Suppl. Invalid and abandoned proceedings: Where proceedings for a drain have been declared invalid or the drain has been abandoned after warrants have been issued for services, work, and expenses, and subsequently a drain is established in the approximate location of the older proceedings, and the new drain receives benefit from the work done and money expended on the old drain, the outstanding warrants of the old drain may be honored by the new to the extent of the benefit received from the preliminary work. Rules and regulations for carrying out this section are promulgated therein.

Secs. 2495-b-1 and b-2—Suppl. Cooperation with other states: Whenever, under the laws of any adjoining state, drain commissioners or other officials are authorized to cooperate with any drainage district or drain commissioner of this state for the purpose of further effectuating drainage and flood protection, the drain commissioners or boards established under the laws of this state may jointly and severally cooperate with the officials of such adjoining state for the purpose of accomplishing uniform methods of procedure in respect to drainage matters. **B-2—Suppl.:** They may hold joint meetings with such other state officials, adopt plans of procedure, and jointly employ engineers to carry into effect the plans adopted; and they may assess the costs thereof on the drainage district or area affected in accordance with the benefit received.

FINANCING—Assessments

Sec. 2467. Damages—Warrants: Upon the assessment of damages for rights-of-way to be used by the drain, the drain commissioners may issue warrants sufficient to pay the damages, drawn upon the proper treasurer and payable out of any fund in his hands for construction of the drain. The treasurer may negotiate same at not less than par and pay into court the amount of damages awarded owners of rights-of-way. Any surplus from the negotiation of such warrants goes to the credit of the proper drain fund. If warrants cannot be negotiated, the drain commissioners assess the percentage of cost of the right-of-way in the same manner as benefits are assessed. (See sec. 3469.) No further proceedings may be taken until the assessment for the right-of-way is paid into court.

Sec. 2468. Assessment of benefits—Review: Assessments of benefit are subject to review by the board of drain commissioners after notice by publication, posting, and registered mail. The board hears all complaints relative to assessments and corrects and confirms the assessments. If the majority of the landowners believe the assessment improperly made or the drain improperly designed, they may appeal to the State Engineer for a review thereof. The State Engineer thereupon proceeds to examine the land assessed and the location and design of the drain, and may correct and adjust the same, and his decision is final.

Sec. 2469. Accruing benefits: Upon acquiring the right-of-way, the drain board assesses the percentage of cost of construction and maintenance and of the rights-of-way that any municipal corporation shall pay by reason of the benefit to the public health, convenience, and welfare, the percentage that any railroad shall pay by reason of benefit to its property, and the percentage that each lot or parcel of land shall pay by reason of the benefit to accrue, whether the lands are directly drained or can only be drained by the construction of laterals.

Sec. 2470. Assessments of benefits: After the assessment of benefits has been made and confirmed, and the specified amount thereof has been extended on the tax roll, the drain commissioners make a return to the county auditor who records the same in the drainage record. Such return of the drain commissioners must contain the entire record of the drain.

Secs. 2471, 2473, and 2474. Notice of construction: After the completion of the percentage assessment, the drain commissioners divide the line of the drain into convenient sections for construction, write the specifications, and lay out the work. They give notice of a hearing at which contracts for construction will be let. **Sec. 2473:** After the letting of contracts, the drain commissioners make a computation including every element of expense and estimate the total cost of the drain, which estimate is known as "cost of construction." **Sec. 2474:** After fixing the cost of construction, the drain commissioners carry out upon the assessment list the specific amount that each individual landowner and corporation is liable to pay on account of the total cost of the drain. A copy of this list is served on the clerk or auditor of each municipality against which taxes are assessed. The list is thereupon filed in the office of the county auditor, who extends it upon the tax rolls as a special tax which is collected in the same manner as other taxes. If the special tax is for the right-of-way, it is paid, when collected, into court for the benefit of the owners who have been awarded damages; and each municipality is directed by the statute to levy and collect such tax in the first general tax levy and in the same manner as other taxes.

Sec. 2475. Warrants: Drainage taxes are collected by the county treasurer and credited to the drain fund to which they belong. Payment of all construction costs is made by warrants of the drain commissioners, payable from the proper drain fund. Warrants are receivable as payment for drainage taxes. Warrants not paid upon presentation bear 7 percent interest until paid.

Sec. 2476. Additional assessments: If the amount realized from the assessments for right-of-way and construction proves insufficient to complete the drain, with all incidental expenses, or to pay for and retire any bonds issued; or in case enlargement of the drain becomes necessary; a further assessment to meet the deficiency or additional expense is made in the same manner as the original assessment.

Ch. 133, L. 1927. Warrants of abandoned drains: **Sec. 1:** Where a drain has been established by order of the board of drain commissioners having jurisdiction thereof, and the construction of such drain has been abandoned or discontinued for two years or more and no levy of any assessment to provide funds for organization and construction has been made, the board of drain commissioners must forthwith apportion the amount of all outstanding warrants to the lands and municipalities found by the board to be benefited by the proposed drain in proportion to the benefit found by the board to accrue, so that the aggregate thereof shall equal all outstanding warrants. **Sec. 2:** The board prepares a list of such lands and municipalities, showing the amount apportioned to each, and certifies the same to the county auditor of the proper county. **Sec. 3:** All proceedings for the construction of drains apply to corresponding proceedings under this act. **Sec. 4:** The county auditor extends the amount so apportioned upon the tax list, to be included in the taxes assessed against each tract, and collects the tax in the same manner as other drainage taxes. The portion assigned to any municipality must be paid in the manner provided for payment of assessments for construction. **Sec. 6:** Land heretofore acquired by a county for drainage purposes and no longer required for such use may be conveyed by the board of drain commissioners to the party entitled thereto upon surrender of the warrants issued therefor or repayment of all cash paid for such land. (L. 1927.)

Ch. 93, L. 1933. Outstanding drain warrants: When the board of county commissioners issues drainage bonds to retire outstanding warrants against the drainage funds and the county has acquired tax title to any land in the district, which land would be subject to assessment for the payment of the bonds if it had remained the property of the delinquent owner, the county commissioners must make an appraisal of the land and, if it be worth more than the cost of redemption at the time tax deed was issued plus taxes which properly would have been levied against it in the interim had it still been in private ownership, the commissioners must pay the amount of drainage assessments against the land that in their judgment is just and fair, having in mind both the interests of the general taxpayers and the rights and interests of the owners of the land subject to drainage assessment and taxes. (L. 1933.)

FINANCING—Bonds

Sec. 2494. Bonds—How authorized: The board of county commissioners is authorized to issue "drainage bonds" in such sums as may be necessary to pay the expenses of obtaining rights-of-way and constructing the drain. The word "expenses" covers every item of cost from the inception of the drain until it is complete. Said bonds are to be paid out of the revenues derived from taxes levied on that portion of the county found to be benefited by the drain. The bonds bear 7 percent interest and are divided into such amounts, and payable at such periods

not exceeding 15 years, as the board of county commissioners may determine. Any landowner may pay in full the amount assessed against his land which then will not be included in the assessment.

Notice of the determination to issue bonds is by publication. Bonds are issued in such amount as will pay the remainder of the cost of construction, and the board must provide a sinking fund for payment at maturity of each series of bonds and interest on them. Bonds may not be sold at less than par, and they recite on their face that they are issued under this act and payable out of the sinking fund provided. When bonds are issued, the taxes are not collected in any one year but divided into parts corresponding with the maturity of the bonds and such funds constitute the "sinking fund" to pay bonds and interest.

Sec. 2495—Suppl. Interest—Sinking fund: The county commissioners each year levy a tax on the property liable to taxation on account of construction, sufficient to pay the annual interest on any bonds or warrants that may have been issued for right-of-way and construction. This levy does not apply to lands upon which payment of the original assessment has been made in full. Separate sinking funds must be provided for each drain for the construction of which bonds have been issued; and no part of any sinking fund shall be applied to any other purpose than the payments for which it was created. No county is liable for drainage bonds, but they are to be paid only out of the sinking funds.

Sec. 2486—Suppl. Repair and maintenance: All drains are under the charge of the board of county commissioners and they must keep same open and in repair. In the case of intercounty drains, the cost for the portion in each county is assigned to the board of county commissioners for that county. The cost of maintenance and repair is assessed in the same manner as the cost of construction in the first instance. Work not in excess of \$150 in any one year may be done by the board without advertising or contracting, and payment is made from the county road and bridge fund.

ARTICLE II—TOWNSHIP DRAINS

ORGANIZATION—Petition

Secs. 2495-a-1 to a-6—Suppl. Petition—Township meetings: Whenever six resident freeholders of a township petition the board of supervisors of said town to construct a drainage ditch within a township for the drainage of agricultural lands, or an outlet without the township, stating the general course of said ditch, it is the duty of the board of supervisors to call a special township meeting to consider the advisability of constructing the ditch. **A-2—Suppl.:** If at the meeting it appears that a ditch is necessary and desirable and will not cost more than \$3,000, the question is submitted to the voters present whether the ditch shall be constructed by the township. On a majority favorable vote, the supervisors proceed to have the ditch constructed and paid for by the township. **A-3—Suppl.:** If the ditch will cost more than \$3,000, or if the majority vote is not in favor of construction, the supervisors require the petitioners to give bond to pay costs of a preliminary examination by the supervisors in the event that it be found that the ditch will not be of more benefit than its cost. The supervisors, after examining and estimating the cost of the ditch, determine whether the benefit therefrom will exceed the cost. If they do so determine, then they ascertain what lands will be benefited and the percentage of such benefit to the several parcels. A list of benefits stated in dollars and cents is posted together with notice of a township meeting

within 10 days to review the fixing of such benefits. At this meeting any aggrieved person may present his reasons for reducing the benefit to any parcel of land. The supervisors make such corrections as the facts warrant and the proceedings are entered in the minutes of the township meeting. This record shows the amount of benefit charged against each parcel and the amount so charged becomes a lien on such land. The amount is certified to the county auditor and spread as a special assessment. **A-4—Suppl.:** The supervisors thereupon have the drain constructed by contract or day labor. **A-5—Suppl.:** No ditch constructed hereunder may cost more than \$3,000. **A-6—Suppl.:** The supervisors may appropriate from the general fund of the township not exceeding \$500 to aid in construction if there is a general benefit to the property and roads of the township. The supervisors may also connect road ditches with any ditch so constructed.

OHIO

(Page's Ohio General Code, Cumulative Pocket Supplement 1938, Title III)

DRAINAGE

CHAPTER 1—SINGLE COUNTY DITCHES

ORGANIZATION—Petition

Sec. 6442. Definition of terms: This section defines the terms as used in the act and states that the word "commissioners" shall mean the board of county commissioners.

Sec. 6443. Jurisdiction to establish: The board of county commissioners, upon petition by any landowner, may locate and construct any ditch or levee, or improve any watercourse, when they find it necessary for controlled drainage of land, for irrigation, or to prevent overflow, and when the work will be conducive to the public welfare and the cost will be less than the benefits conferred. They may also vacate any ditch by proceedings provided in chapters 1 and 2 of title III.

See: *Railway v. Comrs.*, 63 O.S. 32; 57 N.E. 1023.
Comrs. v. Gates, 83 O.S. 19; 93 N.E. 255.
Skillman v. State ex rel., 93 O.S. 210; 112 N.E. 582.
Comrs. v. Harshman, 102 O.S. 452; 132 N.E. 925.
Rambarger v. Curl, 115 O.S. 81; 152 N.E. 18.

Sec. 6444. Petition: Any landowner may file a petition with the auditor of the county in which a part of the land to be benefited by the proposed improvement is situated. The petition states that the construction of the improvement is necessary and conducive to the public welfare, and describes the work petitioned for. The petition may ask the construction of any ditch, drain, or levee, or the improvement of any watercourse. It states the route and termini of the proposed improvement and its branches or laterals. It contains the names and addresses of all of the known landowners and a description of the land that will be benefited or damaged by the proposed improvement, and must be signed by one or more landowners.

Sec. 6445. Amendments: The petition may be amended upon the written application of any petitioner filed with the auditor, and allowed by order of the commissioners entered on their journal. It may be amended while proceedings are pending on appeal in the court of common pleas in accordance with the rules of law relating to civil procedure. Any application, remonstrance, statement, report, or schedule filed in the proceedings may be amended in the same manner as the petition.

Sec. 6446. Bond with petition: The petitioners must file bond for \$200 plus \$50 per mile of the improvement as estimated by the petitioners, conditioned to pay costs if the petition is

not granted or is dismissed for any cause. No bond is required for petitions filed by municipal authorities. (*Muchinnippi Creek etc. v. Wildermuth*, 35 O. App. 211; 172 N.E. 405.)

Sec. 6447. Notice: Upon the filing of the petition the auditor gives notice to the board of county commissioners, with a copy thereof, and the commissioners by order in their journal fix a time for the view thereon not less than 21 nor more than 30 days thereafter. They may fix a date within two weeks when the commissioners will hold a hearing at their office. As soon as the dates are fixed, the auditor prepares and delivers to the petitioners a written notice directed to the landowners who will be affected, setting forth the substance of the petition. At least 15 days before the date set for the view, one copy of the notice must be served on each landowner or left at his usual place of residence. When the owner is not a natural person, the notice may be served on any agent within the county. The person serving the notice makes return under oath and files it with the auditor. Notice to nonresident landowners and owners not otherwise served is by publication. Copies of the notice are mailed by the auditor to the landowners not served at their usual residence, where the address is known. At the option of petitioners the auditor may mail notices to each landowner in a five-day return envelope, and give notice by publication to each owner whose mail notice is returned undelivered.

See: *Teegarden v. Davis*, 36 O.S. 601.
Keys v. Williamson, 31 O.S. 561.

Sec. 6448. Remonstrances: Landowners who have not signed the petition may request that the improvement be granted; landowners who are opposed to the improvement may file remonstrances and state their reasons therefor. Application or remonstrance may be filed at any time before the final order of the commissioners in the premises.

Sec. 6449. Change or extension: The surveyor may file at any time a written application for a change in the route of the improvement. Any landowner may apply for laterals or tile or change in the route or termini at any time before the first hearing is completed. If any landowner affected has not received notice, the proceedings are adjourned until such notice is given; but notice may be waived by such landowner.

Sec. 6450. View—First hearing: The board of county commissioners meets at the upper terminus of the improvement at the time fixed and hears the proof offered by any landowner affected by the proposed improvement. They go over and along the line of the improvement and each lateral or branch mentioned in the petition or in any application filed. Upon completing the view, the commissioners adjourn to their office on the date fixed in the notice. On that day they take up the hearing on the petition and on applications or remonstrances filed and hear all evidence presented for or against the improvement, or any branch or lateral, or the manner of construction. If applications for changes or branches are made after the view, the commissioners adjourn to a fixed time to view the lands affected. The first hearing may be adjourned to give reasonable opportunity for any landowner to be heard for or against the improvement.

See: *Boyes v. Comrs.*, 20 O.D. (N.P.) 144.
Rice v. Wellman, 5 O.C.C. 334; 3 O.C.D. 165.
Goodwin v. Comrs., 41 O.S. 399.
Chesebrough v. Comrs., 37 O.S. 508.
Sessions v. Crunkilton, 20 O.S. 349.
Miller v. Graham, 17 O.S. 1.
Case v. Burrell, 40 App. 260; 22 O.C.C. (N.S.) 254.

Secs. 6451 to 6453. Findings of commissioners: If the commissioners find that the proposed improvement is not necessary or not conducive to the public welfare, or that the cost will

exceed the benefits, they will dismiss the petition and enter their findings on their journal. The petitioners then pay all costs. Any landowner affected may appeal to the court of common pleas of the county in which the petition was filed. **Sec. 6452:** If the commissioners find in the affirmative on all of the above matters, they will grant the prayer of the petition and determine the route and termini of the proposed improvement and its branches and laterals and the manner of constructing the same. If the petition be for the improvement of a drain, levee, or watercourse, the commissioners may on their own motion change either terminus or the route of the improvement if necessary. The commissioners order the county surveyor to prepare reports and schedules of the work and fix a time for their filing. The commissioners adjourn the hearing to the time fixed for the surveyor's reports. No change may be made in the proposed improvement after the first hearing except upon application of an interested landowner and notice to all owners affected by such change. The commissioners enter all of their findings in their journal. The improvement so far as practicable must follow farm lines, section lines, and highways. **Sec. 6453:** The commissioners may join two or more proceedings, on application of the petitioners or in their own discretion, and consolidate petitions of two or more improvements that connect with each other or serve common territory or can be combined into one system.

Sec. 6461. Final hearing—Change in plans: At the final hearing the commissioners may hear any application for change in the route of the proposed improvement or either terminus thereof, or applications for change in the nature, time, or extent of the work as shown in the report of the surveyor; and if they find a change advantageous, they will make it after all persons affected have been notified, and will continue the final hearing until the surveyor may make proper schedules showing such changes.

Sec. 6462. May dismiss at final hearing: At the final hearing, after considering all of the evidence and the schedules and report of the surveyor, the commissioners shall either confirm the former order in favor of said improvement and proceed to confirm the assessments, or shall set aside the former order and dismiss the petition. If the commissioners find that the cost will be equal to or greater than the benefits, or that the improvement is not necessary, or that it is not conducive to the public welfare, they must set aside the former order and dismiss the petition. In reaching this determination the commissioners must consider the cost of construction; the compensation for lands taken, and damages to land along the route and below the lower terminus of the improvement; the sufficiency of the outlet; the benefit to the public welfare; and special benefits to land needing the improvement. If the petition is dismissed, the petitioners must pay all costs except those of the surveyor in making surveys, reports, and schedules. The petitioners or any landowner assessed have the right to appeal from the dismissal. (*Improvement #2 v. Wildermuth*, 35 O. App. 211; 172 N.E. 405.)

ORGANIZATION—Officers

Sec. 6454. Surveyor: The auditor forthwith certifies to the county surveyor a copy of the finding of the commissioners in favor of the improvement. The surveyor makes the necessary surveys for the improvement and suitable maps showing the location of the lands proposed to be assessed and profiles showing the cuttings and gradient of the improvement, and estimates the cost of the same. He notes the intersection of the improvement with the lands of the several owners and with roads, county lines, and natural landmarks. He must establish bench marks,

one in each mile, from which the original level can be established. He also prepares a schedule containing the name of each landowner with a description of the land believed to be benefited and the amount which it ought to be assessed. He prepares working specifications for the construction of the improvement. The requirements of the survey are set out in detail in the statute.

See: *Ginn v. Comrs.*, 11 O.C.C. 396; 5 O.C.D. 412.
Crawford v. Taylor, 6 O.C.C. (N.S.) 278; 17 O.C.D. 245.

Sec. 6455. Assessments according to benefits: The surveyor in making his estimate of the amount to be assessed against each tract, and the commissioners in amending and confirming the same, shall levy the assessment according to the benefits, and all land affected must be assessed in the proportion that it is specially benefited and not otherwise.

See: *Wright v. Thomas*, 26 O.S. 346.
Kent v. Perkins, 36 O.S. 639.
State ex rel v. Otter, 106 O.S. 415; 140 N.E. 399.
Newcomb v. Fielder, 24 O.S. 463.
Sears v. Walker, 85 O.S. 490; 98 N.E. 1132.

ORGANIZATION—Powers

Sec. 6500. Public watercourse: When an improvement consisting of a ditch, drain, or watercourse, has become an outlet for agricultural drainage and has been established, constructed, or used for seven years or more, it shall be deemed to be a public watercourse notwithstanding any irregularity in the establishment thereof, and the public possesses therein the rights and privileges that pertain to natural watercourses, but the same is subject to improvement upon petition as provided in this act.

See: *Taylor v. Crawford*, 72 O.S. 560; 74 N.E. 1065.
Mason v. Comrs., 10 O.C.C. (N.S.) 201; 20 O.C.D. 49.
Comrs. v. Comrs., 10 O.C.C. (N.S.) 16; 19 O.C.D. 551.

Sec. 6501. Commissioners interested: If one or more county commissioners are petitioners or interested in land which will be assessed or damaged, the county court will appoint a disinterested freeholder of the district to act in his stead. Provision is made for the qualification of commissioners and their duties and compensation are fixed by the statute.

Sec. 6507. Public watercourse by agreement: Two or more landowners with adjacent lands, desiring to construct and improve a drain and pay the cost therefor as agreed by them, may file such agreement with the county auditor where it is recorded in the drainage record and is deemed to locate and establish the ditch or drain as a public watercourse.

Sec. 6508. County lands: When the commissioners by resolution determine that lands owned by the county, or county highways, are in need of drainage, they may file a petition without bond in the court of common pleas of the county. The proceedings thereafter are the same as for the establishment of a district.

FINANCING—Assessments

Secs. 6454 and 6455: The surveyor, at the time of making surveys of the proposed work, shall fix the amount which, in his judgment, each parcel of land should be assessed for benefits. **Sec. 6455:** The surveyor, and the commissioners in confirming his report, must levy the assessments in accordance with the benefits received and all lands affected must be assessed in the proportion that they are specially benefited and not otherwise.

Sec. 6456. Surveyor's schedule of assessments: After the surveyor has filed his schedule and report with the auditor, the commissioners fix a date for the hearing thereon with notice by mail to all landowners appearing on the surveyor's schedule. If the schedule contains names not mentioned in the

petition, they also are notified by mail, and on failure to deliver such notice by mail the auditor publishes notice for two weeks. The notice advises the landowners of the assessment as set out in the schedule and of the date of the final hearing on the surveyor's report. It also advises them that claims for expenses or damages must be filed before that date. If bonds are to be issued, the owners must give notice within 10 days after final hearing of their intention to pay in cash, and failing such notice their assessments will be payable in installments with interest at the same rate that the bonds will bear.

See: *Chesebrough v. Comrs.*, 37 O.S. 517.
Zimmerman v. Canfield, 42 O.S. 463.

Secs. 6457 and 6458. Damages: All claims for land taken and damages by reason of the improvement must be filed with the auditor before the final hearing. Such application must describe the land taken and the nature of the damages claimed. **Sec. 6458:** The prosecuting attorney represents the county in all matters where its interest may be affected or where assessments of special benefits against it are deemed excessive. At the final hearing the commissioners hear competent evidence offered by interested parties upon any claim for compensation or damages, and find and determine the amount of the damages to which any owner is entitled and the fair value of any land or interest in real property taken for the improvement. The commissioners enter their findings in their journal. They authorize the auditor to issue his warrants upon the treasurer of the county, payable from the general ditch fund to the claimants for the amounts determined. Payment must be made before any work of the proposed improvement is done. Aggrieved parties may appeal from the findings of the commissioners to the court of common pleas.

See: *Watson v. Trustees*, 21 O.S. 667.
Carlin v. Hosler, 58 O.S. 694; 51 N.E. 1096.
Hahn v. Comrs., 15 O.N.P. (N.S.) 472.

Sec. 6560. Assessments paid—How: The assessments are payable in not less than two annual installments. At the time of the final hearing on the order approving the levy of the assessments, the commissioners determine how long a period of time shall be given the landowners benefited in which to pay the assessments in semiannual installments, whether bonds shall be issued and sold in anticipation of such payment; and the rate of interest on such bonds if issued. If the cost does not exceed \$500, there are no more than two semiannual installments, which are paid as taxes are paid. If the cost exceeds \$500, the commissioners determine the number of installments; but where the amount of the assessment is less than \$5.00 it must be paid in cash. When bonds are issued, interest is added to the assessments at the same rate borne by the bonds. Any owner may pay in cash without interest within 30 days after construction contracts are approved.

Sec. 6463. Commissioners determine assessments: At the final hearing the commissioners hear all evidence offered for or against the assessments proposed to be levied and competent evidence on the question of benefits. From such evidence and actual view of the premises, the commissioners correct and confirm the assessments. That part of the assessment for benefits to the general public by reason of the improvement being conducive to the public welfare is assessed against the county, and benefits to state or county roads or highways are assessed against the county; benefits to public corporations or political subdivisions of the state are assessed against the corporation or subdivision. The commissioners approve and confirm the assessment and order the surveyor to let contracts for the construction of the improvement. They determine when the

assessments shall be paid and whether bonds shall be issued in anticipation of and payable out of the assessments. Any aggrieved party in interest may appeal to the court of common pleas.

Sec. 6467. Appeal: Appeal may be taken from any order affecting any part of the improvement as well as from any order affecting the entire improvement. Appeals may be based on the necessity of the improvement, the public benefit, the cost, the location, the method of construction, assessments, or damages.

See: In re Joint County Ditch, 122 O.S. 226; 171 N.E. 103.
Lucas v. Blaine, 42 O. App. 177; 181 N.E. 269.
Bowersox v. Comrs., 20 O.S. 496.
Atley v. Comrs., 77 O.S. 285; 82 N.E. 1079.

Secs. 6468-6478. Procedure on appeal: These sections set out in detail the procedure on appeal, judgments, motions, and technical pleas.

Sec. 6484. Assessment after contract for construction: Upon approval of the contract for construction, the commissioners order the auditor to reduce the confirmed assessments *pro rata*, by the difference between the estimated cost of construction and the contract price; and the assessments so reduced, but with the cost of location included therein, are levied on each parcel of land in the schedules as of the date of the commissioners' order approving the contract and levying the assessments. The auditor places such assessments on the county duplicates, and they are a lien upon the real estate from and after the date of the commissioners' order.

See: Cattell v. Putman, 73 O.S. 147; 76 N.E. 390.
Sears v. Walker, 85 O.S. 490; 98 N.E. 1132.

Secs. 6492 and 6493. General ditch fund: Commissioners of each county must establish a fund to be known as the general ditch improvement fund, which is a sinking fund for all bonds issued. It consists of taxes levied and collected for drainage purposes under county levies not by law otherwise disposed of, the proceeds of all bonds sold, the collections from special assessments for benefits to property, and such other funds as may be provided by law. **Sec. 6493:** All costs of the improvement are paid from the general ditch improvement fund, except as otherwise provided by law, including contract price of construction and cost of locating the improvement. No warrants may be drawn against the fund unless it contains a sufficient amount to pay them which is not otherwise specifically appropriated. Letting and approving of a contract is deemed a specific appropriation, and such amount must be set apart for the purpose of payment and charged against the general ditch improvement fund. If the fund contains the proceeds of bonds, it may not be depleted below the obligation incurred unless assessments or levies have been made or ordered sufficient to redeem the bonds as they become due. If obligations legally incurred exceed the amount in the fund, general revenue funds of the county treasurer equal to the deficiency may, by resolution of the board, be appropriated and transferred to the ditch improvement fund.

Sec. 6494. Tax levy by Commissioners: The county commissioners, if necessary, may annually levy upon the grand duplicate of the county a tax not to exceed five-tenths of one mill on the dollar, sufficient to pay for the location and construction of the respective improvements located by them, which tax when collected is credited to the general ditch improvement fund.

Sec. 6495. Tax levy by trustees: The trustee of a township to which the commissioners have apportioned a part of the expense of construction of an improvement must levy annually upon the grand duplicate of the township a tax sufficient to pay said apportionment, but not to exceed five-tenths of one mill on the dollar, and certify same to the auditor on or before May 15 of each year until all installments are provided for.

Sec. 6496. Tax levy by Board of Education: When an assessment is made upon the lands held by the Board of Education, that board must pay such assessment out of the contingent fund of the school district and, if necessary for that purpose, may increase the levy for that fund.

Sec. 6497. Records: A complete record of each ditch proceeding must be kept by the auditor, containing the petition, surveyor's reports, and all proceedings thereon and assessments levied, and such other matters as the commissioners may deem proper.

Sec. 6503. Action to recover or enjoin assessment: Any landowner affected by an improvement, who has not received notice and has not had opportunity to be heard, may bring action in the court of common pleas of the county wherein the land is situated against the board of county commissioners in their official capacity, to recover any tax or assessment paid or to enjoin any assessment or levy or to recover for any damages sustained or property taken. It is competent for the commissioners to prove in such action the value of any actual benefit to the land by reason of the improvement. These rights are in addition to all other rights provided by law.

See: Hoffhines v. Hott, 23 O.D. (N.P.) 627.
Lutman v. Railway, 56 O.S. 433; 47 N.E. 248.
Steman v. Hizey, 11 O.C.C. (N.S.) 347.
Comrs. v. Kraus, 53 O.S. 628; 42 N.E. 831.
Comrs. v. Harshman, 102 O.S. 452; 132 N.E. 925.
Mason v. Comrs., 10 O.C.C. (N.S.) 201; 20 O.C.D. 451.

CONSTRUCTION

Sec. 6479 to 6483. Bids: At the time fixed in the notice if no appeal has been taken, or after the appeal has been determined, the surveyor receives bids in writing on the form prescribed by him. All bids are sealed and accompanied by deposit in the amount of 3 percent of the bid price. Deposits of unsuccessful bidders are immediately returned. **Sec. 6480:** This section sets out the statement required in bids as to labor and material offered. **Sec. 6481:** Where the cost is less than \$1,000, contract for any or all of the work may be let by competitive bids at public outcry, after notice. **Sec. 6482:** The bids are opened and tabulated by the surveyor, and the commissioners must accept the lowest responsible bid; or they may accept a combination of bids for different parts of the work and different material as they may find advantageous. No bid may be accepted if it exceeds the estimated cost made by the surveyor. **Sec. 6483:** The successful bidder must enter into written contract, and the commissioners determine the time within which the work shall be completed.

Sec. 6488. Contractor's bond: The contractor must give bond in the sum of the surveyor's estimated cost of the work or material covered by the contract. The details of the bond are set out in the statute.

See: Comrs. v. Kraus, 53 O.S. 628; 42 N.E. 831.
Griffin v. Smith, 56 O.S. 775.

Sec. 6489. Supervision by the surveyor: All work and material for the improvement are under the supervision and inspection of the surveyor. He furnishes to the contractor a certificate showing compliance with the contract in work and material when he approves the same. The recipient of the certificate files it with the county auditor. The auditor draws his warrant on the treasurer for the full contract price for the materials furnished and accepted, and 75 percent of the certificate where additional material is to be furnished under the contract. He also pays 75 percent of the contract price for work completed and accepted, until the entire work is completed and accepted when the balance is paid. The treasurer pays warrants out of any

fund applicable to the purpose; and if bonds have been determined on by the commissioners and the contractor or material men consent, the treasurer may pay said warrants by bonds, provided no bond may be issued for fractional sums, nor for less than \$100.

See: *State ex rel v. Seaman*, 23 O.S. 389.
Zimmerman v. Canfield, 42 O.S. 463.
State ex rel v. Baker, 88 O.S. 165; 102 N.E. 732.

DISSOLUTION

Sec. 6506. Vacation of ditch: The commissioners of any county, on petition therefor, with the same hearing, notice, and proceedings as for original establishment, may determine whether any ditch or drain has ceased to be a public utility and the public welfare no longer demands the maintenance thereof. Finding these facts to exist, they declare the drain vacated and abandoned as a public ditch and its location and establishment nullified. Private rights of persons acquired by reason of the establishment of such drain may not be interfered with nor impaired without due compensation, which compensation may be assessed on property that will be benefited by the vacation and abandonment.

See: *Tussing v. King*, 65 O.S. 10; 60 N.E. 986.
Blaine v. Lucas, 29 O. App. 182; 163 N.E. 208

CHAPTER 2—JOINT-COUNTY DITCHES

ORGANIZATION—Petition

Sec. 6536. Filing petition: When the improvement as defined in chapter 1 is proposed to be located or will benefit or damages land in two or more counties, the proceeding shall be conducted by a joint board of county commissioners, consisting of the members of the boards of the several counties in which lands may be benefited or damaged, and in such case the petition may be filed with the auditor of any county in which land that will be affected is situated.

See: *State ex rel Gorgwer*, 114 O.S. 642; 151 N.E. 752.
Chesbrough v. Comrs., 37 O.S. 508.
Carlin v. Hosler, 58 O.S. 694; 51 N.E. 1096.
Elder v. Smith, 103 O.S. 369; 133 N.E. 791.
State ex rel v. Comrs., 106 O.S. 201; 140 N.E. 124.
Anderson v. Miller, 13 O.N.P. (N.S.) 42; 22 O.D. (N.P.) 166.

Secs. 6537 and 6538. Proceedings same: The joint boards of commissioners may do any and all things that the commissioners may do in a single county and are subject to all of the provisions relating to single county ditches so far as applicable. **Sec. 6538:** The joint board of commissioners meets and organizes at the time set by the auditor of the county where the petition was filed. The auditor of that county acts as clerk of the joint board. A quorum consists of at least two commissioners from each county affected, and all decisions must be made by vote of two commissioners from each county or otherwise the question is decided in the negative.

Sec. 6539. Auditor—Joint-county ditch: The auditor of the county where the petition was filed asking the establishment of a joint-county ditch gives notice thereof to the commissioners of each county affected, and fixes a time for a joint meeting in the county where the petition is filed. He gives notice by mail to the auditors of the other counties affected and they in turn notify the commissioners of their respective counties. All reports and proceedings are filed with the auditor of the county where the petition was filed.

Sec. 6543. Claims—Damages: The hearing on the surveyor's report and schedules is the same as in single county ditches; provided, appeal is to the court of common pleas of the county in which the land is situated. All claims allowed for compensation or damages are paid out of the treasury of the county in

which are situated the lands for which compensation or damage is claimed. The auditor of the county where the petition is filed certifies the amounts of the expenses and damages found by the joint board to the auditors of other counties interested. In case of appeal, the auditor of the county where the petition was filed certifies to the clerk of the court of common pleas of the county where the land is situated the original papers relating to the claim for compensation or damages and a certified transcript of all findings. The case is then docketed and the procedure is the same as for single county ditches.

Secs. 6544 and 6545. Appeals: Except appeals on claims for compensation or damages, all appeals are heard by one judge of the court of common pleas of each county. If any judge be disqualified for any reason, the chief justice assigns a judge to take his place. Appeals on claims for compensation or damage shall be tried by jury. **Sec. 6545:** If the joint board at a final hearing is unable to agree on the amount to be assessed to each county, it may, by resolution, state that fact and the question is appealed to the court of common pleas. The court hears such appeal the same as other appeals and makes such order as to costs as may be equitable.

See: *Comrs. v. Comrs.*, 64 O.S. 160; 59 N.E. 883.
Comrs. v. Comrs., 93 O.S. 37; 112 N.E. 147.
Comrs. v. Comrs., 12 O.C.C. 563; 5 O.C.D. 500.
Comrs. v. Comrs., 10 O.C.C. (N.S.) 16; 19 O.C.D. 551.
Comrs. v. Comrs., 58 O.S. 690.

ORGANIZATION—Officers

Sec. 6541. Surveyor: If the joint board finds for the improvement, it may designate the surveyor of any one of the counties to do the field work and make surveys and estimates, but the surveyor of each county must assist in making the report and schedules. If the joint board fails to agree on a surveyor, then the surveyor of the county where the petition was filed does the field work and makes the survey. All of the reports and schedules of the surveyor shall be approved and signed by all of the surveyors and filed with the auditor with whom the petition was filed. If the surveyors do not concur, separate reports and schedules may be filed by one or more and the costs will be paid in the same manner as other surveyor's costs. In making schedules and reports, the surveyor proceeds as if the improvement were in one county the size of the several counties interested. The surveyor who did the field work and who made the survey shall let the contract, inspect the progress of the work, accept labor and materials, and issue certificates therefor as in a single county improvement.

Sec. 6542. Auditor and treasurer: The auditor and treasurer of the county in which the petition is filed becomes *ex officio* the fiscal agent of all of the counties interested. The auditor certifies to the auditor of the other counties a schedule of the assessments to be levied for the location and construction of the improvement, and the auditor of each other county places the assessment on the tax duplicate. Assessments so certified to the auditor of another interested county are a lien upon the lands in that county from the time the certificate is received. The treasurer proceeds to collect the assessment pursuant to the orders made in the proceedings and to pay the money over to the treasurer of the county in which the petition was filed. All warrants are drawn by the auditor of the county where the petition was filed on the treasurer of that county, and are payable out of the general ditch improvement fund of that county. If the petition is dismissed after costs and expenses are incurred, the costs are paid by the several counties respectively as the joint board may deem just. All funds collected in the county are paid to the treasurer of the county

where the petition was filed and credited to the general ditch improvement fund of that county.

CHAPTER 3—INTERSTATE COUNTY DITCHES

Secs. 6564 to 6595: The procedure where a part of the improvement is in another State is a modification of the procedure for single county and intercounty districts in Ohio, adapted to cooperation with the adjoining state for the accomplishment of the result sought. The statutes themselves will have to be examined for their own technical terms, no synopsis is attempted here.

OKLAHOMA

(Oklahoma Statutes Annotated, Cumulative Pocket Part—1940;
Title 82—Waters and Water Rights, Chapter 3—Drains and
Ditches, secs. 281 to 447)

IN GENERAL

Sec. 281. Title and application act: This act shall be known as the Oklahoma State Drainage Act and shall apply to every structure to be used in carrying surface or flood waters off of any lands (or out of the soil or sub-soil thereof) situated within the state and constructed under the provisions of this act, and to all bridges and other structures over and upon such improvements. (L. 1910-11, ch. 132.)

See: Carson v. Oklahoma Dredging Co., 152 Okla. 147; 4 P. (2d) 71.

Adams v. Washita Conser. Dist. #1, 136 Okla. 47; 275 P. 622.
Hine v. Bd. of Comrs. of McClain C., 177 Okla. 251; 58 P. (2d) 570; 108 Pac. (2d) 112.

Fitzger v. Johnson (USCCA Okla.), 15 Fed. (2d) 145

Sec. 282. Authority of county commissioners: The county commissioners of any county have power, at any regular meeting, when they deem it conducive to the public welfare or of benefit to agricultural interests or to the soil of the lands affected, or when it is necessary to drain lands or public roads or railroads, to cause drains and ditches to be constructed; to improve open or underground natural streams or water courses within the county, not navigable; to form one or more drainage or improvement districts; and to name each district so created. The county commissioners have exclusive jurisdiction to hear and determine all contests and objections to the forming of a district as well as all subsequent proceedings, except as herein provided.

See: Prince v. Wild Horse Drg. D. #1, 145 Okla. 185; 292 P. 42.
Bd. of Co. Comrs. of Lincoln Co. v. Robertson 35 Okla. 616; 130 P. 947.

Sec. 284. Eminent domain: Full authority is conferred upon all designated officers and persons to use the right of eminent domain and to condemn lands as fully and completely as may be done under authority of law for any purpose. Full authority is granted the district, and the commissioners thereof, to condemn rights-of-way through all lands, private and public (except cemeteries), necessary for the works and improvements of the district. Lands so situated as to endanger the drainage works by reason of erosion may be condemned and acquired by the district unless the owners thereof will seed same with Bermuda grass and maintain a good and effective sod thereon. The proceedings for condemnation are in accordance with the general statutes of the state. No right-of-way may be condemned through a city or town without the consent of the lawful authorities of such municipality. Commissioners may also acquire rights-of-way by gift, grant, or purchase; and if by purchase, such purchase is subject to the approval of the county commissioners.

Secs. 285 and 286. Public property: Drainage works are common property of the owners of lands and other properly benefited

thereby. All landowners in the district have the right to drain into the public drains and are permitted to make drains, at their own expense and according to the contours of the land, through intervening lands to the nearest public drain or water course or along public highways; provided, no such drain may be made until authorized by the drainage commissioners, who shall act as a jury to view and determine where the drain shall be. Sec. 286: To injure a drain is a misdemeanor. Water power developed is a common property of the district and subject to its control and disposal.

Sec. 287. Record: The county clerk must provide a drainage book and keep a complete record of every drain, including all proceedings, maps, and plans.

ORGANIZATION—Petition

Sec. 301. Petition to establish: Before the county commissioners shall establish any drainage or improvement district, there must be filed with the county clerk a petition signed by five or more residents of the county, who claim to be affected and who would be assessed for construction. The petition sets forth the necessity for the work; a description of the works and of the starting point, route, and termini; and a statement as to whether it is desired to issue bonds or other evidence of indebtedness to meet the expenses of the improvement; provided, that if it is found that lands involved will be benefited and that the improvement will benefit the public health and be of public utility, the commissioners have power to order such improvement without additional petitions. Otherwise the commissioners will require the signatures either of 50 percent of the owners or of the resident owners of 50 percent of the aggregate acreage affected or benefited. A bond of no less than \$50 for each mile of the proposed length of works must be filed with the petition, conditioned to pay costs if the petition is dismissed.

See: Gayman v. Mullen, 58 Okla. 477; 161 P. 1051.

Richards v. Rose, 119 Okla. 62; 243 P. 315.

Fry v. Swift, 164 Okla. 4; 22 P. (2d) 94.

Fitzer v. Johnson (USCCA Okla.), 15 Fed. (2d) 145.

Sec. 302. Viewers: Upon the filing of the petition and bond, the commissioners appoint three freeholders of the county not interested or related to any interested party as viewers, and direct the county surveyor to assist them. They proceed to view the line of the proposed improvement, and report whether it is practicable and necessary and of private or public benefit. Finding these facts in the affirmative, the viewers report and recommend the best route for the proposed works; whether construction should be by allotment to the several interests or by contract; and whether any portion should be covered or bridged. The report is in writing and is entered on the drainage record of the county clerk. (Davis v. Bd. of Comrs. of Lincoln Co., 45 Okla. 284; 137 P. 114.)

Sec. 303 and 304. Hearing: After the filing of the viewers' report, the county board or the clerk, by order of record, fixes a time for a hearing thereon, giving notice by publication. If the findings of the commissioners at the hearing be against the improvement, the board dismisses the petition at the cost of petitioners. If the finding is in favor of the improvement, the petitioners are thereupon released from their bond. Sec. 304: Any interested person may file written objections to the improvement, which objections are heard and determined by the commissioners. If the commissioners find in favor of the improvement, the lands that will be benefited thereby shall, for the purposes of this chapter, constitute a drainage district with a designated name and number.

Sec. 305. Bond for costs—Certificates of indebtedness: After the district is constituted, named, and numbered, the commissioners in their discretion require the district, or the landowners thereof for the district, to file a bond conditioned to pay all costs and expenses if for any reason the works are not finally constructed, and the commissioners have the right to issue certificates of indebtedness secured by the said bond for services, labor, and expenses in said district, and the holders of certificates have the right to sue on the bond.

Sec. 306. Survey: If the commissioners find the improvement necessary for sanitary or agricultural purposes or conducive to the public health and welfare, they enter such finding in their records and certify same to the judge of the district court of their county and request that he appoint three disinterested freeholders from the regular jury list, who may not be interested in the construction of the works nor kin to any interested party, as viewers. The court immediately causes 10 days' notice of the application to be given by publication. At the time stated in the notice the court appoints three qualified freeholders and certifies their names to the county commissioners. The commissioners enter an order directing the viewers and the county surveyor, or any surveyor or engineer employed by them, to go on the lands and establish the precise location where the improvement should be constructed and set stakes every 100 feet, numbering them downstream, to place bench marks, and to denote intersections and railroad crossings. They determine the form of the works to be constructed; they estimate the cost per cubic yard in each section of 100 feet, as well as for the whole. They report with profiles and plat, and give the names of the owners who will be benefited and damaged and the amount of the benefit or damage to each tract of 40 acres or less. They make separate estimates of cost, proportioning the same to each tract in accordance with the benefits or damages that will result. [Alford v. Kerbo, Okla., 98 P. (2d) 614.]

Secs. 307 and 309. Estimates—Plat: If ordered by the commissioners, the viewers apportion and allot the expense of construction to each lot or tract of land, road, or railroad in proportion to the estimate of benefits or damages. They specify the manner and the time in which the improvement shall be completed and indicate the floodgates, bridges, and culverts. The plat must show the meandering of the improvements and the boundary lines of each tract or lot of land and each road or railroad to be benefited, together with all details of construction. **Sec. 309:** The viewers may vary the line of the work, provided they start at the point prescribed in the petition and follow the line as nearly as practicable. When the drain described in the petition is not of sufficient length, they may extend it below the outlet, but not more than one mile. They locate the drain as nearly as practicable on the division lines of separate tracts. [Alford v. Kerbo, Okla., 98 P. (2d) 614.]

Sec. 310. Hearing on viewers' report: Hearing on the viewers' report is set by the county clerk for some day during the next regular meeting of the county commissioners. He issues by name to every person returned by the surveyor and viewers as the owner of any land affected, or of any interest therein; and by name to all others whom it may be ascertained are the owners of any land or interest therein; and generally to all other persons who may be interested; notice of the general nature of the report, stating that the commissioners will hear the petition and all evidence concerning it on a certain date, and requiring that each person appear and show cause why the report should not be confirmed as made or as it may be amended by the commissioners. The notice, containing a description of the land, is published for four weeks. [Mantooth v. Colbert, 178 Okla. 395; 62 P. (2d) 1235.]

Sec. 311. Hearing: If the commissioners find that due notice has been given, that the assessments of costs of location and construction and damages are correct, and that the apportionment of cost of location and construction is in proportion to the benefits and damages of each tract and is fair and just, they will approve and confirm the report; provided, if 50 percent of the resident landowners or the owners of 50 percent of the total acreage in the district file written protest against the improvement, the petition must be dismissed. If the commissioners find the apportionment so reported unjust or erroneous, they may amend the report by order of record to make the apportionments fair and just and in proportion to the benefits and damages. If upon like petition at any time before the completion of the improvement the commissioners find that the location or specifications of any improvement should be changed, they may by order of record make the change. They may acquire the right-of-way for any improvement by grant, purchase, or condemnation. In the construction of works for flood control under this act, it is lawful to change the course or channel of a stream, and the same viewers shall report such damages as they may find to be sustained by reason of such changes and provide for payment thereof.

See: Mantooth v. Colbert, 178 Okla. 395; 62 P. (2d) 1235.
Fry v. Swift, 164 Okla. 4; 22 P. (2d) 94.
Broadwell v. Dirickson, 85 Okla. 242; 205 P. 751.
Alford v. Kerbo, Okla., 98 P. (2d) 614.

Sec. 441. Intercounty districts: When it is desired to establish a drainage district embracing territory in two or more counties, a petition must be filed, signed by the requisite number of petitioners for each county, with the county commissioners of each county, who will hear the petition and determine whether the district should be established. The commissioners of each county are governed by the provisions of this chapter and no such district may be formed unless authorized by the county commissioners of each of the counties.

Secs. 442 and 443. Intercounty—Assessments—Viewers: The commissioners of each county meet jointly, within 30 days after the order for the formation of the district has been made by the county commissioners of the last county acting, and prorate to the landowners and interests to be affected in the different counties the proportionate share of the total cost and expenses of such improvement. They select a name and number for the district and appoint as viewers three resident freeholders of any of said counties, not interested and not kin to any interested person, and designate a surveyor or engineer to assist said viewers. The procedure then follows that for a single county district. The reports to the county commissioners of each county may be limited to the work in the respective counties. Separate surety bonds are required for the mileage of the works embraced in each county, to be filed with the commissioners of the respective counties. **Sec. 443:** Procedure follows that for the formation of drainage district wholly in one county, except that the proceedings are had in each county for that portion of the district situated in that county as if the district were wholly within one county. The benefits are assessed in the same manner and prorated between the different counties in proportion to the benefits derived.

ORGANIZATION—Officers

Sec. 411. Drainage commissioner—Duties as to repair and maintenance: A drainage commissioner is appointed by the county commissioners upon the recommendation of the resident owners of property taxed in the district who have power of recommendation in proportion to benefits to the acreage affected; provided, the commissioner must have in any event the endorsement of 20

percent of the resident landowners. It is the duty of the drainage commissioner to inspect the drains and keep them in repair and free from obstruction. All suits in the district court for condemnation or other proceedings must be brought in the name and under the direction of the drainage commissioner. No appeal may be prosecuted after the expiration of 20 days after judgment or confirmation.

See: *Montgomery v. Crouch*, 77 Okla. 51; 186 P. 218.
Niblo v. Drg. Dist. #3, 58 Okla. 639; 160 P. 466.

FINANCING—Assessments

Sec. 331. Benefits, Damages—Proration: All lands benefited must be assessed for the construction of the works in proportion to the benefits, whether the improvement passes through said lands or not. The viewers, in assessing benefits to lands not traversed by the drain, shall not consider what benefits will be derived after some other drain has been constructed but only the benefits to be derived from the public drain and the value of the outlet to be offered for the drainage of said lands, or protection from floods. The expense of the improvement must be prorated to the whole acreage benefited. In estimating damages, the viewers and commissioners shall consider lands and drains appropriated, and the direction of the drains across the lands. The estimate for location expenses shall include the cost reported by the viewers and a reasonable provision for properly inspecting the works and all fees for recording and publication; provided, however, if the amounts respectively assessed shall become insufficient to pay the estimated cost, or after completion, the actual cost, by reason of increased damages or reduced assessments on appeal, or because the actual costs of construction exceed estimated costs, or when because of irregularity the assessment is found insufficient or invalid, the commissioners shall appoint three resident freeholders, not interested nor kin to owners, who will proceed under section 302 and reassess the costs of such improvements against the landowners, roads, railroads, and municipalities interested, and make their report thereon. This report supersedes the original report as to the amount of benefits resulting and as to the damages and the *pro rata* cost of said improvement charged to the several tracts. This report is heard in the same manner as the original report with the same right of appeal. If warrants or bonds have been issued upon the report of the first viewers, the legality and standing of such warrants and bonds is not affected in any way by reason of the second or subsequent assessment and report, and additional warrants or bonds may issue for the additional amount required and assessed for completing the improvement. If the irregularity consists of the failure to enter an order in the record of the proceedings, the commissioners may at any time cause such order to be entered with full force and effect as if properly entered at a time.

See: *Bd. of Comrs. of Pottawatomie Co. v. Municipal Securities Co.* (USCCA Okla.) 1 Fed. (2d) 294.
Cochran v. Norris, 175 Okla. 126; 51 P. (2d) 736.
Bd. of Comrs. of Kiowa Co. v. Kiowa Nat. Bk. of Snyder, 175 Okla. 3; 52 P. (2d) 777.
Butterfly v. Bd. of Comrs. of Garvin Co., 157 Okla. 161; 13 P. (2d) 209.
Carson v. Okla. Dredging Co., 152 Okla. 147; 4 P. (2d) 71.
Stucky v. Keys, 119 Okla. 227; 249 P. 416.
Prudential Ins. Co. of Amer. v. Bd. of Comrs. of Garvin Co., 185 Okla. 362; 92 Pac. (2d) 359.
Barrett v. Bd. of Comrs. of Tulsa Co., 185 Okla. 111; 90 P. (2d) 442.
Hine v. Bd. of Comrs. of McClain Co., Okla., 108 Pac. (2d) 112.

Sec. 332. Roads and railroads: When the work benefits any public or corporate road or railroad, the viewers apportion to

the county, state, or railroad the costs of location and construction in the same proportion to benefits as to private individuals.

Sec. 333. Payment of damages: The commissioners have power to condemn rights-of-way, and when damages are allowed they must be paid in cash without regard to corresponding benefits. Such benefits will be assessed the same as on property not damaged; provided, nothing herein shall be construed to prevent the offsetting of damages against benefits when the owners consent thereto.

Secs. 334 and 335. Appeal: Any interested person may file exceptions to the apportionment made by the viewers. The commissioners may hear testimony and examine witnesses, and their decision is entered of record. If the exception is overruled, the costs are taxed against the person filing same. **Sec. 335:** Any aggrieved person may appeal from the order of the commissioners. On the appeal the following questions may be determined: (1) whether just compensation has been allowed for property appropriated; (2) whether proper damages have been allowed for property injured; (3) whether the property has been assessed more than it will be benefited or more than its proportionate share of the cost of the improvement. Appeal bonds must be given except in cases of damages to lands and condemnation of lands and property. Appeal is to the district court. Where damages are assessed or property condemned, the commissioners must pay into court for the owner such compensation as determined by the viewers. Appeals do not stay the proceedings nor prevent progress of the work of construction.

Sec. 338. Lien of assessment—Delinquency—Public Lands: The assessments as confirmed by the commissioners against all lands, roads, and railroads benefited or affected by the improvement, and interest and costs from the date of such confirmation, constitute a lien to which only state, county, and municipal taxes are paramount, upon the lands and crops produced by the owners, or lands and profits due the owner, or crops produced on said land, and are collected in the same manner as state, county, and school taxes upon real estate and on personal property. The assessment becomes delinquent on the same date as other taxes and is subject to the same interest and penalties. All costs except construction and collection of delinquent assessments and those taxable to petitioners, remonstrants, or appellants, are paid out of the county treasury, to be refunded out of the first money received on assessments or from bonds. After the costs are refunded to the county, such damages as have been paid to landowners are next refunded; provided, where lands are not taxable, the commissioners have power to prorate the amount of the assessments among the owners of other lands subject to taxation, or pay the assessments on such nontaxable lands out of the county funds or defer the payment until the lands aforesaid may be taxed. At that time said lands are made to bear their proportion of the expense, including interest. All public lands are subject to assessment for benefits and allowance for damages the same as lands owned by private parties, and such assessments draw six percent interest until paid. The assessments constitute a lien to which only the lien of the state for rent, sales price, and interest, and the lien of the state, county, and municipality for taxes, shall be paramount. The lien attaches to all crops produced upon the land. When collected, such money is applied to the payment of principal and interest of any judgment rendered, or of bonds or other evidence of indebtedness issued for the cost of location and construction of the improvement, that are payable from assessments against the lands of the district. The state has the same right of objection and appeal that individual owners have.

Commissioners may order assessments on state lands paid in not to exceed 10 annual installments at the same time that assessments on private lands are payable.

See: Missouri State Life Ins. Co. v. Bd. of Comrs. of Garvin Co., 173 Okla. 26; 45 P. (2d) 1101.
Stucky v. Kays, 119 Okla. 227; 249 P. 416.
Pottawatomie Co., Okla. v. Municipal Sec. Co. (CCA Okla.), 1 F. (2d) 294.
Barrett v. Bd. of Comrs. of Tulsa Co., 185 Okla. 111; 90 P. (2d) 442.

Secs. 339 to 341. Installments: The commissioners determine in what number of installments they will require assessments to be paid and the rate of interest thereon. *Sec. 340:* Assessments are recorded by the county clerk in the "drainage assessment book." The installments and interest thereon must be applied to the payment of principal and interest of bonds and to no other purpose except as herein provided. *Sec. 341:* Landowners have the privilege of paying the assessments to the county treasurer at any time before bonds based thereon are issued. If the costs and expenses of the improvement are less than the estimate, the difference is refunded *pro rata* to the owners assessed.

Secs. 413 and 414. Assessments for repairs: When a drain needs repairs, any owner assessed for the original construction may file a statement in writing with the county commissioners setting forth the necessity. The commissioners will instruct the drainage commissioner to examine the drain and report, under oath, an estimate of the work required to repair the same. If such sum is reasonable, the commissioners will divide it *pro rata* according to the original assessment of benefits. *Sec. 414:* The drainage commissioner returns his estimate and assessment for repairs or cleaning to the county commissioners, who after notice and hearing thereon make the apportionment of cost as they deem right and proper and enter the same on their records and the county clerk places same on the tax books against the lands and the crops or rents and profits to be collected as taxes.

FINANCING—Bonds

Secs. 371 to 375. Warrants in lieu of bonds: In lieu of issuing bonds, the commissioners may issue warrants of the drainage district, which bear interest at 6 percent and are of such denominations as will be convenient. *Sec. 372:* If prayed for in the petition, the commissioners may issue bonds in denominations of not less than \$100. *Sec. 373:* When the assessment roll is confirmed or at any time thereafter, the commissioners may enter an order that any property owners may pay the assessments levied against their property, and they give notice by publication that on a certain date thereafter the commissioners will issue drainage bonds of the county to pay the costs of the improvement. After bonds have been issued, the assessment must be paid in installments with interest as the county commissioners may order. *Sec. 374:* As soon as convenient after the expiration of the period stated in the notice, the county treasurer reports the amount of the assessments to be paid by the property owners. The county commissioners then pass a resolution reciting the amount of the originally confirmed assessments, the amount of any assessments released on appeal, the amount paid by the property owners in cash, and the total amount then unpaid. The board thereupon divides such tax into convenient annual installments, not more than 10 in number, specifying the amount and the fiscal year in which the same shall become payable. The first installment is payable not more than four years after the fiscal year in which the order is entered, and one installment is payable each year thereafter until all are paid. Each installment must be of sufficient amount to pay the

principal and interest of bonds issued and the cost of collection thereof. The order then provides for the issuance of the bonds of the county for the account of the drainage district. No annual installment of bonds may exceed the amount of the corresponding installment of assessments after deducting the cost of collection. *Sec. 375:* Bonds may bear any date subsequent to the confirmation of the assessments and be made to mature at such times as the county commissioners may fix, and be payable at the office of the county treasurer or as designated by the commissioners.

See: Bd. of Comrs. of Pottawatomie Co. v. Munic. Sec. Co. (USCCA), 1 F. (2d) 294.
Bd. of Comrs. of Kiowa Co. v. Kiowa Nat. Bk., 175 Okla. 3; 52 P. (2d) 777.
Mo. State Life Ins. Co. v. Bd. of Comrs. of Garvin Co., 173 Okla. 26; 45 P. (2d) 1101.

Secs. 376 and 378. Form of bond: The form of the bond is set out in full in the statute. The bonds constitute a lien upon and are payable solely out of the proceeds of the special assessment of benefits, and they recite on their face that the proceedings for the establishment of the district have been legally had, and that the total bonds do not exceed the assessments levied and unpaid. *Sec. 378:* Bonds so issued are valid and binding obligations upon the drainage district. They must be registered, and in any action brought on the bonds the only defense that may be offered against their validity shall be forgery or fraud. (*City of Chickasha v. O'Brien*, 58 Okla. 46; 159 P. 282.)

Secs. 379, 380, and 382. Sale of bonds: When the bonds have been registered, the commissioners may sell them at not less than the based par value thereof and accrued interest. The proceeds are placed to the credit of the drainage district in the hands of the county treasurer, who gives bond conditioned for faithful performance of his duties as treasurer, in double the amount of the drainage bonds. *Sec. 380:* If there be undetermined appeals when bonds are issued, the commissioners may provide for bonds for the full amount of the tax as confirmed, but order withheld from delivery specified bonds in a principal sum at least equal to the assessments pending on appeal; and when the appeal has been decided and the precise amount of the assessments determined, the board may deliver bonds so withheld, adjusting the principal and interest by endorsement thereon to conform to the tax available to pay them; or they may issue new bonds in lieu of the bonds withheld.

Bonds may be issued in installments, and in the event that a surplus remains in any installment after paying principal and interest of bonds issued against it, the surplus may be used by the county board in paying the costs of maintenance, repair, and replacement. All assessments unpaid bear interest at 6 percent from date of confirmation, payable semiannually. If bonds are issued at such time that it will be impossible to collect the interest assessments in time to pay promptly installments on bond interest, the commissioners may pay the bond interest from the general fund of the county and reimburse that fund when the assessment interest is collected. *Sec. 382:* No bonds may be issued in anticipation of the collection of assessments levied against any municipal corporation nor against real estate of any school district, but only in anticipation of the assessments against property privately owned and the property of public service corporations. Municipalities and school districts may elect to pay assessments in cash or in time warrants, reporting their election to the county commissioners before the date of the confirmation of the assessments. All bonds must be registered by the county clerk in a book

provided for that purpose, and a certificate of registration be indorsed on the bonds.

Secs. 401 to 403. Judgments against districts on bonds: When a final judgment is rendered by a Federal court, based on original bonds or warrants, against a drainage district or against the county commissioners, no execution shall issue, but a tax sufficient to pay the same shall be levied upon the lands, properties, and corporate bodies theretofore found to be benefited and assessed for construction, sufficient to pay the judgment and costs. When collected, this tax is paid by the county treasurer to the judgment creditor. (L. 1925, p. 51.) *Sec. 402:* The tax to pay judgments is levied in proportion to the assessment of benefits for construction theretofore made and confirmed. *Sec. 403:* Where a part of the tax is apportioned to a municipal body, it must be paid by the municipality direct to the county treasurer.

CONSTRUCTION

Secs. 351 and 352-7. Contracts: The commissioners give notice of the work to be let by contract in the same manner as notice of hearing on the report of the viewers. The lowest responsible bid is accepted. The commissioners cause a competent surveyor to receive the bids, to make contract on behalf of the county, and to give bond for faithful performance of his duties. The commissioners must appoint such surveyor as two-thirds of the resident landowners whose lands will be affected shall by petition request to have employed. *Sec. 352-7:* These sections set out in detail the procedure for letting contracts, the bonds required, and the method of payment for work. [*Hoover v. Bd. of Comrs. of Garvin Co.*, 157 Okla. 225; 13 P. (2d) 207.]

DISSOLUTION

Secs. 446 and 447. Action for dissolution: When the purpose for which the district was formed has been accomplished, any person owning land in and affected by said district may bring suit to dissolve it in the county court of the county in which the district is located. Notice is issued and served on the drainage commissioners and summons issued and served on the landowners as in civil action. (L. 1937, p. 484.) *Sec. 447:* It is the duty of the county attorney to represent the drainage district. Upon the trial, if the district judge shall find that all things have been done and accomplished in the district and there remains nothing further to be done and that there is no outstanding indebtedness and no reason for the continuance of the district, he issues an order, judgment, and decree that such district be dissolved. Thereafter all property within the district has the same status as prior to the formation of the district. (L. 1937, p. 484.)

OREGON

(Oregon Compiled Laws Annotated—1940)

TITLE 123, CHAPTER 1—DRAINAGE DISTRICTS, SECS. 123-101 TO 123-154

ORGANIZATION—Petition

Sec. 123-101. Who may petition: The persons shown by the records of the county to be the owners of 50 percent of the acreage in any contiguous body of swamp, wet, or overflowed lands or irrigated lands, situated in one or more counties of the state, may form a drainage district to reclaim and protect said land for sanitary or agricultural purposes, or when the same may be conducive to the public welfare, by signing and filing a petition which must state: the name of the district; the boundaries with a description of the land contained therein; an allegation that the land constitutes a contiguous body of wet or overflowed land, or irrigated land the water of which contributes

to the wet condition of said land or other lands; the total acreage in each county affected, that is to be included in the district; the names of the landowners and the acreage owned by each; and an allegation that the proposed reclamation is for sanitary or agricultural purposes and will be conducive to the public welfare. The petition must also state that the land in the district will be benefited, that the benefits will exceed the damage done, that the best interests of the landowners and the public at large will be promoted by the formation of the district, and that the district will be an advantageous method of accomplishing its purposes; and it must contain an informal statement of a proposed form of reclamation, an agreement that the signers will pay the expense incurred and any taxes levied for the expenses of organization, and a prayer that the land described be organized into a drainage district. The petition must be verified by one or more of the signers. The petition is filed in the office of the court clerk of the county in which more of the lands are situated than in any other county.

See: D.D. #7 *v. Bernards*, 89 Ore. 531; 174 Pac. 1167.

State ex rel Mehaffey, 82 Ore. 663; 162 Pac. 1068.

Re *Scappoose D.D.*, 115 Ore. 541; 237 Pac. 684; 239 Pac. 193.

Sec. 123-102. Hearing: The county court fixes a time and place for a hearing on the petition and the clerk gives notice thereof by publication for four weeks, the last publication to be at least 15 days before the date of the hearing. The form of the notice is set out in the statute. (*Rees v. Valley View D.D.*, 101 Ore. 65; 199 Pac. 178.)

Sec. 123-103. Objections: Any interested party may file, in writing, his objections to the organization of the district, which objections must be specific and definite. The court considers all of the evidence presented for or against the petition and makes its findings on the facts presented. If it appear to the court that the petition should be granted, it will by order of record declare the district organized. Finding the contrary, the petition is dismissed at the cost of petitioners in proportion to the acreage represented by each. In considering the petition the court will disregard any error or omission that does not affect substantial rights, and such error or omission does not affect the validity of the organization. (*Stafford v. Multnomah Co. D.D. #1*, 108 Ore. 197; 204 Pac. 158.)

Sec. 123-134. Changes in "plan"—Petition for: The supervisors of the district, or the owners of land adjacent to the district, have the right to petition the court organizing the district to amend its former decree to correct names of landowners, the descriptions of lands, or errors, or to change the "plan" so that the boundary lines of the district be extended to include land not described in the original petition; provided, in no case shall land be included in the district unless persons shown by the records of the county to be the owners of not less than 60 percent of the acreage sought to be brought into the district, and not described in the original petition, first sign and file with the court a petition therefor. If the petition requests a change in boundary, it shall also ask the court to appoint commissioners as provided under section 116 to appraise lands and assess the benefits and damages. As soon as the petition is filed the court clerk gives notice of a hearing thereon in the same manner as provided in section 102. The form of the notice is set out in the statute. The proceeding thereafter is substantially the same as for the original establishment of the district. (*Arstill v. Fletcher*, 95 Ore. 308; 187 Pac. 854.)

ORGANIZATION—Officers

Secs. 123-108, 123-109, 123-111, and 123-112. Supervisors: Within 30 days after organization of the district, the clerk of

the county where the petition was filed calls a meeting of the landowners to elect a board of three supervisors. Notice is by publication. The supervisors must be landowners of the district. At the time stated the landowners organize by electing a chairman and secretary and those officers conduct the election. Each owner is entitled to one vote for each acre owned by him in the district, and the three persons receiving the highest number of votes are elected supervisors. They determine their terms of office of one, two, and three years by lot and serve until their successors are elected and qualified. A majority of acreage is necessary for a quorum at all landowners' meetings. *Sec. 123-109:* In the same month of each year after the first election of supervisors, the board of supervisors calls a meeting of the landowners in the same manner to elect one supervisor, who shall hold office for three years. Vacancies in the board are filled by the supervisors until the next annual election. After the report of the commissioners has been confirmed as provided in section 121, only the land having benefits assessed against it is entitled to vote at the annual meeting. *Sec. 123-111:* Immediately after the election, the supervisors choose one of their number as president of the board and elect a secretary who may or may not be a board member. The board reports to the annual meeting of the landowners showing all work done. *Sec. 123-112:* The secretary of the board is also treasurer and gives bond, in the amount fixed by the supervisors, to faithfully account for all moneys received by him. Said treasurer must pay out money only on warrants of the district signed by the president of the board of supervisors and attested by the secretary and treasurer.

Sec. 123-116. Commissioners: The county judge by order of record appoints three commissioners to view the lands and assess benefits and damages. The commissioners may not be landowners nor kin in the fourth degree of consanguinity to any landowner. One of the commissioners must be a civil engineer and two must be freeholders residing in the State of Oregon. A majority constitutes a quorum. (See "Financing—Assessments," sec. 123-117, post.)

Secs. 123-132 and 123-133. Chief engineer: Within 30 days after organizing, the supervisors appoint a chief engineer for the district to have control of its works. He makes all necessary surveys and reports in writing to the supervisors, with maps and profiles and a plan for draining and reclaiming the land described in the petition and adjacent lands that will be improved or reclaimed. *Sec. 123-133:* Upon filing of the engineer's final report, the supervisors adopt the same or any modification thereof approved by the engineer, and the report becomes the "plan for reclamation" and is filed in the records of the district. All lands that will not be benefited under the "plan" may be excluded from the district by order of the county court, and any tax levied thereon will be refunded; provided, however, when irrigated lands contribute to the wet or overflowed condition of any land in the district and the waste or seepage waters from such lands are carried by and disposed of through the works of the district, they are deemed to be benefited.

See: *In re Scappoose D.D.*, 115 Ore. 541; 237 Pac. 684; 239 Pac. 193.

Reese v. Valley View D.D., 101 Ore. 65; 199 Pac. 178.

ORGANIZATION—Powers

Sec. 123-136. Connecting existing ditches: At the time of construction, all ditches or systems of drainage already constructed within the district and all water courses shall be connected with the works of the district, if necessary to drain any of the lands. But no drains may be connected without the

consent of the board of supervisors in writing, approved by the chief engineer and describing the terms and conditions of the connection. If landowners wishing to connect with the drainage system of the district are refused by the supervisors, or decline to accept the consent granted, they may file a petition for the connection in the circuit court having jurisdiction of the district, and the court will decide the question in a summary manner, and its decision is final and binding on the district and the landowners. No connection with the drainage works of the district may be made by the owners of any sort of drainage system wholly outside the district without the written consent of the supervisors.

Sec. 123-137. Supervisors' authority: The supervisors have full authority to erect all of the works called for by the "plan" and, in the name of the district, to make all necessary water filings and appropriation of water for the subsequent irrigation of land within the district, and may hire labor and purchase equipment, material, and supplies therefor. They may enter into contract for construction, and the complete plans and specifications prepared by the chief engineer and approved by the state engineer shall be attached to every contract. The chief engineer is the superintendent of all works, and must make a full report to the supervisors at least once a year or when required.

Sec. 123-138. Irrigation works: Drainage districts may irrigate any land within their boundaries and cause irrigation works to be constructed, operated, and maintained. All powers conferred by this act in respect of drainage shall also be construed to include irrigation. Bonds issued solely for irrigation purposes must be known as irrigation bonds.

Sec. 123-139. Entry on land: The officers and employees of a district have the right to enter upon lands to make surveys and to locate the necessary works for irrigation or drainage and laterals therefor on any land that may be deemed best for such location. The district also has the right to acquire by condemnation or any legal means all lands, rights-of-way and easements, and other property necessary for construction, operation, and maintenance of the drainage or irrigation works, including the improvement of natural waterways for such purposes. The district may make all necessary water filings and appropriations of water under the state law. The right of condemnation as hereby given includes property already devoted to a public use that is less necessary than the use for which it is required by the district, whether drainage, irrigation, or other purpose. Right-of-way over state lands is given the district. Condemnation proceedings are in the name of the district and under the provisions of the state law.

See: *Stafford v. Multnomah Co. D.D.* #1, 103 Ore. 197; 204 Pac. 158.

In re Scappoose D.D., 115 Ore. 541; 237 Pac. 684; 239 Pac. 193.

Sec. 123-140. Contracts with the United States: The board of supervisors may, when it is determined to be for the best interests of the district, enter into a contract with the United States for the reclamation by drainage or irrigation of lands within the district under the provisions of the Act of Congress of June 17, 1902, (32 Stats. 388), and especially the Act of August 13, 1914, entitled "An Act extending the period of payment under reclamation projects, and for other purposes" commonly known as the "20-year Extension Act." (L. 1917, ch. 186.)

Secs. 123-142 and 123-142-a. Waterworks: Any district embracing less than 1,000 acres may own reservoirs, pumps, and other waterworks and may sell water for domestic purposes and watering gardens and lawns for profit. (L. 1931, ch. 174.) *Sec. 123-142-a:*

Lands acquired in any manner by a district and not necessary for its purposes may be disposed of either at private or public sale.

See: Warm Springs Irr. D. v. Pac. Livestock Co. (C.C.A.-9th), 270 Fed. 560.

Sec. 123-147. Annexation to municipality: No part of a district may be annexed or merged within a municipality except upon a three-fourths favorable vote of the voters of that part of said district. The voting is conducted in the same manner as in elections of officers of the district. (L. 1933, ch. 170.)

Secs. 123-149 to 123-154. Districts west of the Cascade Mountains: These sections give the supervisors special power for repairing, cleaning, and grading ditches of districts west of the Cascade Mountains, and to prevent obstruction and pollution of such ditches.

FINANCING—Assessments

Sec. 123-115. Tax levy: As soon as the board of supervisors are organized they levy a uniform tax of not more than \$1.00 per acre upon each acre of land within the district for the purpose of paying the expenses of organization, surveys, assessing benefits and damages, and other necessary expenses before the board is empowered to provide funds to pay for the total cost of the improvement. If the boundary lines are extended so as to include lands not mentioned in the petition, the same uniform tax is assessed against those lands as soon as they have been annexed. Such tax is due immediately and becomes delinquent in 60 days. This tax is a lien on the lands against which assessed and is collected in the same manner as the annual installments of taxes. If there is a surplus from the fund so collected, it is placed in the general fund and used to pay costs of construction; provided, if the district is dissolved, the surplus is prorated and refunded to the landowners paying the same.

Secs. 123-117 and 123-118. Commissioners—Assessing benefits and damages: After the county court has appointed the commissioners to view the lands and assess benefits and damages (sec. 123-116), the clerk notifies them of the time and place for their first meeting. The secretary of the board of supervisors attends the meeting and furnishes the commissioners with a list of all lands, the names of the owners, and the date of the decree incorporating the district. The secretary also furnishes a copy of the "plan of reclamation," with maps and profiles. The commissioners elect one of their members chairman, and the secretary of the supervisors is also secretary of the commissioners. **Sec. 123-118:** The commissioners accompanied by the chief engineer proceed to view the premises and determine the value of all lands within or without the district to be acquired for rights-of-way, holding basins, or other works set out in the "plan." They assess the benefits and damages that will accrue to each parcel of land, including irrigated land, irrigation ditches and canals that contribute to the wet or overflowed condition of the lands, and any public highway, railroad, or other property that will be affected by the proposed works. For the purpose of determining benefits, all irrigated lands that are adjacent to and on a higher level than other lands within the district, which fall naturally within the same water shed, shall be deemed contributing to the wet or overflowed condition of the lands of the district and shall be deemed benefited by the construction of the works of the district. The commissioners give due consideration to any other ditch, levee, or other work already constructed that affords partial or complete protection to any tract of land in the district. Public highways, railroads, and other rights-of-way

shall be assessed according to the increased physical efficiency and the decreased maintenance cost by reason of the protection derived from the proposed works. The commissioners have no power to change the "plan of reclamation." The commissioners file their report, which must be signed by at least a majority of them, in the office of the county clerk of the county in which the district was organized.

Sec. 123-119. Lowlands—Growing crops: If there were lands in the district that, because of the low elevation, were not assessed for benefits nor used for growing crops, the supervisors of the district may levy an annual assessment on such lands for maintenance of the drainage works not to exceed 100 percent of the rate levied against assessed lands having the lowest elevation, the assessment to be collected in the same manner as other assessments for maintenance and operation. (L. 1935, ch. 27.)

Secs. 123-120 and 123-121. Report of commissioners: Upon the filing of the commissioners' report of benefits and damages, the county clerk gives notice by publication of a hearing thereon. **Sec. 123-121:** The district or any landowner may file exceptions to said report or to any assessment of benefits or damages within 10 days. The district court hears all exceptions and amends or modifies the report as in its judgment may be equitable. After having heard and determined all objections, if it appear to the court that the estimated cost of the improvement set out in the plan is less than the benefits to be derived therefrom, then the court will approve and confirm the commissioners' report as amended or modified. The county clerk transmits a certified copy of the report and order of confirmation to the board of supervisors and to the recorder of each county having lands in the district, where they become a permanent record.

Sec. 123-122. Annual assessment: Supervisors each year make a computation of the whole amount of money to be raised by the district through assessment for the coming year including maintenance, operation, and delinquencies. Such amount when so determined constitutes an assessment against all of the lands of the district, and is apportioned by the supervisors in accordance with the report of the commissioners as confirmed. State lands are subject to assessment. Past due bonds of the district and coupons may be received by the treasurer in payment of assessments for paying bonds and bond interest. Any warrants issued against the operation and maintenance fund may be received in payment of assessments levied for operation and maintenance.

Where it becomes expedient to drain a lake and such draining entails extra and additional work and cost for maintenance, pumping, etc., in excess of that necessary for the reclaiming of the land within the district other than lakes, an extra assessment for such additional work or a higher rate for such pumping and maintenance may be levied against the land covered by such lake to the extent of the respective additional benefits to such land.

The supervisors prepare a list of the assessments and apportionment with a description of the property of each landowner, and not later than December 1 of each year certifies it to the county assessor of each county interested. The assessor enters it on the assessment roll against the property described, and collects it in the same manner and at the same time as state and county taxes. The sheriff and tax collector must collect and account for the taxes for operation and maintenance separately from the taxes levied by the district for other purposes. Operation and maintenance taxes when paid to the county treasurer must be kept in a separate fund known as the "operation and maintenance fund," and warrants for payment of operation and maintenance must be drawn against such fund. The county

treasurer must make quarterly returns of all money collected from district taxes to the secretary of the board of supervisors. If the board of supervisors refuse or neglect to make such assessment and apportionment, it may be made and equalized by the county court of the county in which the proceedings were had, and with the same force and effect.

Secs. 123-123 to 123-125. Reassessment of benefits: At any time after the expiration of five years from the confirmation of the commissioners' report as provided in section 121, upon the petition of one-tenth of the landowners in the district filed with the county clerk, or the petition of owners of at least one-tenth of the land in the district, stating that the original assessments are inequitable or unjust, the county court will appoint three commissioners in the same manner as the original commissioners were appointed, to reassess the benefits. The proceeding for hearing on the report of these commissioners is the same as for the original hearing. When confirmed by the court, such reassessment takes the place of all prior assessments; provided, in no case may the total amount of the assessment be less than the outstanding obligations of the district. *Sec. 123-124:* Lands owned by the county, the state, or a town within the district are subject to taxation and assessment, and the full amount shall be paid to the district at the same time that other drainage district taxes are paid. *Sec. 123-125:* Drainage districts containing no more than 2,000 acres have the power to waive the payment of penalties and/or interest on delinquent district assessments.

Secs. 123-127 to 123-131. Lien on crops: All drainage districts have a lien on all crops grown on land within the district for that portion of the annual assessment levied for maintenance and operation of the district against the land on which the crops are grown. This lien shall be prior to every other lien, mortgage, or encumbrance on said crops, except labor liens now granted by the State of Oregon and crop mortgages by landowners to Federal or state loaning agencies, the proceeds of which are used in the production of the crop of such landowner, provided the loaning agencies certify to the district that such loans cannot otherwise be made to said landowner. The lien is in addition to any other lien securing the payment of maintenance and operation assessments, and is a continuing lien and binds the crops after as well as before the same have been gathered; and provided, the share of any tenant who has leased the land on a share-crop basis shall be exempt from said lien to the extent of three-fourths of the entire crop. (L. 1935, ch. 310.) *Sec. 123-128:* To establish this lien the supervisors file with the county clerk, before the removal of the crop, a statement under oath setting forth the amount of that portion of the annual assessment for maintenance and operation against the land on which the crop is grown and for which a lien is desired, with a description of the land and name of the owner. *Sec. 123-129:* The county clerk records the statement in a claim book kept for that purpose. *Sec. 123-130:* The form of the claim for lien is set out in the statute. *Sec. 123-131:* Upon removal of any crop to another county, the lien is defeated as to subsequent bona fide purchasers or mortgagees unless the lien is recorded within 30 days in the county to which the crop has been removed, but the lien remains good in any county where the notice has been so recorded.

Sec. 123-135. Insufficiency of works—Additional assessments: Where the works set out in the plan are found inadequate, the supervisors have the right to formulate new or amended plans containing new works, and additional assessments may be made in conformity with section 118, in proportion to the increased benefits accruing to the land because of the additional works. If

it should be found that the total tax levied under section 122 is insufficient to pay the cost of works as set out in the plan, or additional work under this section, the supervisors may make an additional levy, provided that the total of all levies does not exceed the total amount of benefits assessed.

FINANCING—Bonds

Sec. 123-143. Payment of claims—Warrants: All claims against the district are paid by warrants drawn on the district treasurer and signed by the president and secretary of the board of supervisors. Warrants presented and not paid for lack of funds have that fact endorsed on the back thereof and draw interest thereafter at the rate of 6 percent until paid. But no interest is allowed after the secretary notifies the holder by publication that money is on hand to pay such warrants. The supervisors levy a sufficient tax each year to pay outstanding warrants to the extent permitted within the constitutional limits.

Sec. 123-144. Bonds: The supervisors may in their judgment issue bonds for any purpose necessary or convenient to carry out the provisions of this act. This includes the refunding of outstanding bonds by new bonds to mature at annual intervals within 40 years, commencing after a period of not more than five years. Bonds may be issued to mature serially in approximately equal annual amounts, and may include a sum sufficient to pay the first four years' interest or less to accrue on same. Notice of intention to sell bonds is given by publication. Sealed proposals are received by the supervisors, who may reject all bids. If no satisfactory bid is received, the board may use the bonds for any purpose for which the proceeds might be used, but the board may not sell or dispose of bonds at less than 90 percent of their face value. Nothing in this Act prohibits the district from draining lands in units or portions from time to time. Bonds and interest and all authorized obligations of the district are paid by revenue derived from annual assessments upon lands and other real property in the district, and all such property remains liable to be assessed therefor. The treasurer must keep a "bond fund" including all moneys received from refunding bonds and from taxes to meet the next installment of principal and interest, and from this fund he must pay bonds and interest as they mature. Moneys received from bonds, other than refunding bonds, for construction and acquisition of works are covered into a "general fund" from which all other obligations are defrayed. After five years the supervisors may redeem as many of the bonds not due as the surplus funds in the general fund will pay at the lowest offer for redemption. The supervisors have authority to call bonds before maturity at a premium of 3 percent, after notice by publication of their intention and the amount of the bonds to be called. Bonds must be called in numerical order and not otherwise, and on an interest paying date after notice.

CHAPTER 3—ALTERNATIVE PROCEDURE FOR BONDS AND REFUNDING BONDS (ARTICLE 2, SECS. 305 TO 313, L. 1933, CH. 247)

Secs. 305 to 308. Refunding bonds: Any district desiring to refund its outstanding indebtedness or issue bonds for any and all purposes may elect to adopt the following procedure. *Sec. 306:* The supervisors of any district desiring to issue refunding bonds to replace, or in the discharge of, any outstanding indebtedness, may issue to the several holders of such indebtedness refunding bonds in denominations and amounts as may be found expedient and necessary. The refunding bonds may be serial, on the level payment plan, or each of said bonds may be amortized as the board may determine by resolution; provided that the bonds so issued shall not exceed in principal and rate of

interest the indebtedness to be satisfied and for which said bonds are to be exchanged. It is not necessary for the supervisors to advertise the sale of these bonds or offer them for public sale. (L. 1933, ch. 247.) *Sec. 307:* This section provides for number, maturity, place of payment, registration, etc., of refunding bonds. *Sec. 308:* Before authorizing the issuance of refunding bonds, the supervisors require all known holders of obligations of the district to submit an offer to deliver such indebtedness for bonds of equal amount, or to accept in full payment of all outstanding indebtedness a sum of money representing the proportion which the refunding bond issue bears to the entire outstanding indebtedness proposed to be refunded or compromised, based on the par value of the proposed refunding bonds. The creditors must agree to absorb the loss between the outstanding indebtedness to be refunded and the amount of refunding bonds at par. The offer must be in writing and is irrevocable until the board has reasonable opportunity to authorize the issuance of the refunding bonds, and also while any suit involving the issuance of the refunding bonds is in process of determination. When authorized by a majority vote of the electors of the district, the exchange may be made on a basis of less than par for the refunding bonds, in which event the supervisors give notice by publication of the proposed sale of said bonds.

Sec. 309. Lien of bonds: Upon the delivery of the bonds the secretary of the supervisors furnishes the recorder of each county affected a certified copy of the resolution of the board authorizing the bonds; the resolution fixing the annual per acre payment to be made in payment of the principal and interest of said bonds; the treasurer's registration record; and a certified statement of the lands within the district liable under said bonds, described in 40-acre tracts or by metes and bounds. The secretary also certifies the total amount of refunding bonds charged against each parcel and the amount and date of the annual payment thereof and the rate of interest. This information is recorded in each county and is then a bond lien of the drainage district against the lands of the district within that county, and constitutes the total of such charges and assessments and the maximum of liens against said land by reason of said refunding bonds and may not be increased by any subsequent assessment because of any delinquency in the payment of bond lien and interest against any other tract of land in said district. Unpaid annual assessments bear interest at 6 percent. All unpaid annual assessments, principal, and interest remain a lien on the lands assessed in favor of the district and have priority over all other liens and encumbrances except state, county, and municipal taxes. Any landowner may pay in full and relieve his land of the lien of refunding bonds and interest and any bond issued to refund the refunding bonds. The lands remain subject to assessment by the supervisors for an emergency fund of not more than 20 cents per acre per year. Such liens are foreclosed in the same way as other drainage district liens.

Sec. 310. Annual assessment per acre: During the five years after the issuance of refunding bonds the supervisors levy an annual assessment of 20 cents per acre, and thereafter whenever there is a default in the payment of any assessment or in any of the annual payments the board levies an assessment of not to exceed 20 cents per acre on each and every acre, and collects it as other taxes are collected. The money so collected is placed in a separate fund known as the "emergency fund," to be used to the extent of not to exceed 10 cents per acre per year for supplementing the bond fund in case of deficiency due to delinquency or other contingencies and for the purpose of foreclosure

of delinquent-tax certificates issued for taxes against lands in the district. (L. 1933, ch. 247.)

Sec. 313. Sale of lands: The district may appear as a bidder at the sale of delinquent lands and purchase and take title to them and thereafter dispose of them. The proceeds from any sale by the district after paying expenses are placed in the "emergency fund." Where there is no other bidder, the district shall bid the full acreage of the tract or parcel of land for the amount of the delinquency, penalty, and interest; provided, the district shall never bid less than full acreage of tracts or parcels of land against the amount of the delinquency penalty.

DISSOLUTION

Sec. 145. Voluntary dissolution: A majority of the landowners representing 70 percent of the whole number of acres in the district, the lands of which are in an irrigation district, and the drainage district having no indebtedness whatever, may propose the dissolution of the district by a signed petition alleging that all claims and obligations have been satisfied and that the lands of the district are also located within an irrigation district. Each and every sheet of the petition must be verified in the form set out in the statute. The petitioners address the county court of the county in which the district or a majority of the land in the district is situated. The court gives notice by publication of a hearing on the petition not less than 50 days after the first publication. Cost of publication is paid by petitioners in advance. Persons objecting to the dissolution must file their written objections with the county clerk 10 days prior to the date of the hearing and serve a verified copy thereof on one of the verifiers of the petition. At the hearing if the court finds the allegations true and that the best interests of the landowners within the district will be served, it enters an order dissolving the district which thereupon ceases to exist.

SOUTH CAROLINA

(*South Carolina Code, 1932; Supplement to Code, 1938; and Session Laws, 1940; Article 4, secs. 6157 to 6210*)

DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 6157. Formation of district: The Sinking Fund Commission, or a majority either in number or acreage of the holders of title to any contiguous body of swamp, wet, or overflowed lands, situated in one or more counties, may form a drainage district for the purpose of having such lands reclaimed for sanitary or agricultural purposes or when it may be conducive to the public health, convenience, or welfare. For that purpose the parties named may make and sign a petition stating the name of the proposed district and the number of years it is to continue; its boundaries; and the names of the landowners and their addresses so far as known, with the number of acres owned by each. The petition must further state that the landowners subscribing thereto obligate their lands to pay taxes that may be assessed for the expense of organizing and maintaining any improvement that may be necessary. The petition may be signed both by owners and by the Sinking Fund Commission. It is filed in the office of the clerk of the court of common pleas of the county in which the greater part of the land is situated.

No drainage districts shall be formed, no levy or assessment made, and no bonds issued until an election thereon has been held under the direction of the commissioners of state and county elections in the county or counties in which said district is to be formed. No taxes may be levied nor bonds issued until after 21 days' public notice of such election. No district

shall be formed, no taxes levied, and no bonds issued unless a majority of the freeholders in the district, owning a majority of the lands, vote in favor of forming said district, assessing said taxes, or issuing said bonds. (L. 1932, p. 1253.) (Dillon Catfish Dr. D. v. Bank of Dillon, 143 S.C. 178; 141 S.E. 274.)

Sec. 6158. Notice of petition: The clerk of the court of common pleas where the petition is filed gives immediate notice of the filing, by publication. The form of the notice is set out in the statute. The certificate of the clerk is sufficient evidence of the giving of notice.

Sec. 6159. Hearing on petition: Any owner who has not signed the petition may appear and resist the organization of the district by filing his objections in writing, stating his reasons or denying the statements of the petition. Objections are heard in open court or in chambers at a time set by the court. Upon the hearing, if the court be of opinion that the establishment of the district will be to the advantage of the owners of real property therein or in the interests of the public welfare, the court will overrule the objections and by order of record declare and decree the district to be a public corporation of the state for a term not exceeding that mentioned in the petition; provided, no drainage district may be established or consolidated until the written approval or consent of a majority of the owners or the owners of a majority of the acreage shall have been first obtained, such consent to be evidenced by signing the petition or otherwise. If the court finds that the lands should not be incorporated into a drainage district, it will dismiss the petition at the cost of the petitioners in proportion to the acreage represented by each. No signers of the petition may have the proceedings dismissed as to them without the written consent of a majority in acreage of the owners who signed the petition. The petition may be amended. When the district has been declared a corporation, the court clerk transmits a certified copy of the finding and decree to the Secretary of State for filing in his office. A copy of said finding and decree is also filed in the office of the clerk of the court of common pleas in each county having land in the district, where it becomes a public record.

ORGANIZATION—Officers

Sec. 6160. Supervisors: Within 20 days the court clerk gives notice, by publication, of a meeting of the landowners for the purpose of electing a board of 3 supervisors, to be composed of landowners in the district, two of whom at least shall be residents of the county or counties in which the district is situated or of some adjoining county. The landowners organize by selecting a chairman and secretary who conduct the election. Each acre represents one share and each owner is entitled to one vote for each acre owned. The three persons receiving the highest vote are declared to be elected supervisors. Terms of office are 1, 2, and 3 years. The Sinking Fund Commission of the state may represent the state at such meeting, with the right to vote for supervisors, or upon any matter, to the extent of the acreage owned by the state in the district. The presence of the owners of a majority of the acreage is necessary to constitute a quorum for the purpose of holding such election or any election thereafter. In case the election shall fail for lack of a quorum, notice in writing may be given to the Sinking Fund Commission by any person interested, and the Commission will appoint three landowners in the district as supervisors for the same terms.

Sec. 6161. Annual elections: Every year, in the same month as that of the election of the first board of supervisors, they (the supervisors) call a meeting of the landowners in the district to elect one supervisor for a term of 3 years. In case

of a vacancy in the office of a supervisor elected by the landowners, the remaining supervisors, or if they fail to act for 30 days the Sinking Fund Commission, may fill the vacancy until the next annual election.

Sec. 6163. Organization of board: The supervisors choose one of their number as president of the board and elect some suitable person to be secretary. The secretary may or may not be a member of the board. The supervisors report to the landowners at the annual meeting on the work done.

Secs. 6164 and 6165. Chief engineer: Within 30 days after organization the supervisors appoint a chief engineer, who may be an individual, partnership, or corporation, and who may have such assistants as the supervisors approve. The engineer has control of the work in the district and may confer with the state chief engineer or the Sinking Fund Commission, and, with the approval of the supervisors, may consult any eminent engineer and obtain opinions on the work of reclamation. The chief engineer makes necessary surveys of the lands in the district, and of adjacent lands that will be improved or benefited, and reports in writing to the supervisors with maps and profiles and a full complete plan for drainage, showing the dimensions of the ditches and other necessary works together with the cost of carrying out the plan, including incidental expenses. The maps show the physical characteristics of the district and all railroads, highways, rights-of-way, and other properties located on such district lands. **Sec. 6165:** The chief engineer reports in writing every 12 months, and upon receipt of his final report the board of supervisors adopts it or some modification thereof approved by the engineer, and the adopted report becomes the "plan for reclamation" and is filed in the records of the district.

Secs. 6167, 6172, 6181, 6183, and 6195. Appraisers: Within 20 days after the adoption of the report, the secretary of the supervisors transmits a certified copy of the plan of reclamation to the clerk of the court of common pleas organizing the district, and files a petition of the supervisors asking the court to appoint 3 commissioners to appraise the lands within and without the district to be acquired for rights-of-way and other drainage works, and to assess benefits and damages accruing to all lands in the district. The court appoints the appraisers (commissioners), who must not be landowners in the district nor kin to landowners in the fourth degree of consanguinity. **Sec. 6172:** The supervisors have full power to carry out the plan of reclamation and maintain and protect the works. The chief engineer is the superintendent of construction and reports to the board annually or when required. **Sec. 6181:** The board of supervisors selects a treasurer, who gives bond and accounts for all taxes and the proceeds of tax sales. **Sec. 6183:** The supervisors within 30 days after organization employ an attorney to conduct all legal proceedings where the district is a party and to attend to all legal matters for the district. Employment is to be evidenced by an agreement in writing specifying the amount to be paid for his services insofar as possible. **Sec. 6195:** For the purpose of maintenance, the supervisors may employ one or more overseers whose duty it is to keep the works in good repair and to remove obstructions affecting the works, and to perform such other duties as may be prescribed by the supervisors.

ORGANIZATION—Powers

Secs. 6182, 6186, and 6194 Construction of works: The supervisors are authorized to straighten, deepen, widen, or change the course or flow of canals, ditches, drains, and water courses and to divert or divide the flow of water in or out of the district; to construct the necessary works and to find necessary outlets; and generally to do all things necessary to the operation of

the district. They have power to develop, hold, and control the water, to construct and maintain power plants, and to use district funds therefor, and may lease any surplus power developed. They have the power to condemn land in or outside the district under the procedure for appropriating lands for railroad rights-of-way. *Sec. 6186:* They have the power to cross railroad rights-of-way with the works of the district and to cross highways and to construct necessary bridges and culverts. The method of procedure is set out in the statute in detail. *Sec. 6194:* The supervisors, or the board of drainage commissioners, or the owners of lands adjacent to the district have the right to file petitions to amend the decree incorporating the district, to correct any errors in same, or to ask that the boundaries of the district be extended to include lands not included in the petition and in the decree incorporating the district. The procedure is set out in detail in the statute.

Sec. 6200. Extension of duration: When the supervisors find that to complete the works, or construct any works, or for any other cause, the time for which the district has been incorporated should be extended, the board calls a meeting of the landowners, after notice, which meeting is conducted in the same manner as an election of supervisors. If the majority of acreage represented at the meeting vote in favor of the extension, the supervisors, within 10 days after the next term of the court of common pleas, file a petition praying for extension of the incorporation. If the petition is granted, the clerk transmits a copy of the decree to the Secretary of State, to the district, and to the clerk of the court of common pleas in each county affected.

FINANCING—Assessments

Sec. 6166. Preliminary expenses: The supervisors, at any time before the adoption of the plan of reclamation, levy a uniform assessment of not exceeding fifty cents per acre on the land in the district for expenses of organization, of assessing benefits and damages, and of incidental expenses before funds to pay the total cost are available. If the boundaries are extended so as to include other lands not mentioned in the petition, the same uniform assessment is made against such other lands as soon as they have been annexed. This uniform tax is due when levied and becomes delinquent in ninety days after filing the certificate of assessment with the county treasurer. This uniform tax is a lien upon the lands. If the sum collected exceeds the total cost of the items for organization, the remainder goes into the construction fund of the district; provided, if the incorporation of the district is dissolved, this surplus is prorated and refunded to the landowners; provided further, if funds are necessary before this uniform tax can be collected, the supervisors may borrow sufficient money, at not to exceed 8 percent interest, and issue negotiable notes therefor and pledge all assessments under this section as security. The supervisors may issue to persons performing services of furnishing material of value to the organization, negotiable evidence of debt, bearing 6 percent interest; provided, if no assessment for preliminary expenses is made, this cost will be included in the total cost of the work. If it is found that the uniform tax has been assessed against excess acreage, the amount paid on the excess is refunded. If the uniform tax has been assessed on a deficiency in acreage, the tax is later collected on the additional acreage.

Secs. 6169 and 6170. Assessment of benefits and damages: The appraisal commissioners view the lands within or without the district to be used for rights-of-way and other works, and determine their value. They assess the amounts of benefits and damages that will accrue to each tract, public highway, railroad

and other rights-of-way from carrying out the plan of reclamation. In assessing benefits they may not consider what benefits will be derived by such property after other improvements or other plans of reclamation shall have been constructed, but only such benefits as will arise from this "plan." They give due consideration to any works of drainage already constructed which afford partial or complete drainage. Highways and railroads are assessed according to the increased physical efficiency and decreased maintenance cost by reason of the improvement. The appraisal commissioners have no power to change the plan of reclamation. They prepare their findings in tabular form and in detail and report to the supervisors. With the advice of the engineer the appraisal commissioners estimate the cost of the work set out in the plan, including the cost of property required for rights-of-way and other works and the probable expense of organization and administration. The report must be signed by at least a majority of the appraisal commissioners and filed with the clerk of the court of common pleas organizing the district. If their report includes benefits and damages to lands not in the original petition, the supervisors file with the court clerk a petition to extend the boundaries of the district to include all lands that will be benefited. The proceeding is then the same as for extending boundary lines of a district. *Sec. 6170:* After the filing of the appraisers' report, the court clerk gives notice by publication of a hearing thereon. The form of said notice is set out in the statute.

Sec. 6171. Hearing on appraisers' report: The drainage commissioners, the drainage district, or any owner of any land or other property to be affected may file exceptions to any part or all of the report of the appraisal commissioners within the time stated in the notice. The exceptions are heard by the court in a summary manner, and if it is shown on the hearing of all of the exceptions that the estimated cost is less than the benefits assessed, the court must approve and confirm the commissioners' report; but if the court finds any objections that should be sustained, it will order the report changed to conform to such finding and will then enter its decree confirming the report. The court will apportion the cost incurred by the exception to the report. Any land needed for rights-of-way or the works of the district may be condemned under a proceeding like that for taking railroad rights-of-way; provided, all landowners are deemed to have accepted the report unless within the time for filing exceptions they demand assessment of damages by a jury; provided further, any aggrieved person may appeal from the final judgment of the court of common pleas, within 10 days, to the Supreme Court. When it is determined that any tract against which the uniform tax (*sec. 6166*) has been paid will not receive any benefit from the works, then the uniform tax will be refunded.

The court clerk certifies the decree and the appraisal commissioners' report to the board of supervisors of the district and to the clerk of the court of common pleas of each county interested, and such certificate becomes a permanent record.

Sec. 6173. Levy of assessments: After the decree of the court, with a list of the lands and assessed benefits, has been filed with the clerk of the court of common pleas, the supervisors levy an assessment on all lands, railroads, and other property against which benefits have been assessed, of such portion of said benefits as may be necessary to complete the plan of reclamation, and 10 percent additional for emergencies. The tax is apportioned to each tract in proportion to the benefits assessed and not in excess thereof. If bonds are to be issued, the interest that will accrue thereon is included and added to the tax, but the interest to accrue on bonds is not to be

construed as a part of the cost of construction in determining whether the cost will equal or exceed the benefits. All state lands are assessed, and taxes are paid out of state funds. The secretary of the supervisors prepares a list of all taxes levied in a book known as the "drainage tax record." (Reelection required for levying taxes, see sec. 6157, *ante*.)

Sec. 6174. Annual installments: Each year thereafter the supervisors levy the amount of the annual installment of the total taxes levied, which shall be due during that year at the same time that state and county taxes are collected. The annual installment is certified by the court to the county treasurer of each county in which lands or other property of the district are situated. The form of such certificate is set out in the statute.

Sec. 6175. Collection of tax: The treasurer of each county having lands in the district receives the "drainage tax book" each year, and it is his duty to collect the taxes set out therein at the same time as state and county taxes are collected. Where lands change hands or are divided, the supervisors determine the amount to be paid by each owner. The treasurer makes return December 31 of each year and pays over to the district treasurer the money collected. The Laws of 1933 and 1936 amended this section to provide: That upon request of the taxpayers it is the duty of the county treasurer to segregate state, county, and school taxes from the drainage taxes or assessment and to permit said taxes to be paid at different times; provided that delinquent county drainage taxes or assessments shall not be segregated from state, county, and school taxes but collected at the same time as other taxes. (L. 1933, p.360; L. 1936, p. 1747.)

Sec. 6176. Delinquent taxes: Taxes unpaid December 31 of the year for which levied become delinquent and bear a penalty of 2 percent per month or fraction thereof from the date of delinquency. The Laws of 1934 provide that delinquent drainage taxes shall bear the same penalty as provided by law for delinquent property taxes, said penalty to be retroactive so as to include any delinquency on the effective date of this amendment. (L. 1934, p. 1411.)

Secs. 6178 and 6179. Lien: All drainage taxes, penalties, costs, and attorneys' fees constitute a lien upon the property assessed, and only the lien of state, county, road, and school taxes is paramount thereto; provided, if any lands of any district established under this chapter shall be within the bounds of a drainage district already established under any law, the last organized district is designated a subdistrict and the lien for taxes is subject to the prior lien of the district first established. Such lien is to be evidenced by a certificate, the form of which is set out in the statute. *Sec. 6179:* The method of enforcing the collection of delinquent taxes is set out in elaborate detail in this section and in section 6180. The latter section authorizes the sheriff making the sale to bid the amount due in the name of the district and to sell such lands to the district, in which case the district may hold and dispose of same for its own interest.

Sec. 6187. Warrants: Any warrants issued hereunder and not paid when presented to the treasurer for lack of funds bear interest at 6 percent thereafter until paid. No interest is allowed after notice that funds are on hand to pay the warrants.

Sec. 6197. Maintenance tax: On the first of October in each year after completion of the works, the supervisors levy a maintenance tax apportioned upon the basis of the net assessment of benefits accruing from original construction, and not to exceed 10 percent thereof in any one year. This tax is certified to the county treasurer at the same time as the annual

installment tax but in a separate column, and is collected in the same way.

Sec. 6198. Readjustment of assessments: When the owners of 25 percent or more of the acreage in the district file a petition with the court organizing the district, stating that there has been a material change in the value of property in the district since the last previous assessment of benefits and praying for the readjustment of benefits on a more equitable basis for the levy of maintenance taxes, the court gives notice of a hearing thereon. Finding at the hearing that there has been such material change, the court orders a reassessment of the benefits and appoints three qualified commissioners to make such reassessment. The procedure is the same as for the original assessment of benefits. However, in making the adjustment the commissioners are not limited to the aggregate of any previous assessment of benefits. After making such adjustment, the limitation of 10 percent for the annual maintenance tax which may be levied shall apply to the adjusted benefits. There may be no reassessment oftener than once in five years.

Sec. 6201. Additional plan and tax: When the work set out in the plan is found to be insufficient, the supervisors may formulate new or amended plans and levy additional assessments in conformity with section 6169, the additional assessments to be made in proportion to benefits accruing because of the additional work. If it is found that the total tax levied under section 6173 is insufficient to pay cost of the work set out in the "plan" and additional work, the supervisors may make an additional levy; provided, the total of all levies may not exceed the total of the benefits assessed.

Sec. 6204. Payment of assessment in full: Any landowner assessed has the privilege of paying the assessment in full at any time before a date fixed by the board of supervisors, which payment is to be in satisfaction of the tax levied less any amount added to meet interest. The secretary enters such payment on the drainage tax book.

The Law of 1935 made a special provision for Darlington, Dillon, Florence, Marion, Clarendon, and Williamsburg Counties, permitting any landowner of a drainage district in one or more of those counties to pay drainage taxes with obligations of the district that have matured. (L. 1935, p. 44.)

FINANCING—Bonds

Sec. 6196. Bond issue: The supervisors, if they deem it best, may issue bonds not to exceed 90 percent of the total taxes levied under section 6173, at an interest rate of 6 percent and to mature at intervals within 30 years commencing after a period not later than 10 years, as determined by the supervisors. The treasurer sells the bonds in such quantity and at such times as the supervisors may deem necessary to pay for the improvements. They may not be sold for less than 95 cents on the dollar, with accrued interest, and must show on their face the purpose for which issued. A sufficient amount of drainage tax is apportioned by the supervisors to pay principal and interest on said bonds, and is preserved in a separate fund for that purpose and no other. Delinquent bonds bear interest until paid or provision for payment has been made, and the money to pay interest is appropriated by the supervisors out of penalties and interest collected on delinquent taxes or any other available funds. In making the annual levy, provision must be made in advance for the payment of principal and interest on bonds. If the original tax levy proves insufficient to pay all bonds, the supervisors make an additional levy for that purpose. Under no circumstances may any taxes be levied which would impair to any extent the security of the bonds or the funds available for the payment of principal and interest. The district treasurer gives

bond for the proper handling and accounting for all money raised from bonds sold. Funds derived from bonds may be used only for the cost of the works and the expenses, fees, and salaries authorized by law. (Reelection required for issuance of bonds, see sec. 6157 *ante*.)

Secs. 6210 and 6211. Refunding bonds: Any and all drainage districts are authorized to refund all or any part of their outstanding bonds. The same officers authorized to issue the bonds are authorized to execute and deliver refunding bonds. The refunding bonds may mature serially over a period of not more than 40 years, the first installment to be due not more than 10 years from their date, and they bear interest at 6 percent. Bonds may be sold at either private or public sale as may be determined by the officers of the district; provided, if sold at public sale, notice must be published at least once in a newspaper in the county, 10 days before opening bids. If sold at private sale, such sale shall not be at less than par and accrued interest. The officers may exchange such bonds for outstanding bonds of the district, bond for bond. Refunding bonds are secured by the same lien on all lands and other property in the district as the original bonds, and taxes for payment of refunding bonds are levied in the same manner.

CONSOLIDATION

Sec. 6199. Consolidation of districts: Any two or more adjacent districts, whether incorporated in the same or different counties, may consolidate into one district with all of the rights and powers conferred by this chapter. Supervisors of the original districts call an election in the same manner as for the original election of supervisors. If a majority of the acreage voting in each district votes in favor of consolidation, the supervisors of each district present a petition for consolidation to the court of common pleas of the county in which the greatest area of land is situated, with a complete return of the election. The clerk gives notice of a hearing and any interested party may file objections. If such objections are overruled, or none are filed, the court will order the consolidation. The lands included in the new district are subject to all of the liens and obligations of the original districts and a new board of supervisors is elected. A record of all proceedings is filed with the clerk of the court of common pleas of each county where any lands are situated and also with the Secretary of State.

DISSOLUTION

Sec. 6191. Excessive cost: If, after examining objections to the commissioners' report, the court finds that the estimated cost of the proposed works exceeds the estimated benefits, it will render its decree declaring the incorporation of the district to be dissolved as soon as all expenses are paid. If the uniform tax levied under section 6166 be found insufficient, the supervisors will make additional uniform taxes for that purpose; provided, in estimating the cost of construction the amount of interest that will accrue on bonds may not be considered a part of that cost.

SOUTH DAKOTA

(*South Dakota Code 1939, Volume 3, ch. 61.10*)

INTRASTATE DRAINAGE

(*Sections 61.1001 to 61.1044*)

ORGANIZATION—Petition

Secs. 61.1001 and 61.1002. County commissioners to establish: The board of county commissioners, at any regular or special

session, may establish drainage works and cause them to be constructed for the purpose of draining agricultural land or preventing overflow or whenever they will be conducive to the public welfare. **Sec. 61.1002:** The board may act only upon a written petition filed with the county auditor, signed by a majority of the owners of agricultural lands described, which are likely to be affected by the proposed drainage. The petition must set forth the necessity for the drainage, a description of the route and termini of the proposed works, and a general description of the territory likely to be affected. It must be accompanied by bond conditioned to pay costs in the event that the petition is denied. All expenses prior to the establishment of the drainage are paid from the general fund of the county and that fund is reimbursed from the assessments if the district is established. If the petition is denied, the petitioners reimburse the county fund for the preliminary expense incurred and are liable therefor in an action on their bonds.

See: *State v. Risty*, 51 S.D. 336; 213 N.W. 952.
Riedrich v. McCook Co., 233 Fed. 42.

Sec. 61.1003: Upon the filing of the petition the county auditor transmits a copy to the state engineer who, together with the board of county commissioners, inspects the proposed route of the works. If in the opinion of the board and the state engineer it is necessary, the board causes a survey to be made by an engineer approved by the state engineer. The survey is to determine the route, termini, and cost of the proposed work; the length of the works through each tract of land, together with the number of acres appropriated for the construction of the improvement; the boundaries of the district so as to include all lands that will be benefited; a description of each tract, and the name of the owner thereof as shown by the tax record; and the probable cost of the improvement. The survey may be extended to lands not affected, for the purpose of determining the best method of draining the entire section. The county auditor promptly furnishes the state engineer with a copy of the engineer's report, and no district may be established, nor contract let for maintenance and repair costing over \$1,000, without the approval of the state engineer who has supervision in all matters.

Sec. 61.1004. Engineer's report—Hearing: The engineer reports in writing to the county board and his report is filed and made a part of the petition. The auditor then fixes a time and place for a hearing on the petition and gives notice to all interested parties by publication and posting. The notice gives a description of each tract of land affected, except that when there is included within the proposed district a portion of any municipality, it is sufficient to set forth the boundaries of the territory without naming individual plots. The notice summons all persons interested or damaged to show cause why the drain should not be established.

See: *In re Drg. Ditch #12*, 44 S.D. 157; 182 N.W. 770.
Johnson v. Peterson, 288 Fed. 735.

Secs. 61.1005 and 61.1006. Hearing—Damages: Any interested person may appear at the hearing in support of or in opposition to the statements of the petition and the engineer's report and the establishment of the drain. After the hearing, the county board may establish the drain as set forth in the engineer's report and approved by the state engineer, or in accordance with any amendment of said report approved by the state engineer. If the county board decides to change the terminal points or the route or to take more lands for construction purposes, the meeting is adjourned and the additional land-owners affected are given further notice of a hearing thereon in the same manner as for the original hearing. When the board

has heard all evidence, if it finds the drain not to be of public benefit or not needed nor practicable for draining agricultural lands, it will deny the petition. If the board finds the drainage to be conducive to the public welfare, or practicable for draining agricultural lands, and if the state engineer has approved the same, the board will establish the drain and assess the damages sustained by each tract of land or other property by the construction or maintenance of the work, except that damages to growing crops may be determined later and be considered a part of the cost of construction. The county board's decision is final in the absence of appeal. Failure to appeal or to appear and contest an award of damages by the county board is deemed a waiver of such damages or of the claimant's right to have same assessed by jury. When damages are awarded, the county board orders them paid with drainage warrants which must be delivered before taking possession of the land. The drain when established is given a name and all proceedings thereafter are recorded in the county auditor's office.

Sec. 61.1006: A certified copy of the resolution establishing a district is forthwith filed by the county auditor of each county interested with the registrar of deeds of his county. The resolution is recorded at length and such recording constitutes constructive notice of the establishment of the district to all subsequent purchasers and encumbrancers.

See: *Milne v. McKinnon*, 32 S.D. 627; 144 N.W. 117.
Yankton-Clay Co. Dr. D., 38 S.D. 168; 160 N.W. 732.

Sec. 61.1007. Equalization of benefits: After the establishment of a district and the fixing of damages, the county board proportions the benefits of the proposed drain among the lands affected and sets the time for equalizing them. The notice, which is by publication and posting, gives a description of each tract affected, the name of the owner, and the proportion of benefits determined for it. All affected parties are called on to show cause why the proportion of benefits should not stand as stated. At the hearing the county commissioners finally equalize and fix the benefits. Revision may be had for good cause when authorized by the board. The proportion of benefits to municipalities and railroads is equalized together with the proportion of benefits to tracts of land. Benefits to be considered are those accruing directly by reason of the construction of the works and indirectly by reason of such works being an outlet for future connecting drains.

See: *State v. Risty*, 51 S.D. 336; 213 N.W. 952.
Bruce v. Bd. Co. Comrs., 56 S.D. 569; 229 N.W. 932.
Lake Co. v. Orland Twp., 59 S.D. 340 & 499; 239 N.W. 852;
 240 N.W. 861.
State ex rel Curtis v. Pound, 34 S.D. 628; 150 N.W. 287.

Sec. 61.1013. Appeals: Appeal may be taken from the final order of the county commissioners, establishing or denying any proposed drainage or fixing damages or fixing the proportion of benefits, to the circuit court of the county in which the drainage is situated, by any one deeming himself aggrieved. Appeal must be taken within 30 days after the final order of the board. Appeals do not stay the proceedings of the board unless for good cause the court so directs. The full procedure for appeal is set out in the statute. (*Dr. Ditch v. C.M. & St. P. Ry.*, 57 S.D. 152; 231 N.W. 531.)

ORGANIZATION—Powers

Sec. 61.1025. Combined drainage: Owners of land that requires combined drainage, and municipal corporations and counties benefited by the proposed drainage, may provide for drainage of their own lands, streets, and highways by agreement in writing, acknowledged and filed with the county auditor. Such agreement may include the character of the works, classification of the

land, and special assessments to be made with full effect as if organized under this chapter. The board of county commissioners locates the drains agreed upon, and thereafter has complete jurisdiction and may order further procedure under the provisions of this chapter. It is not obligatory upon the board to establish the agreed drainage; and if it is found not practical and not for the best interest of all landowners, they will refuse to establish it.

Sec. 61.1028. Powers defined: Powers conferred extend to and include deepening, widening, and regulating any drain and also straightening, deepening, cleaning, and regulating the channel of any creek or stream, and constructing and repairing levees, dikes, and barriers. The board may relocate or extend the line of any drain when necessary to provide suitable outlets. It may buy, sell, lease, control, or improve real property or other property necessary to accomplish the purposes of this chapter.

Sec. 61.1029. County commissioners have charge: All drains are under the charge of the board of county commissioners and must be kept open and in repair. When a completed drain is situated in more than one county, the care of the portion in any county is assigned to the board of that county.

Sec. 61.1036. Intercounty drains—Jurisdiction: When drainage is required running into two or more counties, the petition setting forth the entire drainage and the signatures of all the petitioners is filed with the county auditor in each of the several counties. The boards of the several counties act jointly in considering the petition, and a majority of each board is required for any determination. In other respects the procedure is the same as in intracounty districts, and the engineer's report and the report of the proceedings are filed in each county. All publications are separate in each county. Bonds may be issued by the boards acting jointly, payable out of the assessments for drainage, and the bonds must be signed by the chairman of each board and the auditor of each county. All other procedure is the same as for one county. All assessments and certificates are in like manner a lien and enforceable as in the case of one county.

If the several boards are unable to agree, any interested person may bring the matter to the circuit court of the county in which his own land is situated. The method of appeal is set out in full in the statute. Such matters are tried as original actions and upon the determination by the court the board proceeds in accordance therewith.

When the greater portion of a district is in one county and not more than 3,000 acres in any other county, a petition signed by one or more landowners likely to be affected, requesting drainage and accompanied by bond, shall be filed with the county auditor in the county having the greatest acreage; then the board of that county has jurisdiction to hear and determine said petition and construct the works as if they were all in one county. If the board at the hearing finds that the greater portion of the land is situated in another county, and not to exceed 3,000 acres is situated in the county where the petition is filed, the board will then certify the proceedings to the county having the greater acreage. If the board at the hearing finds that more than 3,000 acres of land is situated in another county, it certifies that fact to the board of such county and thereafter the two boards jointly have jurisdiction of the subject. Appeals from the decisions of the joint boards are taken to the circuit court of the county in which appellants' lands are situated. Appeals from the single board are taken to the circuit court of the county where the proceedings are pending.

FINANCING—Assessments

Sec. 61.1008. Assessment certificates—Lien: The board assesses each tract and property affected in proportion to the benefits as equalized, for the purpose of paying the damages and costs already incurred or to be incurred. All expenses that contribute to the establishment of the district and the construction of the works are considered the cost of establishment. A copy of the assessment is certified by the county auditor and filed with the county treasurer, and notice by publication and posting is given all interested parties. The notice gives a description of the property, the name of the owner, amount of the assessment, amount assessed against municipal or railroad property, and the date when the assessment is due and penalty attaches for non-payment.

From the filing of the assessment in the treasurer's office, the same is due and payable and is a valid and perpetual lien upon the respective tracts so assessed against all persons or governments except the United States. If not paid within 10 days, a penalty of 5 percent attaches. The assessments bear interest from the date of the order at not to exceed 8 percent. The assessments are received by the county treasurer and paid over to the holders of assessment certificates or upon order of the county board. The county board may issue separate assessment certificates against each tract and sell them at not less than par with accrued interest or may contract to pay for construction with the certificates or with warrants.

The assessment certificates refer to the order of assessment recorded in the office of the county auditor and the certificates transfer to the holder all interest, claim, or rights to the assessments. The certificates bear the same rate of interest and carry the same lien as the assessments.

Drainage assessments are enforced by the county treasurer by the sale of the property at the annual tax sale, when delinquent on or before August 1 of that year. The provisions of law relating to general taxes apply to drainage taxes. When drainage taxes have been assessed against a municipality, the officers of such municipality must at the next annual levy of taxes make a levy for drainage purposes in an amount necessary to pay the assessment. In unorganized townships the county commissioners may use any money belonging to such township to pay drainage taxes, and a levy is made each year until all drainage taxes are paid.

Instead of making annual assessments to pay damages allowed in any drainage proceeding, and to pay the cost of establishment and construction, the county commissioners may issue warrants payable only out of assessments to be subsequently made, and bearing interest at not to exceed 8 percent. They may sell the warrants at not less than face value. With the money so received they pay the damages allowed and the cost of establishment and construction. The cost of the warrants and the cost of issuing them is included in the cost of drainage.

See: *Degroff v. Estabrook*, 49 S.D. 360; 207 N.W. 164.
Union Central Life Ins. Co. v. Hoilien, 60 S.D. 183; 244 N.W. 116.
Schaller v. Ericson, 49 S.D. 499; 207 N.W. 459.
Woods Bros. Construction Co. v. Yankton Co., 21 Fed. (2d) 267.

Sec. 61.1011. Assessments for further costs: At any time after the damages are paid and the lands taken, assessments may be made for further costs of construction. If the contractors are required and agree to take assessment certificates or warrants for their services, assessments need not be made until the completion of the work, at which time an assessment is made for the entire balance of the cost of construction including all costs and interest on bonds issued or to be issued. Notice

is given in the same manner as for the first assessment. Such assessment and the certificates issued thereon are perpetual liens. The board may sell the assessment certificates at not less than par and receive funds to pay the cost of establishment and construction. Several assessments may be made in the discretion of the board as the work progresses.

Sec. 61.1014. Maintenance assessments: Assessments for maintenance may be made on all of the landowners, in the proportions fixed and determined, at any time upon petition of a majority of the landowners affected setting forth the necessity, and after due inspection and public hearing by the board. The estimated expense of cleaning and maintaining and general repair may not exceed 20 percent of the original cost of the drain. Local and minor repairs may not exceed 1 percent of the original cost, and in the discretion of the board they may be made upon the petition of any person directly affected after consideration and public hearing by the board.

The board may make emergency repairs in their discretion with or without notice and hearing. The cost of emergency repairs in any one year shall not exceed 5 percent of the original cost and in no case be more than \$10,000, and not more than \$5,000 thereof may be expended on any floodgate. Maintenance assessments are made in the same manner as the original assessment.

See: *Risty v. Gt. No. Ry.*, 270 U.S. 378; 46 S. Ct. 236.
Kamrar v. Sanborn Co., 62 S.D. 487; 253 N.W. 496.

Sec. 61.1015. Installments: When a landowner against whose lands drainage assessments have been levied files with the county auditor, within 30 days, an agreement in writing that in consideration of the right to pay his assessments in installments he will not object to the regularity of the assessment and will pay it with interest as fixed by the board, he may have the privilege of paying the assessment in 10 annual installments with interest payable annually.

Assessment certificates may not issue until after the expiration of the period for filing such agreement with the county auditor, and when issued for assessments payable in installments, may be in coupon form. The first installment is payable within ten days and the remaining installments are payable annually for nine years from the date of the assessment. Subsequent installments become delinquent thirty days after they are due and a penalty of five percent attaches. Where bonds have been issued, installments must be made payable in amount sufficient to meet principal and interest of the bonds when due. Installments may be paid at any time and full discharge given except where bonds have been issued. Such payment does not operate as a discharge of the land from its liability in favor of such bonds until principal and interest of same have been paid in full. (State v. Day Co., 64 S.D. 370; 266 N.W. 726.)

Sec. 61.1016. Assessment installments: The installments of any assessment, including those unpaid or past due, where none of the delinquent assessments have been sold, and for or against which no bonds have been issued, may be cancelled and reassessed when the board deems it advisable, separately or together with any other or further assessment; provided, that the reassessment in lieu of the unpaid installments shall be in the same amount as the cancelled installments; and the board may thereupon issue bonds to be paid out of the fund to be obtained by the new assessment. When any assessment is cancelled for the purpose of reassessment, due consideration shall be given to any payments made on account of the previous assessment, or the penalties or interest accrued on account of delinquency, and the same shall be deducted or added, as the case may be, to the final assessment. (Ch. 86, L. 1933.)

Secs. 61.1017 to 61.1020. Installments extended: The county board of any county having outstanding drainage bonds is authorized to extend unpaid installments of assessments for such drainage and to issue and sell refunding bonds in the manner hereinafter provided. *Sec. 61.1018:* Owners of not less than 51 percent of the real estate assessed may file a petition with the county auditor setting forth either that owners of land assessed have defaulted on one or more installments or that the landowners are unable to pay installments for the current year, and the auditor will set the matter for hearing before the board of county commissioners, giving notice by publication. *Sec. 61.1019:* If the board finds the facts of the petition to be true, that the conditions are such that an extension of time is necessary in order to prevent large delinquencies, and that all of the landowners would be benefited by an extension of the unpaid installments, it has full authority to order the whole or a portion of the unpaid installments payable during 1933 and subsequent years to be extended for such period as it may determine, not exceeding 15 years. Interest on extended installments is payable annually. *Sec. 61.1020:* Any aggrieved person may appeal to the circuit court from the order of the board. (L. 1933, ch. 86.)

Sec. 61.1022. Assessments—Bonds—Levy: No later than their October meeting each year the county commissioners determine the amount that will be required during the ensuing year to pay principal and interest on outstanding bonds on account of any drains for which the assessments have been extended, and the amount that will be realized from the assessments on real estate that is not then in default of any assessment; and if the board determines that the latter amount will not be sufficient to pay principal and interest on said bonds, they must make such new apportionment of assessments against the lands charged with the cost of said drainage as will be sufficient for that purpose and the assessment is extended and collected in the same manner as other drainage assessments. (L. 1933, ch. 86.)

FINANCING—Bonds

Sec. 61.1021. Bonds—Warrants—Certificates: Whenever a county board shall have extended the time of the payment of installments of assessments, or when all assessments not so extended have been collected or become delinquent, the board has authority to refund outstanding bonds, warrants, or certificates that then may be due or about to become due or that may be refunded at a lower rate of interest, and the board may issue and sell the drainage refunding bonds of the county. They may be sold at par or exchanged for the outstanding obligations of the district. All the provisions of this chapter apply to said bonds. (L. 1933, ch. 86.)

Sec. 61.1024: If the board of county commissioners shall determine that the estimated cost of a proposed improvement is greater than should be levied in a single year upon the lands benefited, it may fix the amount that shall be levied and collected each year and may by resolution provide for the issuance of bonds in an amount not to exceed the unpaid assessments, with interest not to exceed 7 percent, to mature in the proportions and at the times such assessments shall have been collected but not to exceed 20 years from issue. The bonds are signed by the chairman of the board of county commissioners and the county auditor, and are issued for the benefit of the particular drainage district. Bonds may be sold at not less than par, and the proceeds of any premium are credited to the particular drainage district. The bonds must recite that they are to be a charge upon the lands in the particular drainage district for which they are issued until principal and interest are paid in full. Should the cost of the improvement exceed the estimate,

a new apportionment of assessments may be made and other bonds issued and sold in like manner; and should the proceeds of the assessments when collected be insufficient to pay the principal and interest of the bonds, a new apportionment of assessment may in like manner be made to meet such shortage. Separate funds must be kept by the treasurer for each drainage district, and no fund of one district may be used for another. No county is liable for the payment of the bonds so issued, but they are paid out of funds derived from the assessments provided.

CONSTRUCTION

Secs. 61.1009 and 61.1010. Bids—Contract—Bond: Any time after the establishment of a district the county board may let a contract for the construction of the works. The contract may require the contractor to take payment in assessment certificates or warrants thereafter to be issued. Contracts are let on competitive bids for the whole or for portions of the work, and the commissioners may reject all bids. An owner of land in the district being equally low in his bid and capable and responsible will have preference over a non-owner. Contractors give bond for faithful performance in an amount set by the county board. If in the judgment of the county board the entire drainage or any part can be constructed for less than the lowest bid, they may cause the same to be constructed without letting contract and may hire necessary labor and purchase necessary equipment therefor. Contracts for bridges and culverts made necessary by the drainage may be let separately after completion of the work. The cost of bridges and culverts is charged in the first instance to the cost of the drainage and thereafter they are maintained as a part of the highways. The cost of removing or replacing bridges or culverts already existing across the line of the works shall not be charged as a part of the drainage. *Sec. 61.1010:* The county board may make reasonable extension of the time for completion of the work, but when not completed within the extended time they may relet such unfinished part after five days' notice. Any cost over the original contract price is to be collected from the first contractor.

Sec. 61.1012. Acceptance of work: After the construction is completed and accepted by the state engineer, the board may accept the same by order duly made and make payment therefor unless partial payment has been agreed on. Final payment may not be made until 30 days after acceptance nor until any appeal that may have been taken has been determined. No payment may be made to any engineer whose employment has not been approved by the state engineer, and no payment may be made on any contract unless the work has been done under supervision of the state engineer.

ABANDONMENT

Sec. 61.1041. Invalid or abandoned proceedings: If any proceedings have been enjoined, vacated, set aside, declared void, dismissed, or voluntarily abandoned in consequence of any defect, irregularity, or want of jurisdiction, the county commissioners may, nevertheless, proceed to locate a drain under the same or different name and in the same or different location from that described in the abandoned proceedings. In case of a new proceeding in substantially the same location described in the abandoned proceeding, the board will ascertain the real value of the services rendered, money expended, and work done under the invalid proceeding and the extent to which the same will contribute to the establishment or completion of the new drain. This value is established at a hearing after notice, which hearing may be the hearing for equalization of benefits. When finally fixed, such value becomes a part of the cost of the new drain, and is credited to the persons who originally paid it in proportion to the amounts severally paid.

INTERSTATE DRAINAGE

(Secs. 61.1101 to 61.1114)

ORGANIZATION

Sec. 61.1101. Petition: Upon the filing in the circuit court of any county bordering upon any body of water or stream forming the boundary line between South Dakota and any other state, or having territory included in a natural drainage basin along or extending across the boundary line of this state, of a petition signed by not less than 50 residents and freeholders or by the county commissioners of any county partly within such territory adjoining the boundary waters or included in a natural drainage basin extending along or across the state boundary line, the court fixes a hearing within the territory named and gives notice by publication of the time and place when the petition will be heard. The filing of the petition and giving of notice vests the circuit court with full jurisdiction in the premises. Upon the hearing the court will fix and determine the boundaries of the district, which boundaries must as far as possible include territory in a single drainage basin. Upon the establishment of the district by the court, it becomes a public corporation under the laws of South Dakota, with all the usual powers of corporations.

ORGANIZATION—Officers

Sec. 61.1102. Commissioners: After the formation of the district, a governing commission of three members is chosen, by the county commissioners if the territory is in one county or by joint action of the county commissioners of all the counties when there is more than one affected. The governing body consists of three resident freeholders of the state who are electors in the proposed drainage district, and they are known as the commissioners of the district.

Sec. 61.1103. Commissioners' authority: The commissioners of the district are vested with authority to enter into contracts or arrangements with the governing body of the adjoining state having authority in drainage matters, for the joint construction of drainage improvements.

Secs. 61.1105 to 61.1114. Authority of drainage commissioners: The interstate drainage commissioners have authority to act upon the filing with them of a petition signed by not less than 25 freeholders, residents within such district. The proceeding thereafter is in substantial accordance with that followed in the establishment of intrastate districts. The representatives of the two states by joint action exercise the functions of the board of county commissioners in a single county drain. The board of drain commissioners exercise the same authority in that portion of the improvement which is in South Dakota that the county commissioners exercise in a district wholly within their county. Maintenance and repair are provided for by proceedings similar to those in intrastate districts.

TENNESSEE

(Williams Tennessee Code, 1934; Cumulative Pocket Supplement, 1940; Volume 3, art. 4, secs. 4216 to 4406)

ORGANIZATION

Secs. 4216 and 4217. Jurisdiction to establish: The county court of any county is vested with jurisdiction to establish drainage districts and levees and cause the necessary works to be constructed, or to straighten, widen, or deepen any natural water course, in any county where the same will be a public utility and conducive to the public welfare. *Sec. 4217:* The court vested with this jurisdiction is the county court presided

over by the county judge or chairman, and not the quarterly county court.

See: Nashville etc. R. Co. v. Middle Fork Obion D.D., 149 Tenn. 490; 261 S.W. 975.

Williamson and Co. v. Shelton, 158 Tenn. 166; 11 S.W. (2d) 882.

State ex rel v. Powers, 124 Tenn. 553; 137 S.W. 1110.

ORGANIZATION—Petition

Secs. 4218 to 4221. Petition to establish: Before any county court shall establish a drainage district or levee district, a petition must be filed in the office of the county clerk, describing by metes and bounds or otherwise the district of land which it is expected to improve. The petition must state that the lands are subject to overflow or too wet for profitable cultivation, and that public health or welfare will be promoted by draining, ditching, or leveeing it or by changing a natural watercourse. The petition also sets out the route and termini of the proposed works and the lateral branches thereof. It must be accompanied by bond conditioned to pay preliminary costs in the event that the petition is dismissed. *Sec. 4218-a:* A majority of the landowners and also a majority of the owners of a majority of the number of acres of land that will be affected or liable to be assessed must sign the petition. *Sec. 4219:* The petition must be sworn to by one or more of the petitioners, and must show that 51 percent of the land in acres within the bounds of the district is owned by the petitioners. The petition is accompanied by a general plat and description of the district and the names of the owners thereof who are not petitioners. The petitioners ask that provision be made for funds to pay preliminary costs up to the stage in the proceedings where the report of the commissioners to assess benefits has been confirmed. The court sets a date for a hearing, giving notice to all landowners not petitioners, by publication in each county interested, to appear and show cause why an assessment to create such fund should not be made. *Sec. 4220:* The landowners may file their objections, and the court will hear and determine the matter of making an assessment for preliminary costs and the amount thereof. If the court determines it to be expedient, the court will make an assessment on the basis of acreage. *Sec. 4221:* Appeals from the decree of the court may be taken by aggrieved parties in the manner provided later in this chapter.

See: Obion Co. v. Hauser, 9 Tenn. App. 646.

Drg. Dist. #4, v. Askew, 140 Tenn. 314; 204 S.W. 984.

State ex rel 1st Nat. Bank of St. Louis v. Dunlap, 167 Tenn. 585; 72 S.W. (2d) 771.

Secs. 4227 to 4229, 4231, and 4232. Engineer: *Secs. 4227 and 4228:* After the filing of the petition and bond, the county court appoints a disinterested and competent engineer, who proceeds to examine the lands mentioned and any other lands that will be benefited by the proposed works or will be necessary in carrying out the improvement, and to survey and locate the works necessary to carry out the purposes of the petition and that will be conducive to the public welfare. *Sec. 4229:* The engineer files his report with the county clerk, showing the route and termini of the works; a plat and profile of the ditches, drains, or other improvements, with courses and elevations; and the total length of the works through each tract of land. The report also shows the boundaries of the district and a description of each tract therein; the names of the owners as shown on the tax books; and the probable cost of the improvement. *Sec. 4231:* The drains must be located along the general course of natural streams and water courses or in the general course of natural drainage unless there be good reason to the contrary.

Sec. 4232: Drains crossing railroads must be located at the place of a natural waterway across said right-of-way unless otherwise provided for or agreed upon with the railroad. Such agreement estops the railroad from thereafter objecting to the location on the ground that it is not a natural watercourse. (Nashville C. etc. R. Co. v. Middle Fork Obion D.D., 149 Tenn. 490; 261 S.W. 975.)

Secs. 4234 to 4239. Engineer's report: The court examines the report of the engineer and, if the plan is approved orders the county clerk to give notice of a hearing thereon; but if the plan is not approved, the court may select another engineer to prepare and present another plan. If the court deems the improvement inexpedient, after an examination of the report or after the second report, it may dismiss the petition and proceedings at the cost of the petitioners. *Sec. 4235:* When the plan is approved, the clerk issues a summons or writ to the sheriff of the proper county, commanding him to summon the persons named to appear at the hearing. The summons is served on all of the landowners not petitioners, within the proposed district as shown by the tax books or by affidavits filed; upon the persons in actual occupancy of the lands; and upon lienholders as shown by the county records. No copy of the petition is required to accompany the writ. *Sec. 4236:* No service of the writ is necessary where persons file with the clerk a statement in writing entering their appearance at the hearing and waiving service. *Sec. 4237:* In the case of nonresident landowners whose names and residences cannot be determined after diligent inquiry, as made to appear by affidavit filed, publication is made for two consecutive weeks in the county where the proceeding is pending, notifying such parties of the hearing on the petition. The names of actual owners or incumbents may be made to appear to the clerk by affidavit or by the averments of the petition, if sworn to. *Sec. 4238:* The summons need not set out in detail the contents of the petition. *Sec. 4239:* If it appear at the hearing that any person entitled to notice has not received the same, the hearing will be adjourned until such notice is given and there is no loss of jurisdiction.

Secs. 4249 to 4251, 4256 to 4261, 4263, and 4264. Establishment of the district—Viewers: Upon the hearing on the petition, the county court determines its sufficiency in form and substance; it may be amended at any time before final hearing. If the court finds that the proposed work would not be a public utility or conducive to the public welfare, it must dismiss the proceedings. Finding in the affirmative on those points and determining the necessity for the district, and if no claims for damages have been filed, the court may locate and establish the district or refuse to establish it as deemed best. *Sec. 4250:* The court may order the engineer, or a new engineer, to make further report and may continue the hearing to await such report. *Sec. 4251:* If claims for damages are filed, the court may not establish the district until viewers to assess damages are appointed and have reported. The court appoints three viewers who are disinterested freeholders, not related to any interested party and not themselves interested in a like improvement. The engineer appointed by the court assists the viewers in their work. The viewers fix the amount of damages resulting to each claimant by reason of the establishment of the improvement and file their report as soon as practicable. In estimating the damages the viewers shall give the value of the land proposed to be taken, without deduction, but incidental benefits that may result to the owner by reason of the improvement may be taken into consideration in estimating the incidental damages. After the filing of the viewers' report, the

court considers the amount of damages awarded in deciding whether the district should be established. If in the court's judgment the probable cost of construction is not a greater burden than should be properly borne by the lands benefited, and the improvement is conducive to the public welfare, then the court will locate and establish the district by proper judgment of record. The court will then determine the damages to each claimant, hear evidence in regard thereto, and increase or diminish the award of the viewers as may be right and just. *Sec. 4256:* Aggrieved parties may appeal from the decision establishing or refusing the district, or the allowance of damages, the appeal being to the circuit court and within 5 days after the decision is made. Appeal is by filing notice and bond with the clerk. *Sec. 4257:* On appeal against the establishment of the district, the appeal bond must be 4 percent of the estimated cost of the improvement as shown by the engineer's report and conditioned to pay all damages, actual and punitive, and costs that may be suffered by the district and petitioners if the appeal is not successfully prosecuted. If the appeal be from an order refusing to establish the district, the bond is for costs only. *Sec. 4258:* Appeal bonds, when the district is the appellant, may be signed by petitioners nominated for that purpose by the county court. In any appeal from the circuit court to the appellate court the name of the district, if it has been established, may in like manner be signed to the appeal bond, the circuit court nominating petitioners to sign it. *Sec. 4259:* Appeal from an award of damages does not prevent the improvement from proceeding, nor the appropriation and condemnation of lands, if the district or the petitioners therefor will give bond in double the amount of the awarded damages and costs. *Sec. 4260:* Appeals from damages awarded are held *de novo*. Damages awarded by the circuit court are certified to the county court, but no judgment is entered and the county court proceeds as if the amount had been allowed by it. *Sec. 4261:* In appeals from orders establishing the district or refusing to establish it, the circuit court enters its order and certifies it to the county court, which thereafter must proceed with the matter in accordance with the order of the circuit court. *Sec. 4263:* The costs are in the discretion of the circuit court and it will adjudge how they shall be distributed. *Sec. 4264:* The right of jury trial is accorded in the circuit court whenever the parties have such right under the existing law. (Drg. Dist. #4 v. Askew, 140 Tenn. 314; 204 S.W. 984.)

Secs. 4345 to 4347, 4349, and 4350. Intercounty districts: (See also sec. 4398.) Application by petition is made to the county courts of the counties interested in the same manner as when the district is wholly in one county. The petition is signed by one or more persons owning lands lying in each county affected or assessed for the improvement. When such petitions are filed, the county court of the county in which the larger or largest percentage of lands affected are situated appoints a competent engineer to make survey, in the same manner as if only one county were involved, and the engineer proceeds in like manner. The report of the engineer is filed in each county. After the filing of the engineer's report, the county court of each county proceeds in the same manner as for a district in one county until that point in the proceedings where viewers are to be appointed to assess damages. The county court of the county having the largest acreage to be affected or assessed appoints two viewers, and one viewer is appointed by the county court of each of the other counties concerned. The viewers, with the assistance of the engineer, proceed to assess damages as if the district was in a single county. Their report is filed in each county. *Sec. 4346:* After the viewers report, the proceedings

are the same as for a single county district until the appointment of commissioners to make assessments and apportion the same. Then the county court of the county having the largest acreage in the district appoints two commissioners, one of whom must be a competent engineer, and the other county court or courts each appoint one commissioner. The commissioners assess the lands and apportion the assessments as if it were a single-county district, report in like manner, and file their report in each county. Thereafter each county court proceeds as in a single county district. (L. 1909, ch. 185.) *Sec. 4347*: The directors of an intercounty district consist of one member from each county appointed by the respective county courts, and the judge or chairman of the county court of each county shall be a member of the board of directors; and the qualifications, powers and duties of the board are the same as provided for in single county districts. *Sec. 4349*: The judge or chairman of the county court of the county having the largest acreage is chairman of the board of directors, and the board elects one of the appointed directors secretary and treasurer of the board. *Sec. 4350*: When there is an even number of directors and the vote on any matter is a tie, the chairman has the right to give the deciding vote.

Secs. 4381 to 4396. District by mutual agreement: The owners of lands which require combined drainage may provide for the establishment of a district or the location and construction of drains by mutual agreement in writing, acknowledged and filed with the county clerk. *Sec. 4382*: Such agreement may include the location and character of the works, the adjustment of damages, the classification of the lands to be benefited, and the amount of special assessments thereby levied. *Sec. 4383*: Upon the filing of the agreement with the clerk, the county court establishes the district and locates the works and has full and complete jurisdiction of the parties and subject matter. *Sec. 4384*: The preliminary expenses of the district may be paid by order of the quarterly court of the county in which the lands lie, out of the general county fund, the payment to be refunded out of assessments on the lands when collected, and if not so paid, then to be collected out of the bond of the petitioners. *Sec. 4385*: The quarterly county court has the right to contribute out of the general county fund such amount as it sees fit toward the payment of the preliminary expenses without requiring it to be refunded. *Sec. 4386 to 4396*: These sections provide for the collection by the county court of an expense fund for the preliminary expenses of a mutual agreement district and the assessment and collection of a special maintenance fund. (L. 1909, ch. 185; L. 1915, ch. 63.)

Secs. 4398 and 4399. Petition filed in any county: (See also sec. 4345.) In inter-county improvements the petition may be filed in the county court of any one of the counties in which a part of the district will be located, and is to be signed by persons residing in and owning land in any one or more of said counties, and the court in which it is filed has full jurisdiction in the premises for the purpose of creating and establishing the district. It is not necessary to file such petition in the county court of any other county involved. (L. 1915, ch. 61.) *Sec. 4399*: The court in which the petition is filed has full authority to appoint the engineer, viewers, and commissioners, and to make assessments just as if the district were wholly in one county.

ORGANIZATION—Powers

Secs. 4322 to 4327, and 4329 to 4331. County to build bridges—Laterals: When an improvement crossing a public highway necessitates the building of a bridge, the county must build the bridge and pay costs thereof from the road and bridge funds of

the county. *Sec. 4323*: Assessed landowners have the right to use the ditches of the district as outlets for lateral drains. *Sec. 4324*: Such use is subject to the control of the board of directors as to the manner in which the laterals empty into the main ditch. *Sec. 4325*: The directors also have the right to control the manner of discharge of any creek or branch into the drainage works. *Sec. 4326*: Landowners may not connect laterals with the main works except in the manner designated by the directors. *Sec. 4327*: In controversies among landowners as to crossing intervening lands with laterals, the owners may petition the board of directors to determine the manner of performing the work and the amount of damages to be paid, and the board sets out in writing on the drainage record the action to be taken. *Sec. 4329*: The damages are a lien on the lands against which assessed, but the lien is inferior to the lien of the general assessments. The lien is enforced by bill or petition in the county court where the land is situated. *Sec. 4330*: Landowners aggrieved by the action of the court in assessing damages may appeal to the circuit court upon giving bond in double the amount of the damages assessed and a cost bond of \$250. *Sec. 4331*: If the appeal is only as to damages, it may not delay construction work provided the other parties interested give bond for the use of the appealing party in double the amount of damages assessed by the directors.

Sec. 4344. Subdistricts: Any person owning land within a district and desiring to establish a subdistrict within said district to secure more complete drainage may file his petition in the county court, and the proceeding thereafter is in all respects similar to that for original organization. When established and constructed, the subdistrict becomes a part of the drainage system under the supervision of the board of directors. Subdistricts must be a public utility, and special assessments made for their benefits are a lien secondary to the assessments of the original district.

ORGANIZATION—Officers

Secs. 4306, 4308, and 4309. Directors: After a district has been established, the county court appoints two directors who must be owners or interested in lands in the district, and at least one of those first appointed must be one of the petitioners or a successor in estate and interest. The directors hold office for two years. The two thus appointed and their successors together with the judge or chairman of the county court constitute the board of directors of the district and have general control and management of its affairs. *Sec. 4308*: At the end of the two-year term of the directors first appointed, the county court again appoints two directors from among those owning or interested in lands in the district. *Sec. 4309*: The judge or chairman of the county court is the chairman of the board of directors, and one of the directors is elected secretary and treasurer of the board.

See: *Obion Co. ex rel v. Coulter*, 153 Tenn. 469; 284 S.W. 372. *Pritchard v. Johnson-Toby Constrm. Co.*, 155 Tenn. 571; 296 S.W. 17.

Secs. 4315, 4317, and 4318. Engineer: The directors employ a competent engineer to superintend the construction. They may remove such engineer and contract with another, in their discretion. *Sec. 4317*: The engineer makes monthly estimates of the work done on each section of the improvement, and upon filing the estimate with the county court clerk the judge or chairman of the county court draws warrants in favor of the contractor for 80 percent of the estimate. *Sec. 4318*: Final payment is made on certification that the work is completed and accepted.

Sec. 4316. Overseer: After the completion of the main improvement, if the directors deem it necessary they may employ a "drainage overseer" to be paid such compensation as agreed on from the funds of the district.

Secs. 4280 to 4285, 4287, and 4288. Commissioners—Classification of land: When a district is located and established the county court appoints three commissioners, one of whom must be a competent civil engineer and two of whom must be freeholders of the county not living within the district, not interested therein or in a like district, and not related to any parties affected. **Sec. 4281:** The commissioners inspect and classify all of the lands benefited in a graduated scale of benefits, naming the tracts of each owner and classifying them, each tract to be numbered according to the benefits received. **Sec. 4282:** The commissioners make an equitable apportionment and assessment of the costs, expenses, cost of construction, fees, and damages assessed, and report thereon in writing to the county court. **Sec. 4283:** In making this estimate and apportionment, the lands receiving the greatest benefit are marked on a scale of 100 and those less benefited are marked with such percentage as is indicated by the benefits received. This classification when established remains as the basis for all future assessments unless the county court authorizes a revision thereof. **Sec. 4284:** In making such classification commissioners are authorized to divide the lands of one owner in one body into more than 1 tract and classify each subdivision thereof, especially where such a tract is large and classification in subdivisions will be more equitable. **Sec. 4285:** Notice of a hearing on the report of the commissioners is given by publication in each county affected, and objections may be filed in writing before the hearing. **Sec. 4287:** The court determines all objections at the hearing, and may amend the report or confirm the apportionment and assessment made therein as may be just and equitable. **Sec. 4288:** If the first assessment for the original cost of the improvement is insufficient for any reason, the court may make additional assessments in the same ratio.

See: *Hirsh v. First Dr. D.*, 14 Tenn. App. 285.
State ex rel v. Powers, 124 Tenn. 553; 137 S.W. 1110.
Shelby Co. v. Anderson, 10 Tenn. App. 437.
Obion Co. ex rel v. Coulter, 153 Tenn. 469; 284 S.W. 372.
Grooms v. Bd. Directors Middlefork etc. D.D. #1, 167 Tenn. 589; 72 S.W. (2d) 772.

FINANCING—Assessments

Secs. 4222 to 4226. Assessments for preliminary expenses: The court fixes the date when the assessments shall be collected, and the county clerk makes out an assessment list or book substantially in the form of the state and county tax books and certifies it to the trustee of the county. It is the duty of the trustee to proceed at once to collect the assessments and pay them to the county clerk, to be paid out by him for the preliminary costs and expenses of organization. **Sec. 4223:** If it is an intercounty district, the clerk of the county where the petition was filed makes out the assessment list for the entire district, and certifies under seal to the trustee of each interested county that part of the assessment list affecting such county. It is the duty of the trustee to collect the assessments and pay the proceeds over to the county clerk of the county where the petition was filed. **Sec. 4224:** Assessments so made are a lien on the respective tracts of land assessed. **Sec. 4225:** The county trustee and the county clerk must give bond in double the amount of the assessments before collecting them, conditioned to faithfully perform their duties. **Sec. 4226:** The proceedings for the preliminary expense fund are not to delay other proceedings for organization. [*Hughes v. Herbert*, 159 Tenn. 187; 17 S.W. (2d) 60.]

Secs. 4240 to 4243. Special assessments for preliminary expense: After the report of the engineer has been filed, the court may make a special assessment upon the lands in an amount sufficient to pay the costs and expenses incurred to date, including the expense of collecting the special assessment. **Sec. 4241:** The assessment is made only upon petition signed and sworn to by one or more landowners, praying that provision be made for paying the expenses already incurred. Notice of a hearing on the petition is by publication in each county interested. **Sec. 4242:** At the hearing the court proceeds to determine the matter of making the assessment and will hear any proof offered as to the amount necessary to be raised. The court, if it determines such action to be expedient, will make an assessment for the amount fixed against the respective tracts on the basis of acreage. **Sec. 4243:** Aggrieved parties have the right of appeal in the same manner as appeals against the formation of the district.

Secs. 4244 to 4245. Assessment list: The court fixes the dates within which the assessment is to be collected, and the county clerk makes out the assessment list or book giving alphabetically the names of the owners, the boundaries of the lands, the number of acres, and the assessment against each tract, and certifies the list to the trustee of the county who collects the assessments and returns the proceeds to the county clerk to be paid out by him for the preliminary expenses under order of the court. (L. 1909, ch. 185; L. 1913, ch. 25.) **Sec. 4244.1:** The county trustee must make monthly settlement to the county court in detail, which settlement is copied on the "drainage record book" in the office of the county clerk. (L. 1935, ch. 159.) **Sec. 4244.2:** In the case of intercounty districts, the respective county trustees make monthly settlements with the county court of the county where the district was organized. (L. 1935, ch. 159.) **Sec. 4244.3:** After each monthly settlement has been filed and approved, the board of directors of the drainage district ascertains what portion of the money, bonds, coupons, or credit memoranda were received in the preceding month and prior to that time from maintenance and administrative assessments, and certifies the amount thereof to the county court which has jurisdiction to make disposition thereof as may be just and equitable for the district and the bondholders. The court may authorize the directors to issue and sell transferable maintenance and administrative certificates against that portion of the bonds, coupons, or credit memoranda belonging to said maintenance or administrative fund, and the certificates may be tendered to the trustee who must receive them at face value in settlement of the drainage assessments. (L. 1935, ch. 159.) **Sec. 4244.4:** Maintenance and administrative certificates constitute the same lien on the lands on which assessments remain unpaid as the unpaid bonds and coupons, and may be enforced in the same manner. (L. 1935, ch. 159.) **Sec. 4245:** If the district be intercounty, the clerk of the county where the matter is pending will make out the assessment list for the entire district, and certify under seal to each trustee of any other county interested that portion which contains the assessments on land in such county, for collection and transmittal to the county clerk where the petition was filed.

See: *Hughes v. Herbert*, 159 Tenn. 187; 17 S.W. (2d) 16.
Williamson & Co. v. Shelton, 158 Tenn. 166; 11 S.W. (2d) 882.

Sec. 4248. Damages: Any person claiming compensation for damages sustained by reason of the construction of the works must file his claim in the office of the county clerk at least three days prior to the hearing on the petition, and failure to do so is a waiver of his claim. The court will appoint guardians *ad litem* for persons under disability.

Secs. 4265 to 4267. Damages to be secured: After the damages are finally ascertained and fixed by the county court, the court requires them to be paid in the first instance by the parties benefited, or to be secured to be paid upon such terms and conditions as the court may deem just and proper. *Sec. 4266:* After such damages have been so paid or secured, the court enters an order of condemnation showing all such lands appropriated and belonging to the district for all of its necessary purposes. *Sec. 4267:* In establishing a district all necessary land may be appropriated, and a right-of-way as much as 200 feet wide may be appropriated if necessary for the location of any drain or any channel for any natural water course; but the width of the right-of-way stated in this section does not prevent the court from ordering appropriated such other lands as may be necessary.

Sec. 4273. Correcting assessments: Assessments made in the wrong name may be corrected by petition, and the procedure is set out in this section. Assessments against lands thus newly assessed become due immediately whether they have been paid by the aggrieved party or not, and will be proceeded against as delinquent unless paid. Assessments paid by the aggrieved party will be refunded by the county trustee by warrant.

Sec. 4290. Collection of assessments: The assessments are levied on the lands benefited in the ratio aforesaid and are collected in the same manner as county taxes. The funds so collected are kept in a separate fund and paid out only for purposes connected with the improvement on the order or warrant of the judge or chairman of the county court.

See: *Hughes v. Herbert*, 159 Tenn. 187; 17 S.W. (2d) 16.

State ex rel 1st Nat. Bank, St. Louis v. Dunlop, 167 Tenn. 585; 72 S.W. (2d) 771.

Secs. 4291 and 4292. Special assessments: If, after the district has been created and the commissioners have assessed benefits and the report has been confirmed and there are no appeals pending, it appears to the court that the costs and expenses up to that stage have not been paid, the court has power to make a special assessment to pay such costs and expenses including the expenses of collecting the same. *Sec. 4292:* Such special assessments are collected in the same way as other assessments; provided, that for this special assessment the court may fix the date within which it shall be collected; and provided, said assessments shall be a lien on the lands assessed and shall be inferior to any later assessment for the purpose of raising a fund for the payment of bonds and interest.

See: *Duke v. Maness*, 2 Tenn. App. 267.

Grooms v. Bd. of Directors, Middle Fork etc. D.D. #1, 167 Tenn. 589; 72 S.W. (2d) 772.

Sec. 4292.i. Prepayment of deferred installments: Any owner of lands upon which there are now special assessments levied by any drainage district may, at his option, at any date upon which he pays the special assessments, pay all or any part of the entire amount assessed against him; provided, however, that no rebate shall be made for unearned interest upon such assessment. (L. 1933, ch. 132.)

Secs. 4292.2 to 4292.4. Payment of assessments with bonds or coupons: Bonds and/or interest coupons of the drainage district making the assessment may be lawfully tendered to the trustee of the county wherein the land lies in payment of such assessment, and the trustee must receive the bonds and/or coupons regardless of the date of their maturity; must receive same, without deduction for maintenance, at face value excluding interest upon past due coupons; and the payment when so made is a valid and complete payment as though made in cash; provided, the trustee may require his commissions on the payment to be paid in cash instead of bonds and/or coupons; and provided, where

the bonds tendered in payment exceed the amount of the assessment, the trustee takes in all of the bonds and issues to the party paying the assessment a transferable credit memorandum for the difference between the amount of the bonds and the amount of the assessment, which memorandum may be used in the payment of any other drainage assessments due to the district in which payment is made. *Sec. 4292.3:* Upon receipt of such bonds the county trustee must cancel them and keep a record thereof. If the bonds tendered contain interest coupons beyond the date of the maturity of the assessments which it is proposed to pay, then the trustee is not required to receive interest coupons in payment where said coupons mature beyond the last date for which it is proposed to pay maturing assessments. This does not apply where both the assessment and the coupons are past due. Any past due coupon can be used to pay any or all assessments regardless of their due date. This provision does not apply where suits have been brought to collect delinquent taxes until the costs and attorney's fees have been paid. (L. 1833, ch. 132.) *Sec. 4292.4:* Where a district is in more than one county, it is the duty of any trustee to accept bonds and/or coupons in payment of any assessment against that portion of the district located in his county.

Secs. 4297 to 4299. Appeal: Appeal may be taken to the circuit court of the county from the order of the county court fixing the assessment of benefits in the same manner and time provided for appeals from assessments of damages, but only five days is allowed for the appeal. *Sec. 4298:* Any landowner appealing must furnish bond for costs and damages, and the oath provided by law for poor persons shall not be allowed. *Sec. 4299:* Appeal does not prevent the collection of the assessment nor stay such collection if the district or any petitioner execute bond payable to the appellant conditioned to hold him harmless against loss and to abide by the judgment of the court if the appeal is successfully prosecuted.

Sec. 4304. New appraisements: Where assessments levied cannot for any reason be enforced and part of the work has been done, the county court must proceed as to any or all land benefited by the improvement in the same manner as if the appraisal and apportionment of benefits had never been made, and any payments already made are duly credited.

Sec. 4321. Assessing railroads and highways: Whenever any railroad or public highway is beneficially affected by the improvement, the commissioners classify and assess the benefits and give notice thereof to the nearest railroad agent, or, in the case of highways, to the judge or chairman of the county court. When such special assessments have been approved by the county court as to the railroad, they may be collected in any court having jurisdiction. Highway assessments are paid by the county out of the general county fund.

Sec. 4332. Collection of assessments: Assessments are collected by the county trustee as county taxes are collected, and the proceeds are kept in a separate fund and paid out only for purposes properly connected with the improvement on the order or warrant of the county judge or chairman. No personal property of the owner of lands assessed shall be liable or distrained for the assessment, but the land only shall be liable.

See: *First Nat. Bank v. Obion Co.*, 3 Fed. (2d) 623.

Grooms v. Bd. of Directors, Middlebrook etc. D.D. #1, 167 Tenn. 589; 72 S.W. (2d) 772.

Secs. 4351 to 4353. Entry and collection: The assessments are entered on the "drainage assessment book" made out by the clerk of the county in which the particular assessment is levied, and furnished to the county trustee. They become payable and delinquent at the same time as general taxes, and bear

interest after delinquency. (L. 1909, ch. 185.) *Sec. 4352:* The trustee collects the assessments along with other taxes and credits them to the drainage district. Within 10 days after delinquency the trustee notifies the landowner of the fact that a penalty of 10 percent will accrue thereon. In a suit brought to collect taxes no additional amount may be assessed against the delinquent for attorney's fees, but the fees are to be paid out of the penalty collected. *Sec. 4353:* Drainage taxes are delinquent at the same time as general taxes, on November 15 each year. Thereafter the 10 percent penalty attaches and the taxes bear interest from delinquency. (L. 1923, ch. 73.)

Secs. 4354 and 4355. Liens: Assessments when levied become valid liens on the lands assessed on a parity with liens for general state and county taxes. *Sec. 4355:* When assessments have been delinquent 60 days, bills in chancery may be filed in the name of the county for the use of the district.

See: *Hughes v. Herbert*, 159 Tenn. 187; 17 S.W. (2d) 16.
Obion Co. v. Houser, 9 Tenn. App. 646.

Sec. 4359. Method of assessment of public taxes: All tax assessors, when assessing for public taxes lands that lie partly within a drainage district, assess that part within the district as one independent tract to the end that it may be definitely known what is the amount of the county and state taxes and any special school taxes assessed against the land within the drainage district.

Secs. 4360 to 4365. Tax sales: These sections set out the method of procedure for the sale of land for delinquent assessments, the relation of such assessments to state and county taxes on the same tract, and the method of payment and redemption. Such sale divests the owner of title and vests the same in the purchaser, but the owner continues in possession and is entitled to the rents and profits for two years. After two years the purchaser upon application will receive from the master in chancery a writ of possession. The owner may redeem his property within two years by payment in full plus interest and 10 percent penalty, provided: if within 12 months he pays one-fifth of the total including penalty, and thereafter pays one-fifth annually, his equity of redemption does not expire until 5 years from the date of confirmation of sale. No writ of possession issues as long as such payments are being made, and the owner enjoys the rents and profits but he may not remove timber during the period of redemption.

Sec. 4366. Borrowing: If in any year, on account of delinquent assessments and incidental delays in enforcing collection thereof funds are insufficient to pay bonds and interest the directors may borrow money to make up the deficiency and give notes and pledge the unpaid assessments for that year as security for the notes. The assessments when collected constitute a fund for the payment of the notes. (L. 1915, ch. 63.)

Sec. 4367. Collected from assessed land only: Assessments may be collected only out of the lands assessed and may not be collected in any manner out of any other property, real or personal, of the owner of the assessed lands. (L. 1909, ch. 185.)

Sec. 4400. Assessments in intercounty districts: Assessments levied on land in intercounty districts are made by the court where the petition was filed and are effective on all of the land within the district in all of the counties. The clerk of court where the proceeding is pending must make out a drainage assessment book in which the assessments for the entire district appear and then furnish a copy of such portion of same as contains the assessment of land in any other county to the trustee of that county, certifying thereto and taking a receipt therefor.

Sec. 4401. Control of collections: The trustee receiving the certified copy of the assessment book collects the assessments shown as if the district were wholly within one county, and he must pay out the money on warrants drawn on him by the judge or chairman of the court where the proceeding is pending or the petition was filed. Such warrants may be drawn to transfer the funds from the trustee of the county where any of the lands are situated to the trustee of the county where the proceeding is pending or the petition was filed, to the end that all vouchers may be on file in the county where the proceeding is pending. (L. 1915, ch. 61.)

Sec. 4402. Lien of assessments: The assessments so made in intercounty districts become valid liens upon all of the lands so assessed in the same manner that state and county taxes are liens.

FINANCING—Bonds

Secs. 4335, 4336, 4338, and 4340. County may issue bonds: If the county court determines that the cost of the improvement is greater than should be levied in any one year upon the lands benefited, it may fix the amount that will be levied and collected each year and issue drainage bonds of the county with interest at not more than 6 percent, and devote said bonds, at par with accrued interest, to the payment of construction cost. Bonds may be sold at not less than par. Any premiums received are credited to the drainage fund. Should the cost of the work exceed the estimate, a new apportionment of assessments may be made and levied and other bonds issued and sold in like manner. Bonds may not run longer than 20 years. *Sec. 4336:* Landowners may pay assessments in full before the issuance of bonds. *Sec. 4338:* Each bond shows expressly on its face that it is to be paid only by assessments levied and collected on the lands in the district. No assessment may be levied or collected for the payment of bonds or interest thereon on any property, real or personal, outside of the district designated. *Sec. 4340:* When the district is intercounty the county court of each county determines whether bonds shall be issued to meet the expenses, so far as the lands of the district lie in that county. Such bonds are payable only out of the assessments levied in that county.

Sec. 4341. Installments: The directors may, if they deem it expedient, contract with the purchaser of the bonds that payment may be made in such installments as may be agreed on, provided that the payment of the installments as they mature is amply secured by solvent bond in double the amount of the entire deferred installment, payable to the state for the use and benefit of the district and those entitled thereto, said bond to be approved by unanimous vote of the board of directors of the district.

Secs. 4341.1 to 4341.7. Refunding bonds: For the purpose of refunding all or any part of the bonded indebtedness of a district, whenever in the judgment of the county court in which the district was organized it is deemed to be the best interest of the landowners, or when the district becomes unable to pay all or any part of the principal and interest of outstanding bonds, the court may issue refunding bonds in an amount not to exceed in the aggregate the amount of the bonds to be refunded and accrued interest thereon. Refunding bonds mature in not to exceed 40 years and bear 6 percent interest. (L. 1935, ch. 51.) *Sec. 4341.2:* The county court has jurisdiction to issue refunding bonds upon the filing with the court of a petition signed by the board of directors of the district. The petition describes the outstanding bonds to be refunded, states whether the holders thereof have consented to the refunding thereof, the amount of refunding bonds to be issued, and the proposed date of said refunding bonds and the date of their maturity. (L. 1935, ch. 51.)

Sec. 4341.3: The county court sets a hearing on the petition and gives notice by publication and posting in the form prescribed by the statute. **Sec. 4341.4:** If the district is intercounty, the petition is filed in the county court of the county where the greater part of the lands of the district are situated, which court has full jurisdiction. **Sec. 4341.5:** At the hearing the court disposes of all objections in a summary manner and its disposition thereof is final and conclusive on all parties; provided, when a remonstrance is filed prior to the hearing, in writing, signed by 60 percent or more of the landowners owning 60 percent or more of the aggregate acreage, the court must dismiss the petition. (L. 1935, ch. 51.) **Sec. 4341.6:** Any landowner may pay the full amount of the principal tax assessment chargeable to his land for the payment of bonds to be refunded, and thereby release his lands from any tax for the payment of the refunding bonds. Such lands remain subject to additional assessments legally levied. **Sec. 4341.7:** Upon issuing refunding bonds, the time of payment of the subsequently accruing original annual installments of taxes is extended and the taxes become due in such greater number of annual installments as the county court shall direct. A new drainage assessment book is prepared showing the extended assessments. (L. 1935, ch. 51.)

Secs. 4343 and 4344. Warrants in lieu of bonds: If the board of directors of any intercounty district deem it best they may, instead of issuing bonds, direct that warrants be issued drawn on the district, or on the county trustee, by the judge or chairman of the county court, to be paid out of the funds of the district only, and at such times as the assessment may be due. The warrants are drawn for all lawful demands and bear 6 percent interest. **Sec. 4344:** If there be a surplus from bonds or warrants, it may be used by the directors with the approval of the court for improving the ditch or laterals or to pay all or part of assessments not yet collected. Such warrants may be used in purchasing outstanding bonds or warrants, at not above par and interest.

Secs. 4369 and 4370. Appointment of receiver: When any bonds or interest coupons have been past due for two years and payment has been demanded, the holder of such bonds or interest coupons shall have the right to make application to any court of competent jurisdiction within the county or counties of said district for the appointment of a receiver for the district to collect the assessments and taxes due. **Sec. 4370:** Any receiver so appointed has the same power to enter suit to collect delinquent assessments that the district itself would have. (L. 1923, ch. 73.)

Sec. 4403. Bonds in intercounty districts: Bonds may be issued by districts located in more than one county to pay the costs of the proposed improvement in the general manner provided. The bonds must, however, be signed by the judge or chairman of the county court of each of the counties that have lands in the district and be countersigned by the county court clerk of each of the counties. The seal of each county clerk is affixed by him. The bonds must be signed and sealed first by the officers of the counties other than that in which the proceeding is pending, and last by the officers of the county where the petition was filed and the proceeding is pending; provided, the assessment on the lands in each county shall only be bound and liable for their pro rata part of the bonds and interest thereon and according to assessments levied; and only the land in the district shall be liable for the assessments levied thereon as above provided. Further, it is the duty of each of said officers in each of the counties to sign and seal the bonds when they have been ordered to be issued by the court in which the proceedings were filed and are pending. (L. 1915, ch. 61.)

Sec. 4404. Proceeds of bond sale—intercounty district: The proceeds from the sale of bonds are deposited with one or more of the trustees as the directors may order. All of the funds so received may be transferred to the trustee of the county where the proceeding is pending if deemed best, to the end that the entire fund may be paid out by him on proper warrants. The judge or chairman of the court where the proceeding is pending shall draw all warrants against this fund to meet lawful demands of the district and to transfer the fund as above provided.

Sec. 4405. Alternative proceeding for intercounty district: It is the intention of section 4398 *et seq.* to provide an additional method of procedure for establishing the districts in more than one county, and to leave to the parties concerned their option whether they will proceed under one or the other alternative methods in creating such districts where the lands lie in more than one county. (L. 1915, ch. 61.)

CONSTRUCTION

Secs. 4310 to 4314. Contracts for improvements: No contract for improvements may be made until after the commissioners have made their classification and apportionment (*sec. 4280, et seq.*), nor until the classification, apportionment, and assessment of benefits have been determined by the court. Thereafter contracts are made by the board of directors. **Sec. 4311:** The directors give notice of the time and place of the letting of contracts by publication in the county and elsewhere as they may direct. The notice specifies the approximate amount of work in each section and the time in which it is to be completed. **Sec. 4312:** The directors award the contract or contracts to the lowest responsible bidder for each section of the work, or they may award the contract as a whole in their discretion. They may reject all bids and readvertise the work. **Sec. 4313:** Bidders must deposit with the directors certified check for 10 percent of the amount of the bid, but not to exceed \$10,000. In the alternative they may file a solvent bond for faithful performance of the work. **Sec. 4314:** The successful bidder must deposit bond in the amount of 25 percent of the contract price, conditioned for the faithful performance of the work.

See: *Maryland Casualty Co. v. Clarks Creek Drg. D.* 4 Tenn. App. 380.
Pritchard v. Johnson-Toby Constrn. Co. 155 Tenn. 571, 296 S.W. 17.

TEXAS

(*Vernon's Annotated Civil Statutes of Texas, Cumulative Pocket Part, 1939, Volume 21, ch. 7*)

DRAINAGE DISTRICTS

(*Articles 8097 to 8193*)

ORGANIZATION—Petition

Art. 8097. Who may establish: The commissioners courts may establish drainage districts in their respective counties in the manner provided in this chapter. Such districts may or may not include municipal corporations or any portion thereof, but no land shall at the same time be included in more than one drainage district. When established the districts may make improvements and issue bonds to provide payment therefor. The commissioners court is hereinafter designated as the "court."

See: *Holt v. State*, 176 S.W. 743.
Wharton Co. D.D. v. Higbee, 149 S.W. 381.
Harris Co. D.D. #12, v. City of Houston, 35 S.W. (2d) 118.
Hidalgo Co. D.D. #1 v. Magnolia Petroleum Co., 47 S.W. (2d) 875.
Kuhlmann v. D.D. #12 of Harris Co., 51 S.W. (2d) 784.

NOTE.—Chapter 8, Art. 8194 provides: Conservation and reclamation districts may be created and organized in any manner that water improvement, drainage, or levee improvement districts are authorized by the laws of this State to be created, and for the several purposes therein provided. (Acts 4 C.S. 1918, p. 40.)

Arts. 8098 and 8099. Petition: The petition must be presented to the commissioners court signed by twenty-five of the freeholding resident taxpayers of the proposed district, or, if there are less than 75 citizens, then by one-third thereof whose lands will be affected. The petition sets forth the necessity, feasibility, and public utility of the district and the proposed boundaries thereof, and gives it a name which must include the name of the county. *Art. 8099:* The petition must be accompanied by \$200 in cash to be deposited with the court clerk, and held by him until after the result of an election for the creation of the district and the issuing of bonds is officially made known. If the election favors establishment of the district, the money is returned to the petitioners; but if the contrary occur, the expenses up to and including the election are paid from the deposit on vouchers approved by the county judge, and the balance returned to the petitioners.

See: *Parker v. Harris Co. D.D. #2, 148 S.W. 351.*
Jefferson v. McFadden, 178 S.W. 714.
Herbert v. Scurlock, 178 S.W. 711.

Arts. 8100 to 8103. Hearing—Notice: The court sets the petition down for hearing at a regular session or a special session called for that purpose between thirty and sixty days after filing, and orders the clerk to give notice of the date of the hearing, prior to the election, by posting in the district and at the courthouse door. *Art. 8101:* Any person whose lands will be affected may appear and offer evidence for or against the creation of the district on the ground of necessity, public utility, or feasibility. *Art. 8102:* Except as herein provided, the court has exclusive jurisdiction to hear and determine all contests and objections, and all matters pertaining to the district, and in all subsequent proceedings its judgment is final. *Art. 8103:* If at the hearing it appear to the court that the district is feasible, needed, and would be conducive to the public welfare, the court will so find. If the court finds any of these issues in the negative, it will dismiss the petition at the cost of petitioners. The findings of the court must be entered of record.

See: *McFarlane v. Wesley, 186 S.W. 261.*
Herbert v. Scurlock, 178 S.W. 711.

Arts. 8104, and 8106 to 8109. Engineer: The court, if it finds in favor of the petition, appoints a competent engineer, who may have such assistants and compensation as agreed on by the court. He gives bond in the sum of \$500 for the faithful performance of his duties. *Art. 8106:* The engineer, within the time prescribed by the court, makes a survey of the lands affected and a preliminary plan locating the necessary works and designating the streams and watercourses necessary to be improved. The engineer estimates the cost in detail as to each improvement contemplated and the probable yearly maintenance cost, and reports to the court. *Art. 8107:* He is empowered to go upon lands outside of the district, and in another county if necessary, for the purposes of making surveys and to prepare proper outlets. *Art. 8108:* The report must be accompanied by a map showing the route and termini of the works and the length, width, depth, and slopes of the banks of all excavations and the estimated number of cubic yards of material to be removed from each, as well as the location and size of all levees and the number of cubic yards of earth necessary to construct them.

A copy of the official land map of the county with the works and the other required data shown thereon is sufficient. *Art. 8109:* When the engineer's report is filed, the court sets it down for hearing at a regular or special session between twenty and thirty days thereafter, with notice by posting. Any freeholding taxpayer of the district may appear and object to the report.

Art. 8110. Findings on engineer's report: If there be no objections or if the court overrules them, the report will be approved and that fact entered on its minutes. The court may change the location of the improvement or order the engineer to locate additional works to conduct water from the lands of the district or to protect them from overflow. The court may require a completely new report if necessary. On any change or alteration of the report a hearing is had with notice as in the first instance.

Arts. 8111 to 8116. Election: After the court has approved the engineer's report as presented or modified, it orders an election to be held within the district on the question of whether or not the district shall be established, bonds issued, and taxes levied for payment thereof. *Art. 8112:* The notice states the amount of the bonds to be issued, which may not exceed the engineer's estimate and the cost of any additional works. The notice also states the purpose for which the proceeds of the bonds are to be used. Notice is by posting. *Art. 8113:* A two-thirds vote is necessary to carry the affirmative of the proposition submitted at the election. Only resident property taxpayers who are qualified voters of the district may vote. The general election laws apply. The court names the polling places and the judge and other election officers, and the ballots must have the proposition to be voted on printed on them. *Art. 8114:* Each voter must take oath that he is qualified, on the form provided in the statute. *Art. 8115:* Immediately after the election the presiding judge makes return of the result in the same manner as in general elections, and returns the ballot box to the county clerk for safe keeping and delivery to the court at the next session. If the court finds the proposition is carried, it declares the result and enters the same on its minutes. *Art. 8116:* The form of the certificate of the court is set out in the statute; the certificate must state that two-thirds of the resident property taxpayers voted in favor of the creation of the district and the issuance of bonds and levy of taxes. Thereupon the court declares the district to be established by the name given in the petition. All districts must also bear the name of the county and be numbered consecutively.

See: *Trimmier v. Carlton, 116 T. 572; 296 S.W. 1070.*
Herbert v. Scurlock, 178 S.W. 711.
MacFarlane v. Wesley, 186 S.W. 261.

ORGANIZATION—Officers

Arts. 8118 and 8119. Commissioners: When a district is established and unless the commissioners are elected as provided in the next article, the court appoints three drainage commissioners who must be residents of the county or adjoining counties and freeholding taxpayers of the district and legal voters of the county of their residence. They hold office for two years, and upon the expiration of their term the court appoints their successors. *Art. 8119:* Upon petition of a majority of the real property taxpayers of the district praying for the election of three drainage commissioners, the court will immediately order such election to be held in the manner of other elections, and declare the three persons receiving the highest number of votes to be elected. If the third highest vote be tied, the court selects the third commissioner from those tied. The commissioners hold office until the next regular election

for state and county officials, and are then and thereafter elected every two years at the general election. (*Cantwell v. Suttles*, 196 S.W. 656.)

Arts. 8120 to 8123. Commissioners' salary: The commissioners are allowed \$2.50 per day for the time actually engaged in the work of the district, after submitting a detailed report under oath describing the work done and the time actually consumed, such reports to be audited and allowed by the commissioners court. In all counties having 200,000 inhabitants according to the United States census and having one or more drainage districts therein, the commissioners court upon application in writing may allow an additional \$2.50 per day and permit the use of an automobile at not to exceed \$2.50 per day, stating the reasons and necessity therefor and fixing the number of days. (L. 1935, ch. 118.) **Arts. 8121 to 8123:** Commissioners must subscribe to an oath of office, give bond in the sum of \$1,000, and organize by electing one of their number chairman and one secretary. Two commissioners constitute a quorum in the letting of contracts. The drawing of warrants requires the concurrence of all commissioners.

Arts. 8124 to 8126. District engineers: The commissioners appoint a competent engineer who is entitled to such assistants as may be necessary and may receive such pay and allowances as agreed upon by the commissioners and approved by the court. **Art. 8125:** The engineer makes a map of the district showing the boundaries, with the original surveys therein, and, if the boundary line crosses the original survey, the map must show the acres of the original survey included in the district. The engineer also makes a map and profiles of the drainage ditches and levees in the district and of outlets extending beyond the district. A land office map of the county showing the name and number of each survey and the area contained in the district is sufficient. **Art. 8126:** Maps and profiles of the work must show the relation that each canal, ditch, or levee bears to each tract of land through which it passes and the shape into which it divides each tract, and, where the works cut off less than 20 acres, the map shall show the number of acres so separated and the number of acres in the whole tract, as well as the shape of the small tract and its relation to the works. The profiles must show the cubic yardage of excavation required and the estimated cost. The maps and profiles are signed by the engineer and filed with the clerk of the court.

ORGANIZATION—Powers

Art. 8151. Eminent domain: All districts have the right of eminent domain to acquire rights-of-way through public or private lands (except cemeteries) required for the improvements, and for necessary outlets in any county. No rights-of-way may be condemned through a city or town without consent of the authorities thereof. No appeal from the findings or assessments of damages by the commissioners appointed for that purpose shall suspend the work of the drainage commissioners in prosecuting the drainage construction in all of its details. Expenses of the proceedings are paid out of the construction and maintenance fund.

See: *Matagorda Co. D.D. #5 v. Borden*, 181 S.W. 780.
Peterson v. Stolz, 269 S.W. 113.

Arts. 8152 to 8154. Rights-of-way: The commissioners are empowered to acquire necessary rights-of-way by gift, grant, purchase, or condemnation, and if by purchase, then subject to the approval of the court. **Art. 8153:** All of the works constructed are the public property of the district, and every person owning land has the right to drain into one or more of the public drains. Owners desiring to drain through intervening property

in the natural course of drainage, or along a highway, notify the commissioners who act as a jury to determine the place where the drain may be constructed. **Art. 8154:** The commissioners are charged with the duty of keeping the works in repair, and they have general control of construction and maintenance. [For damage to riparian lands, see: *Jefferson Co. D.D. #6 v. Langham*, 124 T. 167; 76 S.W. (2d) 484.]

Art. 8167. Connecting drains: No person or district has the right to drain adjacent lands outside of an established district into its works without permission from the drainage commissioners. After investigation by the engineer, if the commissioners permit such connection, the applicant must pay into the county treasury for the benefit of the construction and maintenance fund of the district the same ratio of cost of the original works from the point of connection to the outlet that the water to be emptied by the connecting drain bears to the water then being carried by the original canal.

Art. 8176. May become a conservation district: By the Act of 1937, chapter 28, the method of converting a drainage district into a conservation and reclamation district is set out in complete detail in six sections of an amendment to article 8176.

FINANCING—Assessments

Art. 8136. Tax levy for bonds: When bonds have been voted, the court must annually levy and collect taxes upon all property in the district, real, personal, or otherwise, sufficient in amount to pay the interest on the bonds as due and to redeem them at maturity. Such taxes are placed in the interest and sinking fund.

See: *Ogden v. Barstow, Ward Co. D.D.*, 230 S.W. 1036.
State v. Houston & T.C. Ry. Co., 209 S.W. 820.
Kuhlmann v. D.D. #12 of Harris Co., 51 S.W. (2d) 784.

Arts. 8137 and 8138. Maintenance taxes: Annually before the first of July the commissioners file with the court a detailed report of the condition of the improvement, with an estimate of the cost of maintenance and repair during the ensuing year. They also file an inventory of the property and funds of the district and a list of its lawful debts. The report is considered by the court before any levy of taxes is made. **Art. 8138:** At the same time that taxes are levied to meet the bonded indebtedness the court causes a tax to be levied upon all of the property in the district, real, personal, or otherwise, sufficient to maintain, repair, and preserve the improvement and to pay all lawful debts of the district. The levy in any one year may never exceed one-half of 1 percent of the total assessed valuation of the district for that year. Such taxes when collected are placed in the construction and maintenance fund.

See: *McFadden v. Jefferson Co. D.D. #6*, 4 S.W. (2d) 33.
Kuhlmann v. D.D. #12 of Harris Co., 51 S.W. (2d) 784.
Hidalgo Co. D.D. #1 v. Internat. Creosoting & Constrm. Co., 54 S.W. (2d) 861.

Art. 8140. Collection: In the assessment and collection of taxes the county assessor and collector have the same power and are governed by the same rules as provided for the collection of state and county taxes, unless otherwise provided in this act. The court is a board of equalization for the district, and all laws governing such boards apply to the court.

Art. 8141. Lien of tax: Taxes are a lien on all property assessed. The court is empowered to fix the time when the taxes become due and payable; otherwise they are due at the same time as state and county taxes. Penalty for delinquency is the same as for state and county taxes.

Art. 8142. Tax rolls: The court provides the necessary books for the assessor and county clerk at the expense of the district. When ordered by the court, the assessor shall assess all

property in the district and list it for taxation in the book or roll furnished for the purpose, and return the drainage roll at the same time that he returns the state roll for collection and approval. If the court finds the rolls correct, they are approved and the assessor's fees are paid by warrant on the district funds. The court may remove the assessor for failure to comply with such order.

See: Wharton Co. D.D. #1 v. Higbee, 149 S.W. 381.
Nichols v. Galveston Co., 228 S.W. 547.
Watson v. El Paso Co., 202 S.W. 126.

Art. 8144. Delinquent taxes: The collector certifies to the court a list of delinquent property, and the court proceeds to have the property sold in the same manner as provided for the sale of delinquent property in the collection of state and county taxes. The commissioners may purchase the property for the benefit of the district.

Art. 8145. Separate tax officers: Upon the petition of 25 resident freeholders the court will order an election to determine whether or not the district shall have a separate tax assessor, collector, and board of equalization for the assessment and collection of district taxes. Notice is the same as for the original election. If the proposition carries by a two-thirds vote, the court appoints those officers and they give bond and exercise the same powers as the county assessor and collector. The general law for tax collection applies to the district.

Arts. 8146 and 8147. Duty of treasurer: The county treasurer keeps a separate account of all moneys received belonging to the district and of all amounts paid out by him. He may disburse only upon a voucher signed by the commissioners and countersigned by the county judge. **Art. 8147:** The county treasurer gives bond in an amount equal to the amount of bonds issued. Where a district depository is selected, such depository gives like bond.

See: American Surety Co. of N.Y. v. Hidalgo Co., 283 S.W. 267.
Harris Co. v. Charlton, 243 S.W. 459.
Neuces Co. D.D. #2 v. Garrett, 202 S.W. 1000.

FINANCING—Bonds

Art. 8127. Issuance of bonds: When the maps, profiles, and estimates are filed, the court orders the issuance of drainage bonds for the district sufficient in amount to pay for the proposed improvement together with all necessary incidental expenses. These bonds may not exceed in amount one-fourth of the assessed valuation of the real property in the district as shown by the last annual assessment thereof, nor exceed the amounts specified in the order and notice of election.

See: Holt v. State, 176 S.W. 743.
David v. Timon, 183 S.W. 88.
Munson v. Looney, 107 T. 263; 172 S.W. 1102.
Simmons v. Lightfoot, 105 T. 212; 146 S.W. 871.

Art. 8128. Change in plans without bond: After the issuance of bonds is authorized, the commissioners may make changes in the district or in the improvements therein that will be of advantage to the district but will not increase the cost beyond the amount of the bonds authorized. Such changes are made by entering a notice thereof on the minutes of the commissioners, with maps and profiles showing the change. Notice of this action is given by publication in the English language within the county.

Art. 8129. Change in plans with bonds: When it appears to the commissioners that changes should be made that will be of advantage to the district but which will make necessary the issuance of more bonds, they so certify to the court, with maps and profiles prepared by the engineer showing the changes and

the estimated cost thereof. The court then gives notice of an election to determine whether the changes shall be made. If two-thirds of the property tax-paying voters of the district vote in favor of the change, the court enters the result of record and orders additional bonds issued.

Arts. 8130 to 8134. Bonds—Record book: Before issuing bonds the court provides a book in which a record must be kept by the county clerk showing all bonds issued and full details as to the amount, dates, maturity, interest, and the annual rate of assessment made to pay the interest and provide a sinking fund for their redemption. Upon payment of any bond, the fact is recorded in the record book. Said book is open at all times to the inspection of interested parties. **Art. 8131:** All bonds are issued in the name of the district, signed by the county judge, and attested by the county clerk with the seal of the court affixed. Denominations are not less than \$100 nor more than \$1,000, with interest at 6 percent. No bonds may be made payable more than 40 years after the date thereof. **Art. 8132:** Before bonds are offered for sale the district forwards to the attorney general of the state a copy of the bonds; a certified copy of the court order levying taxes to pay interest and provide a sinking fund; a statement of the total bonded indebtedness of the district including the series of bonds proposed; the assessed value of the property for purposes of taxation; and such other information as may be required by the attorney general. That officer examines the information and determines whether the bonds are in conformity with the constitution and laws and are valid and binding obligations upon the district. If he finds them so, he officially certifies to that fact. **Art. 8133:** When bonds have been so approved they are registered by the comptroller in a book kept for that purpose, and the certificate of their approval is preserved of record. Thereafter such bonds are *prima facie* valid and binding obligations in every action, suit, or proceeding. The only defense that may be offered against their validity shall be forgery or fraud. **Art. 8134:** When the bonds have been registered, the county judge under the direction of the court sells them for the best price possible but not less than par and accrued interest. The money is deposited with the county treasurer and placed by him to the credit of the district in the construction and maintenance fund thereof.

See: David v. Timon, 183 S.W. 88.
Wilson v. Herbert, 174 S.W. 861.
Ward v. Harris Co., 209 S.W. 792.

Art. 8136-a. Refunding bonds: Any district that has issued bonds may, by the consent of the holders thereof, refund them by issuing new coupon bonds for that purpose. Such refunding bonds may not draw greater interest than those in lieu of which the refunding bonds are issued. Such refunding bonds are payable serially or otherwise in not to exceed 40 years from the date thereof. A sufficient tax levy to meet principal and interest thereof shall be made before the delivery of the bonds, provided the refunding of any bond shall not affect any taxes already due. No refunding bond may be issued until approved by the attorney general of the state and registered by the comptroller; and the comptroller may not register refunding bonds until the old bonds are delivered to him for cancellation. All bonds may be presented for cancellation in installments and a like amount of refunding bonds registered and delivered. (L. 1935, ch. 47.)

Art. 8139. Maintenance—Unsold bonds: If any bonds remain unsold and not required for construction, then, with consent of the court made of public record, such bonds or any part thereof may be sold and the proceeds placed in the maintenance and

construction fund and be used for maintenance and repair as provided in section 8138.

CONSTRUCTION

Arts. 8155 to 8158. Contracts: Contracts for construction and other necessary work are let by the commissioners to the lowest bidder, after advertisement and posting of notices for at least 25 days. All improvements included in the report of the drainage engineer and adopted by the court shall be constructed. *Art. 8156:* All bids must be in writing, sealed, and delivered to the commissioners, accompanied by a certified check for at least 5 percent of the amount bid, which is forfeited if the bidder refuses to contract with the district if the bid is accepted. Any bid may be rejected as too high. *Art. 8157:* The contractor must give bond in the amount of the contract price, conditioned to faithfully perform the work and pay damages due to default on his part. The bond must be approved by the commissioners and the county judge. *Art. 8158:* All contracts must be in writing and approved by the county judge; and a copy thereof filed with the county clerk.

See: *Hidalgo Co. D.D. #1 v. Swearingen*, 158 S.W. 211.
San Benito Cameron Co. D.D. v. Farmers State Guar. Bank, 192 S.W. 1145.

Arts. 8160 and 8161. Bridges and culverts: These two articles give in much detail the method of constructing bridges and culverts over railroads and highways, and also in counties with more than 350,000 inhabitants. (L. 1935, ch. 117.)

Art. 8162. Additional improvements: If there is a surplus of funds after the completion of the improvements contracted for, including bridges and culverts, the commissioners may have the engineer report any additional and supplemental work that may be needed. The estimated cost of the additions may not exceed the surplus. After the approval of the report by the court an election is held on the sole question of the additional improvements. A majority vote is necessary to carry the proposition. Such additional work is carried out under the provisions of this act for the original work.

DISSOLUTION

Arts. 8177 to 8182. Power to dissolve: Any drainage district may voluntarily abolish its corporate existence in the manner provided herein. If the proposition to abolish fails to carry at the election therefor, no other election may be held within two years thereafter. *Art. 8178:* When a petition is presented to the court at a regular session praying for the abolishing of a district, signed by 50 freeholding resident taxpayers of the district or, if there are less than 100 such freeholders, by one-third thereof, the court will order an election on the question. *Art. 8179:* The petition must be accompanied by \$200 in cash deposited with the county clerk to be held until the result of the election. If the election favors abolishing the district, the clerk will return the deposit to the petitioners and the costs are charged against the district. If the election result be the other way, the clerk pays the costs out of the deposit and returns the balance, if any, to the petitioners. *Art. 8180:* Notice of election is in the same manner as for the establishment of the district. *Art. 8181:* If the proposition to abolish is carried by a two-thirds vote the court enters an order of record, in the form prescribed in the statute, declaring the district abolished. *Art. 8182:* When a district is so abolished, the court provides for the payment of all debts and costs of the proceedings by levying a tax in the manner provided in this chapter against the real and personal property in said district, in amount sufficient to pay the valid debts and obligations of every character except bonds issued and held by

purchasers. Such bonds shall be paid in accordance with the terms thereof by levy and collection of an annual tax unless their retirement is effected as provided in the succeeding article.

Art. 8183. Retirement of bonds on dissolution: If there are bonds outstanding at dissolution, the commissioners court immediately enters into negotiation with the bondholders, looking to the retirement of the bonds at an earlier date than that stated on their face. If the negotiation is successful and considered feasible by the court, the bonds are paid and retired as follows: The commissioners court ascertains the full debt due by the district and apportions same among the taxpayers in the district and levies and collects a tax upon all property in the district for its proper proportion of said indebtedness, payable annually or all at one time as the taxpayers may elect. The amount apportioned to each tract is a lien thereon. Holders of indebtedness owed by the district may present bonds or coupons or approved accounts in payment of any taxes so levied, but unmatured coupons on bonds cannot be so used. Unmatured bonds are only eligible for the payment in advance of unmatured tax liability and only for the year in which such bonds mature. Payment of such taxes in this manner acts as a release from further liability on the part of the owners of the property taxed. (L. 1933, ch. 159.)

Arts. 8184 to 8193. Custody of property—Trustee: Upon dissolution of the district the court provides for the disposition and sale of all district property and turns the proceeds over to the county treasurer upon his filing proper bond, and he immediately becomes trustee for the defunct organization. All claims against the district are presented to the trustee. Finding them correct, he allows them and the claimants thereupon file a claim with the clerk of court who issues notice of the filing to all interested parties. The court at a regular session passes upon the claims, and if it approves them enters an order on its minutes and the claim is thereupon valid against the district. Outstanding bonds are considered valid without proof. The method of contesting claims, fees, trustee's expenses, and filing reports in discharge of the trustee are provided for in detail in these sections.

UTAH

(Utah Revised Statutes, Supplement 1939,
Title 24-a, secs. 24A-0-1 to 24A-0-61)

DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 24A-0-1. Who may propose: Whenever a majority of the owners of title or evidence of title, who own or control not less than one-third of the area to be benefited or that is susceptible of drainage; or whenever the owners of title to a major portion in area of the lands to be reclaimed or benefited or that are susceptible of drainage; desire to provide for the draining of such lands, they may propose the organization of a drainage district. The equalized county assessment roll immediately preceding the presentation of a petition for organization is sufficient evidence of title. (L. 1921, ch. 47.)

See: *Cattrell v. Millard Co. D.D.*, 58 Ut. 375; 199 Pac. 166.
Croft v. Millard Co. D.D., #1, 59 Ut. 121; 202 Pac. 539.

Sec. 24A-0-2. Petition: A petition must first be presented to the board of county commissioners of the county wherein the greatest portion of the lands in the proposed district are situated, signed by the requisite number of holders of title or evidence of title. The petition must contain a description of the proposed work and set forth the boundaries of the district and pray that it be organized. The petitioners must file bond

for two percent of the estimated cost of the improvement, conditioned to pay the costs if the commissioners find adversely to the formation of the district. The petition also states the name of the proposed district.

Sec. 24A-o-3. Notice: The county clerk gives three weeks' notice of the filing of the petition by publication and posting; and if the district is intercounty, the notice is published in each county. If there are nonresident landowners, the petition must be accompanied by affidavit giving their names and addresses where known or state that after diligent inquiry they cannot be ascertained. A copy of the notice is sent to the known non-residents.

Secs. 24A-o-4 and 24A-o-5. Hearing: The county commissioners hear the petition at any regular or special meeting, and determine all matters pertaining thereto and all subsequent proceedings of the district when organized. The commissioners may permit amendment of the petition, the affidavit, or their orders. No petitioner may withdraw from the petition except by consent of a majority of the other petitioners or where it may be shown that his signature was obtained by fraud or misrepresentation. **Sec. 24A-o-5:** The commissioners may adjourn from time to time, not exceeding four weeks in all. At the hearing all parties affected may appear and contest the necessity or utility of the proposed work and offer competent evidence in regard thereto. The commissioners determine whether the petition is properly signed. The affidavit of three or more signers that they are acquainted with the locality and that the petition is signed by the requisite number of landowners owning the requisite amount of land may be taken as *prima facie* evidence of the facts stated in the petition. Deeds made for the purpose of establishing or defeating the petition, unless in good faith for valuable consideration, are void. If the commissioners find the petition not properly signed, they will dismiss it at the cost of petitioners. If the petition is properly signed, the commissioners must so find, and that finding is conclusive upon the landowners of the district that they have accepted the provisions of this act. The commissioners make such changes as they find proper and establish and define the boundaries of the district; provided, the board may not modify the boundaries so as to except from the operation of this act any territory that is susceptible of drainage by the system of works applicable to the other lands of the proposed district. Any person whose lands, in the opinion of the board, will not be benefited by drainage by the system may have his lands excluded, except as provided in section 24A-o-15. Any person whose lands are susceptible of drainage by the same system may, upon application to the board, have his lands included.

If it appear to the commissioners that the proposed works will be useful in draining lands for agricultural or sanitary purposes and that the organization will be conducive to the public welfare, they so find, and they appoint three competent persons to be known as the board of supervisors to manage and control the organization. The supervisors' terms of office are 1, 2, and 3 years respectively, with successors appointed for 3 year terms. Where the district is intercounty, not more than two supervisors may be chosen from any one county. The petition may designate three persons to be appointed as supervisors, who then must be so appointed by the commissioners. It is the duty of the supervisors to lay out and construct the works and levy a tax upon the lands of the district, subject to the approval of the county commissioners.

Finding that the creation of the district will be a benefit, the county commissioners proclaim the district established and their proclamation is published for 10 days and posted in each

county affected. The form of the proclamation is set out in the statute. Upon entering proclamation of record, the district is declared to be organized as a drainage district with the boundaries stated, and it becomes a body corporate and politic by the name mentioned in the order, with the usual powers of corporations. The board of supervisors constitutes the corporate entity of the district.

See: Colorado Development Co. v. Creer *et al.*, 80 Pac. (2d) 914.
Campbell v. Millard Co. D.D. #3, 72 Ut. 298; 269 Pac. 1023.
Croft v. Millard Co. D.D. #1, 59 Ut. 121; 202 Pac. 539.

Sec. 24A-o-6. Appeal: Appeal may be taken to the district court of the county in which the district is situated. The district court must advance the appeal to be heard at the earliest date possible. Several appeals may be consolidated. The procedure on appeal is in accordance with the civil code, but no action may be commenced or maintained affecting the validity of the organization after six months from the entering of the order establishing the district. The county commissioners cause a certified copy of their order to be filed for record in the office of the county recorder of each county affected and forward a copy immediately to the county clerk of each county. The commissioners of each county containing lands within the district may not allow another district to be formed including any of the lands of this district without consent of the board of supervisors thereof. From and after such filing the organization is complete.

ORGANIZATION—Officers

Sec. 24A-o-7. Supervisors: After the board of county commissioners have established the district by proclamation and appointed the board of supervisors, each member takes oath of office and gives bond approved by the county commissioners. The supervisors organize and elect a president, a secretary, and a treasurer from among their number. They appoint a competent engineer and fix his compensation, and have power to adopt bylaws governing the affairs of the district. They have power to employ necessary agents and employees and make necessary contracts. They may invest the funds of the district accumulated to pay bonds and interest in United States bonds or state and school bonds. They may contract with the United States for construction and maintenance of the system of drainage, or for the assumption as principal or guarantor of the indebtedness to the United States on account of district lands.

ORGANIZATION—Powers

Sec. 24A-o-8. Entry on lands—Appropriation of water: The board of supervisors and its employees have the right to enter upon any lands to make surveys and locate the necessary works. They may acquire on behalf of the district, by purchase or condemnation, all lands and other property necessary for the construction and maintenance of the works of the district including canals and drains being constructed by private owners. In case of condemnation of property, the supervisors proceed in the name of the district under the law relating to eminent domain. Drainage districts organized under this act may appropriate water for useful and beneficial purposes, and may regulate and control all water developed, appropriated, or owned by it, and may appropriate, use, purchase, develop, sell, and convey water and convey water rights in the same manner as a corporation, association, or person.

Sec. 24A-o-14. Supervisors view lands: Immediately after their appointment the supervisors examine all of the land proposed to be drained or protected and the land over which the works are to be constructed, and determine (1) whether the works

and their location are proper and feasible, and if not, what is feasible; (2) the probable cost of the work including incidental expenses and the costs of the proceedings; (3) the probable annual cost of maintenance and repair; (4) what land will be injured and the probable total amount of all damages; (5) what lands, if any, should be excluded from the district; (6) what lands will be benefited; (7) whether the aggregate amount of benefits will equal or exceed the cost of construction including incidental expenses, costs of the proceedings, and damages; (8) whether the proposed district as set out in the petition will embrace all of the lands that may be benefited or damaged, and if not, what additional lands will be affected.

See: *Cottrell v. Millard Co. D.D. et al*, 58 Ut. 375; 199 Pac. 166.

Croft v. Millard Co. D.D. #1, 59 Ut. 121; 202 Pac. 539.

Sec. 24A-o-15. Supervisors' report: The supervisors report their findings to the board of county commissioners. If they find that the costs will exceed the benefits, the petition must be dismissed notwithstanding the fact that the district has been formally proclaimed. If the benefits will exceed the costs of construction, maintenance, and damage, they will so report. They also report on such lands as will not be benefited and should be excluded, and the commissioners will exclude same if feasible. If additional lands will be benefited, the supervisors will recommend their inclusion and the commissioners must include them. Boundaries of the district must be fixed, but other land may be included at any time upon report of the supervisors or application of the owners. However, without application therefor in writing by the owner, lands can be included only after notice and hearing as for original organization. After hearing, if the commissioners decide to include additional land, they fix the boundaries of the district so established and give notice in the same manner as for the proclamation required by this act. They immediately file their order with the county recorder of each county interested as well as the county clerk of each county.

Sec. 24A-o-16. Judicial confirmation: The supervisors may commence special proceedings to have the formation of the district and any contract with the United States judicially examined, approved, and confirmed. The form of the special proceeding, the scope of the inquiry, and the payment of the costs of such special proceeding are provided for in detail in sections 24A-o-16 to 24A-o-20 inclusive.

Sec. 24A-o-40. Power of county commissioners: The county commissioners at any time, upon petition of the owners of title to lands representing a majority of the total assessed benefit and a majority of the acreage of all lands in the district, and for good cause, may remove any supervisor appointed by them and may fill all vacancies; provided, in the event of a vacancy in the office of supervisor, the commissioners must give 20 days' notice by publication of the time for the filling of the vacancy. If within that time the landowners representing a majority of the acreage file a written petition with the county clerk requesting the appointment of a certain person as supervisor, the commissioners must appoint the person so named.

Sec. 24A-o-44. Bridges and culverts: The supervisors are empowered to build all necessary bridges and culverts to enable them to construct and maintain the works of the district across any public highway or railroad right-of-way, such bridges and culverts to be paid for by the district; provided, notice shall be given the railroad authorities and they be allowed 30 days to build such bridge or culvert at their own expense on their own plans; and provided, such works must be so constructed as not to interfere with the flow of water in the works of the district as located by the drainage engineer.

FINANCING—Assessments

Sec. 24A-o-21. Damages and benefits: After viewing each tract of land and considering all the damages and benefits that it will receive from the construction of the system, the supervisors assess each tract in accordance with the benefits, making proper allowance for damages if any. The secretary of the supervisors transmits the assessment to the board of county commissioners, and they give 15 days' notice, by mail to each landowner in the district, of the amount of benefits assessed upon the land and of the time and place where the commissioners will meet as a board of equalization to hear any complaints made against the assessment. The commissioners equalize and finally determine the assessments of benefits and taxes to be levied upon each tract. Such assessments of benefits will be the basis of the lien upon the lands within the district for all district indebtedness.

See: *Colorado Develop. Co. v. Creer et al*, 80 Pac. (2d) 914.

Campbell v. Millard Co. D.D. #3, 72 Ut. 298; 269 Pac. 1023.

Sec. 24A-o-22. Budget—Assessment: The supervisors on or before the first Monday of March in each year prepare an estimate of the amount of money to be raised by taxation for construction and maintenance, to liquidate district warrants and notes and interest thereon, to pay interest on bonded indebtedness, to create a sinking fund for the payment of bonds; to meet all payments due or to become due under contract between the district and the United States; and for management and control of the drainage system. They levy the entire amount against the lands within the district in proportion to the equalized benefits, after adding 15 percent to provide for incidentals and delinquencies. They certify the assessment to the county assessor of the county within which the district is located.

See: *Colorado Develop. Co. v. Creer*, 80 Pac. (2d) 914.

Bothwell v. Salt Lake Co. D.D. #2, 85 Ut. 415; 39 Pac. (2d) 737.

Campbell v. Millard D.D. #3, ante.

Sec. 24A-o-23. Contract with the United States—Assessment: In case of contract with the United States the supervisors may add to the estimate provided for in the last section a sufficient amount to cover any deficit due to the United States that may have resulted from nonpayment of delinquent taxes or assessments for any preceding year. It may also be provided by contract between the district and the United States that assessments shall conform to the requirements of the Reclamation laws, particularly to the Act of December 5, 1924, Pub. No. 292, and that assessments may thereafter be made accordingly.

Secs. 24A-o-25 to 24A-o-31. Delinquent assessments—Payment by lienors: Any lienor or person having an interest in or title to any tract of land within a district, or any person or corporation holding a recorded mortgage or other lien on such tract, may pay at any time any part or all of the annual and delinquent drainage taxes due, or may pay the whole or any part of the equalized drainage district assessment of benefits and taxes against the land, whether due or not, together with the accrued interest, if any, with money or with bonds of the district at face value whether such bonds are due or not; or with any notes, warrants, or matured interest coupons of the district at face value; and it is the duty of the county treasurer of any county to accept such payment or part payment. (L. 1929, ch. 32.)
Sec. 24A-o-26 to sec. 24A-o-31: These sections provide the method of procedure in the payment of taxes by lienors under the last section above; for the release and discharge of the lands

from the lien of bond issues; and for the redemption of lands subsequently sold to the district for delinquent taxes.

See: *Hadlock Bank Com. et al v. Benjamin D.D.*, 89 Ut. 94; 53 Pac. (2d) 1156.
State, by State Land Bd. v. Blake, et al, 88 Ut. 600; 56 Pac. (2d) 1347.

Sec. 24A-o-33. Assessment roll: The county assessor places the drainage taxes certified by the supervisors on the assessment roll, and the treasurer collects them in the same manner as county taxes and pays them to the treasurer of the board of supervisors immediately. It is the duty of the county treasurer to report during December of each year the amount of drainage taxes delinquent, the names of the landowners, and a description of the lands. (*Sanpete Co. v. Sanpete Co. D.D. #1*, 67 Ut. 507; 248 Pac. 479.)

Sec. 24A-o-34. Lien—Delinquent list—Sale: Drainage taxes attach and become a lien on the real property assessed from and after the second Monday in March. They become delinquent at the same time as county taxes. The revenue laws of the state are applicable except as modified in the enforcement of penalties and forfeitures for delinquency. But lands sold for drainage district taxes must be sold separately for each tax and separate certificates of sale issued. The period of redemption is 4 years. The notice of sale is the same as for other delinquent taxes. The method of sale is set out at length in the statute. A detailed record of all sales is kept by the treasurer. In the absence of a purchaser, or default, the district becomes the purchaser and receives tax sales certificates from the county treasurer and holds them in the same manner as an individual may hold real property upon which state or county taxes are delinquent, and subject to the same right of redemption.

See: *Hadlock Bank Com. et al v. Benjamin D.D.*, 89 Ut. 94; 53 Pac. (2d) 1156.
Utah Oil Refining Co. v. Millard Co. D.D. #4, 90 Ut. 67; 50 Pac. (2d) 774.
Gardner v. Dobson et al, 86 Ut. 473; 46 Pac. (2d) 422.
Millard Co. v. Millard Co. D.D. #1, 86 Ut. 475; 46 Pac. (2d) 423.
Hanson v. Burres et al, 86 Ut. 424; 46 Pac. (2d) 400.
State v. Blake et al, 88 Ut. 584; 20 Pac. (2d) 871.
Millard Co. D.D. #3 v. Melville Co. Auditor, 62 Ut. 6; 217 Pac. 965.

Sec. 24A-o-37. Report of supervisors: The supervisors, annually or whenever called on by the board of county commissioners, report on all work done and the amount of money collected, and the manner in which the funds have been expended. Upon the filing of this report the commissioners set a time for hearing thereon after notice by posting and publication. The commissioners hear all objections to the supervisors report, and may require evidence to be produced by the supervisors in support thereof. If the report is found correct, the commissioners will approve it. Upon failure of the supervisors to make report, the commissioners may, on application of any interested person or on their own initiative, remove any one or more supervisors from office. Immediately after the filing of this report, the supervisors must call an annual meeting of all the landowners, after notice by posting, for the purpose of hearing the report. At such annual meeting the president of the board of supervisors acts as chairman.

Sec. 24A-o-43. Railroads—Highways: The supervisors have the right to use the rights-of-way of any public highway or street, provided such use will not permanently destroy or materially impair same. If in the judgement of the supervisors any public highway, road, or street, or any railroad right-of-way will be benefited by the drainage works, benefits and taxes shall be assessed and equalized against same in the same manner as

against lands in the district. Such highways, roads, and railroad rights-of-way are expressly made subject to the drainage laws of the state.

Sec. 25A-o-52 to 24A-o-58. State lands: All state lands within a drainage district are declared to be subject to all of the provisions of the drainage laws of the state to the same extent as lands owned by individuals. (L. 1925, ch. 109.)

FINANCING—Bonds

Sec. 24A-o-24. Refunding bonds—Lien: Any bonds issued by a district may be refunded at any time when a lower return of interest or better terms can be obtained, or to provide means for the payment of maturing bonds. Such refunding bonds may be issued by resolution of the supervisors without an election, and may be sold by the board on such terms and in such manner as it may deem best for the interests of the district. Payment of the refunding bonds must be provided for in the same manner as for the bonds that are refunded, and all statutory and other liens and rights existing under the original issue extend and apply to the refunding bonds. Refunding bonds must mature in not to exceed 40 years from the date of issue. [State, by State Land Bd. *v. Blake et al*, 88 Ut. 600; 56 Pac. (2d) 1347.]

Sec. 24A-o-36. Debts—Borrowing: The supervisors or other officers have no power to incur debt, either by issuing bonds or otherwise, in excess of the express provisions of this act. Such debt is void except that for purposes of organization the supervisors may, before the collection of the first annual taxes, cause warrants of the district to issue bearing not more than 8 percent interest. The limit of a fund for this purpose shall be the amount equivalent to an average of \$1.50 per acre throughout the district. The supervisors in the first annual budget must make provision for the payment of such warrants and interest. To meet this expense, or to cover delinquency in any annual tax, the supervisors may borrow money not exceeding the taxes for the current year and issue warrants or negotiable notes of the district payable in not more than one year and bearing interest at not to exceed 8 percent. Such indebtedness constitutes a lien upon the lands in the district until paid.

Secs. 24A-o-46 and 24A-o-47. Bond issue—Special election—Contract with U.S.: The supervisors have power to contract with the United States for funds to construct the works, and provide for the repayment of the same on agreed terms; or they may issue bonds to run not less than 5 years nor more than 40, with interest at not to exceed 6 percent, to be called "drainage district bonds," which bonds may be sold for not less than 90 percent of their face value, the proceeds to be used solely for construction of necessary works; provided, that before making a contract with the United States or before the issuance of bonds, the supervisors request the commissioners to call a special election thereon to be held as general elections are held. All landowners or persons holding evidence of title to lands within the district may vote. If the majority vote favorably, the bonds are issued or the contract with the United States is entered into. Detailed provisions for the issuance and sale of such bonds are then set out at length in the statute. **Sec. 24A-o-47:** Whenever such bonds are issued or contract is made with the United States, they constitute a lien upon all of the lands and improvements thereon within the boundaries of the district, to the extent of total benefits assessed and equalized and pledged for that purpose and not in excess thereof. (*Campbell v. Millard Co. D.D. #3*, 72 Ut. 298; 269 Pac. 1023.)

CONSTRUCTION

Sec. 24A-o-35. Bids—Contract: After adopting the plan and making an estimate of the cost of the works, the supervisors

give notice by publication in each county affected, calling for bids for the construction of the works or any part thereof. Plans and specifications may be seen at the office of the supervisors. Sealed proposals to do the work are opened in public at the time and place stated in the notice. The supervisors let contract to the lowest responsible bidder, or they may reject all bids. Contractors give bond for 50 percent of the contract price, conditioned for faithful performance. The work must be done under the supervision of the engineer and subject to the approval of the supervisors. This section does not apply to the contracts with the United States.

See: *Bothwell v. Salt Lake Co.* D.D. #2, 85 Ut. 415; 39 Pac. (2d) 737.

Cottrell v. Millard Co. D.D., 58 Ut. 375; 199 Pac. 166.

DISSOLUTION

Sec. 24A-o-59. Method of dissolution: Any district may be dissolved by order of the district court of the county in which it is situated or the county in which a major portion thereof is situated, upon verified petition filed with the county clerk signed by not less than three-fourths of the adult landowners who own in the aggregate not less than two-thirds of the area of the assessed lands in the district. The clerk causes notice of a hearing on the petition to be given by publication. The notice gives the description of the district and notifies all persons having objections to dissolution and all creditors to present their objections or their claims. At the hearing petitioners deliver to the clerk of the court a bond to be approved by the district judge, conditioned to pay costs and expenses of the sale and disposition of any assets belonging to the district. No district may be dissolved until all indebtedness is paid or provision made for the payment thereof, either by bonds or by levying and collecting assessments. The statute then provides for the method of sale of the district property and the application of the funds. All permanent improvements of a dissolved district remain for the common use of the landowners situated within its boundaries.

VIRGINIA

(Virginia Code of 1936, Cumulative Supplement of 1940, Chapter 73, secs. 1737 to 1781)

ORGANIZATION—Petition

Sec. 1737. Jurisdiction to establish: The circuit courts of the several counties have jurisdiction to establish drainage districts in their respective counties and may locate and establish drains, improve water courses, and build necessary equipment and pumping plants to drain and reclaim wet, swamp, and overflowed lands. It is declared that the draining of surplus water from agricultural lands is essential to successful agriculture and the prosperity of the community, and the reclaiming of swamp and tidal marshes is a public benefit and conducive to the public welfare. It is further declared that the construction of a drainage district is a public improvement and the county supervisors are directed to cooperate toward the preliminary expenses of surveys for drainage districts and the assumption of the responsibility of bond issues—for drainage districts are to be construed as revenue producing investments of the county for which said county receives full potential value. (L. 1926, p. 604.) (*Strawberry etc. Corp. v. Starbuck*, 124 Va. 71; 97 S.E. 362.)

Sec. 1738. Petition—Bond—Viewers: When a petition, signed by 51 percent or more of the landowners within a proposed drainage district, irrespective of the area owned by each, according to the county land books or the latest assessment list; or by the heirs, guardians, or executors of estates; or by those

having color of title or in adverse possession; or by the officers of corporations whose lands will be affected; shall be filed in the office of the circuit court of any county in which a part of said lands are located, the clerk will issue a summons to be served on all of the defendant landowners, including railroads, who have not joined in the petition, to show cause why the lands in the proposed district should not be drained or leveed. The petition describes the lands in a general way so that they may be located and asserts the need of drainage and the public welfare which will result. The petition also sets out the route and termini of the proposed drain and the lateral branches. A bond must be filed, conditioned to pay the costs if the district is not organized, in an amount which is the product of \$70 multiplied by the square root of the estimated number of acres within the bounds of the proposed district, the bond to be approved by the clerk.

Service of the summons is by publication where personal service cannot be had. The service is returned on the first day of any regular session of the circuit court. After determining the sufficiency of the petition, the court appoints two disinterested resident freeholders of the county in which the lands are situated, and the drainage engineer selected and recommended by the petitioners if he be experienced, competent, and in good standing with the state board of engineers, as a board of viewers to make a preliminary survey and report. After the appointment of the board, the question of sufficiency of the petition may not again be raised unless the boundaries of the district are subsequently changed by the court. Preliminary expenses are paid by the county treasurer upon the certificate of the circuit judge, to be refunded with 6 percent interest when a drainage fund is subsequently provided by sale of bonds or otherwise, or out of the petitioners' bond if the district is not established.

If a majority of the owners of wet, swamp, or overflowed lands petition for a district based on the widening, deepening, or straightening of some natural stream in a manner that the United States government or the state drainage authorities pronounce essential for the drainage of such land, and agree in the petition for a tax levy to be spread equally over each acre, the court will entertain the petition, and all proceedings are the same except that the viewers do not classify the lands as to the benefits to be derived. After such natural stream has been improved, the court may, in its discretion and upon petition of a majority of the landowners, divide the district into subdistricts. When landowners withdraw from the petition during the proceedings and a sufficient number of other signatures cannot be obtained to validate the petition, it will be dismissed at the cost of the landowners withdrawing. The court will apportion the cost at a flat rate per acre and enter judgment against those who withdraw, and if not paid within 30 days the judgment will be docketed after 10 days' notice by the clerk.

It is sufficient for the petitioners to use due diligence in ascertaining the names of all landowners or persons holding evidences of title, and it is not necessary to file a list of landowners with the petition. The petition may be amended as often as necessary to include landowners whose identity is subsequently ascertained during the proceedings. The names of the landowners not known are classified as unknown owners and they may at any time become parties to the proceeding under section 1740.

When a supplementary petition is filed by a landowner asking that tile be used to drain his lands, the clerk notifies the engineer, who then designs and lays out a system of tile drainage for such land, and a special assessment will be levied on

his lands to equal the cost of tile drain in addition to his proportionate regular assessment. (L. 1920, p. 607; L. 1924, p. 707; L. 1926, p. 605.)

Secs. 1740 and 1741. Publication against unknown owners:

If at any time it be made to appear to the court that owners whose names are unknown cannot be found after due diligence, the court will direct the publication of the substance of the petition and the court order in some newspaper within the county, and the posting of the publication at three conspicuous places within the boundaries of the district and at the county courthouse door. If no owner appears, the court will assume jurisdiction of the land, appoint a disinterested person to represent the owners, adjudicate against the land as if the owners were present or represented, and proceed against the land itself. If later the owners appear in person, they may be made parties defendant on their own motion. They have no right of appeal against any judgment theretofore rendered as to which the time for filing exceptions has expired. (L. 1926, p. 608.)

Sec. 1741: The court will appoint guardians *ad litem* for interested infants and insane persons.

Sec. 1742. Recording petition: A copy of the petition, certified by the clerk of the court in which it was originally filed, must be recorded in the deed book in the clerk's office of each county in which any lands of the district are situated. Any order by which other persons are made parties must also be so recorded.

Sec. 1743. Report of viewers: The viewers examine the lands described in the petition, and other lands if necessary to locate the improvement properly, along the route described in the petition or any route answering the same purpose, unless previously surveyed by the United States or other engineers, and make written report to the clerk within 60 days. The report states whether the proposed drainage is practicable; whether it will promote the public welfare; whether it will benefit the lands; the character of the lands and the public value after the works are completed; and whether all lands benefited are included in the petition; and the names of the owners who will be affected and the approximate acres owned by each. The viewers file with the report a map showing the location of the works and other improvements and the lands that will be affected. (L. 1926, p. 609.)

Sec. 1744. Filing report: At the first term thereafter the district court considers the report of the viewers. If they report the drainage not practicable or not of public benefit, the court will approve such finding and dismiss the petition at the cost of the petitioners, apportioned among them according to acreage owned. Proceedings may be again instituted by the same or additional landowners at any time after six months, upon allegation that conditions have changed or that material facts were omitted. If a majority of the board of viewers, including the engineer, report that the drainage is practicable and will promote the public welfare or health or improve any public highway, the court fixes the day for a hearing thereon at the same or the succeeding term.

Secs. 1745 and 1746. Notice—Hearing: Notice of the viewers report is by publication in the county or counties affected and by posting. **Sec. 1746:** The court hears and determines any objections to the report that may be offered. If it appear that any of the lands will not be affected by the proposed work, such lands are excluded and the names of the owners withdrawn from the proceedings. If it be shown that lands not in the proposed district will be affected, the boundaries of the district are changed so as to include those lands and the owners are made parties to the proceedings and summons is issued to them.

Such additional owners will be heard in opposition to the report within 10 days after summons. After any changes in the boundaries are made, the sufficiency of the petition must be verified to show that it conforms to section 1738. Any person affected may at this time sign the petition so as to render it sufficient.

The efficiency of the plan of drainage is also investigated, and if it appear that a rearrangement of the works will increase the benefits, such change will be made by the court. These facts having been established and the approximate boundaries of the district determined, the court declares the preliminary establishment of the district and gives it a number. If lands that have been excluded because not affected be situated within the boundaries of the district, that fact does not prevent the establishment of the district and such lands will not be assessed. The district may, however, acquire rights-of-way across them for necessary works.

Secs. 1747. May condemn land: The right of eminent domain is conferred for the acquisition of rights-of-way and outlets or to remove dams or obstructions where they cannot be acquired by purchase at a price deemed reasonable by the court, upon report of the viewers thereon. The procedure is under the general statutes for condemnation.

Secs. 1749 and 1750. Complete survey: After the preliminary establishment of the district, the court refers the report of the viewers back to them and, unless the United States or state engineers have already surveyed the district or the major portion thereof, the viewers make a complete survey with plans and specifications for the works. They must complete the same in six months, unless the time is extended by the court. **Sec. 1750:** The viewers may employ such assistants as necessary and may enter upon the ground to make surveys of the main drain and all of the laterals as approved at the preliminary hearing, or others more feasible. Lines of the ditch are established; levels are run for the entire works; bench marks are fixed; a drainage map is prepared; the locations of railroads and public highways are shown; and the number of cubic yards of excavation or fill in each mile or fraction thereof is recorded. The viewers also estimate the cost of the improvement, including rights-of-way and damages, and report what lands it is necessary to have condemned. (L. 1926, p. 611.)

Sec. 1750. Damages: The viewers assess the damages caused by the works, and such damages are considered apart from any benefit that would accrue to the same land.

Sec. 1752. Classification of land: The viewers classify the lands of the district with reference to the benefits they will receive from the construction of the works. The degree of wetness of the land, its proximity to the drain, the fertility of the soil, and the benefits derived from the diversion of flood waters are to be considered. When there is a difference in benefits to different lands, they may be classified in as many as seven classes. The greatest benefit is class A and the smallest class G. The holdings of any one landowner need not all be in one class, but the number of acres in each class is ascertained, listed, and shown on a separate classification map of the district. The number of acres owned in each class by each person and his total number of acres benefited must be determined approximately. The total number of acres in each class is stated in tabular form. The scale of assessment upon the several classes is 1 to 7; that is to say, as often as 7 mills per acre is assessed against class A land, 6 mills is assessed against class B land, etc. This is the basis for assessment of benefits for drainage purposes.

Secs. 1755 to 1758. Final report—Hearing: The final report of the viewers is accepted by the court if in due form; otherwise it is returned for correction and further report. When it appears from the accepted report that it is necessary to exclude or include lands on the basis of whether or not they are benefited, the proceeding is the same as upon the preliminary report of the viewers. The court fixes a hearing on the report with notice as provided in section 1745. A copy of the report is kept on file in the clerk's office for public inspection. *Sec. 1756:* Any interested party may object to the final report, and the court will carefully review the objections and make any changes necessary to do substantial justice to all the landowners. If the court be of opinion that the costs of construction and damages are not greater than the increased value of the land affected and the benefit that will accrue to it, the court confirms the report and declares the drainage district finally established. Any interested party may appeal within 60 days. The court may from time to time order the petitioners to pay into court such amounts, at a flat rate per acre owned, as may be necessary to pay the costs and expenses theretofore incurred, such sums to be returned with 6 percent interest when and if bonds are sold or a drainage fund otherwise provided. The order has the force and effect of a judgment. *Sec. 1757:* If after final confirmation lands are found benefited that have not been included, the drainage commissioners may, by a proceeding like that for establishing the district, bring such lands into the district and assess them as other lands are assessed. *Sec. 1758:* The clerk of the circuit court having jurisdiction keeps a record of all maps, files, orders, reports, judgments, and other documents in a suitable book known as the "drainage record."

ORGANIZATION—Officers

Sec. 1759. County board of drainage commissioners: After the drainage district is finally established and the plans approved, the court appoints three persons who are designated the "county board of drainage commissioners" for the county in which the petition was filed, unless such a board already exists. Such three drainage commissioners immediately become and constitute a body corporate with the usual powers of corporations. They elect one of their members chairman and one vice-chairman. They select a secretary, either a member of the board or otherwise. The treasurer of the county in which any of the lands are located in *ex officio* treasurer of the drainage board of that county. They administer the affairs of all drainage districts in their county.

Sec. 1760. Superintendent of construction: The drainage commissioners appoint a competent person as superintendent of construction and retain the services of an engineer. Each furnishes bonds for the faithful performance of his duties.

FINANCING—Assessments

Secs. 1771 and 1771-a. Assessment roll—Collection: After the contract for construction is let, the county drainage commissioners must ascertain the total cost of the improvement including damages, incidental expenses, attorney's fees, and an amount sufficient for maintenance and improvements for three years—after deducting therefrom any special assessments against any railroad or highway,—and certify the same to the clerk of the circuit court. The certificate is recorded in the drainage record and is open to inspection of any landowner.

The drainage commissioners, with the assistance of the engineer, immediately prepare duplicate assessment rolls or drainage tax lists containing the names of the owners as far as

known, a brief description of each tract by the number shown on the classification map, and the amount of the assessments against each tract. The first assessment roll must provide sufficient funds to pay interest and principal on bonds to fall due at the end of the third year after the date of issue, together with the costs of collection and handling the assessments. The second assessment roll must make like provision for the fourth year and in like manner for succeeding years. In each year, commencing with the maturity of the bonds, the tax levied shall be 110 percent of the maturing principal and interest on bonds, in this way providing for the payment of maturing principal and interest on bonds one year in advance; provided, when the sum actually collected is more than sufficient to pay the principal and interest for the next succeeding year, a proper allowance is made for such surplus in the following assessment and the percentage may be reduced accordingly. Each assessment roll is numbered in order and specifies the time when collectible; and the amount assessed against the several tracts shall be in accordance with the benefits received as shown by the classification and ratio of assessment made by the board of viewers. One copy of the assessment roll is delivered to the county treasurers interested, after the clerk of the circuit court in which the petition was filed has appended thereto an order directing the collection of said assessment. (The clerk is specifically authorized to append the order.) The assessments then have the full force and effect of a judgment and constitute a lien upon the lands assessed, second only to state and county taxes, and are collected in the same manner by the same officers. The assessments are due and payable the first Monday in September of each year and become delinquent December 31 thereafter. When lands are delinquent, they are entered as such in the tax books of the county by the treasurer thereof, which entry is notice of the lien. From the date of delinquency the assessments bear a 5 percent penalty and interest at the lawful rate.

If assessments be delinquent for more than one year, the treasurer of the county where the lands are situated proceeds to sell the land after legal notice. If the lands delinquent are situated in more than one county, each treasurer sells the portion situated in his county. The existing general tax laws in force when sales are made have application in redeeming lands so sold, as well as in the collection of said drainage assessments. The drainage commissioners may purchase such lands in their corporate capacity, and have only to pay the costs and expenses of the sale before receiving a certificate of purchase. No land may be subsequently sold for drainage assessments while the drainage commissioners hold certificate of purchase of deed therefor. The commissioners in their corporate capacity stand in the same position as individual purchasers of lands at tax sales under the general law. The lands may be redeemed in the manner provided by law. If the commissioners are the purchasers, the amount paid in redemption must include the sum bid plus the penalty. When the period of redemption has expired, the drainage commissioners must pay to the treasurer of the county or counties where the land is situated the remainder of their bid and any accumulated assessments before they or their assigns are entitled to deed. After acquiring deed, the county drainage commissioners in their corporate capacity are deemed in all respects owners of the lands and may hold them as an asset of the district, but are liable for the payment of all drainage assessments and state and county taxes thereon; and they may sell them and turn the proceeds over to the proper county treasurer for the credit of the district. There are further elaborate provisions dealing mostly with the duties and responsibilities of the treasurer and for the change of ownership of assessed lands. (L. 1936, p. 1034.) *Sec. 1771-a:* Sale of lands for delinquent

assessments may be made either under the law that was in force at the time of the creation of the drainage district, or under that in force at the time of the sale as may be deemed by the treasurer more effective for the enforcement of said assessment and the protection of the holders of bonds predicated thereon. All sales heretofore made are declared valid. The method of granting tax deeds or permitting the redemption by parties in interest is set out in technical terms in this section. (L. 1927, p. 16.) (Strawberry etc. Crop. v. Starbuck, 124 Va. 71; 97 S.E. 362.)

Sec. 1776. Relevy to cover deficiencies: Where the board of drainage commissioners has confirmed an assessment for the construction of any public works and the assessment has been modified on appeal but for some unforeseen cause it cannot be collected, the drainage commissioners have the power to change or modify the assessment as originally confirmed to conform to the judgment of the higher court and to cover by relevy any deficit that may be caused by the order of such higher court or unforeseen occurrence. The relevy is for the additional sum required, in the same ratio as the original assessment.

When delinquent lands are sold for drainage taxes, the net proceeds are held by the county treasurer for the purpose of paying current and future annual assessments as far as the proceeds will suffice. When the fund in the hands of the treasurer becomes exhausted in the payment of annual assessments against the land sold, he notifies the drainage board of the county in which the petition was filed and the clerk of the circuit court, whereupon the board institutes an investigation of the tract or tracts of land to determine the market value thereof. If such value is not equal to all of the future assessments to pay bonds and interest, the board proceeds to make new assessment rolls on the remaining lands in the district and increase the assessments sufficiently to equal the deficit. The new assessment rolls constitute the future assessment rolls until changed by law. The lands that have been sold continue on the assessment roll in the name of the new owner, reassessed on the new basis, so long as they have sufficient market value out of which to collect the annual assessments. When they fail to have such value or are abandoned, the drainage commissioners may omit them from the assessment roll. They may be restored in the same manner at any time in the future.

If the funds in the hands of the county treasurer for the use of a district at any time exceed what is necessary to pay the annual installment of drainage taxes, such surplus is held subject to the order of the county board of drainage commissioners.

If there be impairment or destruction of the works during the period of construction by the contractor, the contractor shall, nevertheless, repair and complete the works according to the contract and be liable therefor on his bond. But if the contractor default and all damages cannot be collected from the surety on his bond and it becomes necessary to raise a greater sum to complete the works according to the plans, or for any other unavoidable cause, the drainage commissioners of the county in which the petition was filed prepare new assessment rolls upon all of the lands in the district upon the original basis of classification of benefits and increase them in sufficient sums to equal the deficit, and the increased sum constitutes the new assessment roll. (L. 1926, p. 624.)

Sec. 1734-b. Acts of 1938 (p. 795) - 1940 (p. 625)— Appropriation for drainage district: The board of supervisors or other governing body of any county in which is located in whole or in part any legally established drainage district, is given the authority to pay to such district out of the funds of such county

accruing from the general county levy, such sum as they may deem proper for application on the bonded or other indebtedness or for any other legitimate purpose of the drainage district; and the county board of drainage commissioners is authorized to accept the money so appropriated. In lieu of the above the supervisors may, out of the general funds of the county, appropriate and pay to the holders of any bonds, notes, or other obligations of any legally established drainage district, in whole or in part in said county, such sum as the supervisors may deem proper for the acquisition and purchase for and on behalf of the county of all or any such bonds, notes, and other obligations. The supervisors are also authorized to invest money to the credit of any sinking fund of the county, or of any district thereof in the bonds, notes, and other obligations of any legally constitute drainage district; provided, no money shall be invested in such bonds, notes and obligations issued prior to January 1, 1928.

FINANCING—Bonds

Secs. 1772 and 1773. Notice to issue bonds: The county board of drainage commissioners of the county in which the petition was filed give notice by publication and posting that they propose to issue drainage bonds for the total cost of the improvement, giving the amount of the bonds to be issued, the rate of interest and the time when payable. Any landowner may pay, within 15 days, the full amount for which his lands are liable and be relieved from the liability to be assessed for the improvement. The lands remain liable for future assessments for maintenance or increased assessments authorized. **Sec. 1773:** All landowners not paying in full are deemed to assent to the issuance of bonds, and in consideration of the right to pay their proportion in installments they waive any right of defense against the payment of any assessments which may be levied to pay said bonds on the ground of any irregularity or defect in the proceedings prior to that time, except in case of an appeal as hereafter provided.

Sec. 1774. Bond issue: After the expiration of 15 days after publication of notice of bond issue, the county board of drainage commissioners of the county in which the petition was filed may issue bonds of the district in an amount equal to the total cost of the improvement, less such amounts as have been paid in cash, plus an amount sufficient to pay interest on the bonds for the three years next following the date of issue. Bonds bear not more than 6 percent interest and must be paid in 30 years. The first installment of principal must mature at the end of three years from the date of issue. The commissioners after widely advertising the issue may sell the bonds, with the approval of the court, to the highest bidder and devote the proceeds to payment for the work as it progresses; to the payment of interest on said bonds for the three years next following; and to the payment of outstanding obligations, including attorney's fees as fixed by the court. The proceeds of the bonds are for the exclusive use of the district specified on their face, and the bonds are numbered and recorded in the drainage record, which sets forth specifically the lands embraced in the district on which the tax has not been paid in full and that are to be assessed to pay said bonds. If default in the payment of principal or interest of bonds continues for six months, the bondholders have right of action against the board of drainage commissioners wherein the court may issue a writ of mandamus against the district and its officers, including the county treasurer, directing the levy of a tax or special assessment in such sum as may be necessary to meet any unpaid installment of bonds and interest and costs. The right is vested in the holders of delinquent bonds to institute suit against any officer

or official on his official bond, for failure to perform his duties imposed by the provisions of this chapter.

Bonds and coupons are exempted from all county and municipal taxes or assessments, direct or indirect, general or special, and interest thereon is not subject to taxation for income; nor shall bonds or coupons be subject to taxation when constituting a part of the surplus of any bank, trust company, or other corporation. (L. 1926, p. 623.)

Sec. 1777. Additional bonds: If for any cause set out in section 1776, or for any other cause, a sum of money greater than the proceeds of the drainage bonds shall become necessary to complete the work, and the drainage commissioners shall decide that the sum needed is greater than can be collected from one annual assessment without imposing an undue burden on the lands, or if it be advisable to raise money more expeditiously, then additional bonds may be issued in such aggregate sum as may be necessary. The procedure for issuing such additional bonds is set out in detail in this section. (L. 1926, p. 626.)

Sec. 1777-a. Refunding bonds: When any district has bonds outstanding and it shall seem to the county board of drainage commissioners that it is to the best interests of the district to refund such bonds in whole or in part, the drainage commissioners are authorized to issue refunding bonds. Such refunding bonds may mature at one time, or in installments extending not more than 40 years from their date. They bear not to exceed 6 percent interest, and may be made callable on any interest date and registerable as to principal. The commissioners may provide for the exchange of refunding bonds for outstanding bonds, or for the sale of the refunding bonds and application of the proceeds to the retirement of outstanding bonds to be refunded. The refunding bonds may be sold at public or private sale, but may not be sold below par unless a like par amount of bonds to be refunded may be retired at a price correspondingly below par, the intent being that in no event shall refunding bonds be issued in a larger amount than the par value of bonds refunded thereby. Assessments remain applicable to refunding bonds, but if outstanding bonded indebtedness is retired in a manner to reduce the bonded indebtedness of the district, the assessments may, in the discretion of the county drainage board, be proportionately reduced.

If it appear to the county drainage commissioners at any time that the assessment levied to pay original bonds will prove insufficient to pay principal and interest of the refunding bonds, the board must provide for the levy and collection of additional assessments sufficient for such purpose. The holders of refunding bonds have a right of action to compel such additional levy. If the drainage commissioners deem it advisable prior to the issuance of refunding bonds, they may order the cancellation of assessments levied for the payment of bonds to be refunded (except assessments for bonds not actually to be retired) and direct the preparation of new assessment rolls and the collection of new assessments sufficient to pay principal and interest on refunding bonds. The levy of additional or new assessments is in all respects under the same procedure as the levy of the original assessments. Any drainage district desiring to refund all or part of its outstanding indebtedness is authorized to enter into contract with the United States or any of its agents for the purpose of securing aid in such refunding. (L. 1934, p. 4.)

CONSTRUCTION

Secs. 1761, 1762, 1764 to 1766. Letting contracts for construction: The drainage commissioners give notice by publication of the time and place of letting contracts for construction, together with the details of the work to be done and the security

required of bidders. No bid will be accepted which exceeds the estimated cost of work to be done, nor unless it is accompanied by surety in the amount of at least 5 percent of the amount bid. The commissioners may reject all bids and readvertise the work. If on the second bidding all bids exceed the estimated cost of the work to be done, the bids are reported to the court and the court thereupon, after a proceeding similar to that for hearing on the final report, hears and decides anew the question of finally establishing the district, taking as a basis of cost the lowest responsible bid reported. The proceeding thereafter is the same as set out in section 1756. If the court decides anew that the "value of the benefits or the increased value of the land" will exceed the cost, it will direct the drainage commissioners to accept the lowest responsible bid; otherwise the petition is dismissed at the cost of petitioners, which cost is apportioned according to acreage. The successful bidder must enter into contract with the commissioners, and give bond for 25 percent of the contract price conditioned on faithful performance. *Sec. 1762:* The superintendent of construction makes monthly estimates of the work done and the commissioners draw warrants in favor of the contractor for 90 percent thereof, which warrants are paid from drainage funds. When the work is completed and accepted, the remainder of the contract price is paid from the same funds. *Sec. 1764:* Where the drainage work crosses a public highway, one-half of the cost is paid by the county and one-half by the district; and after completion, all bridges and culverts are maintained by the board of county supervisors. When a highway is benefited by the works of a district, the viewers classify the land and report the amount of benefit to such highway, calculated on an acreage basis and not to exceed thrice the rate per acre that is assessed against lands adjoining the highway. The clerk of the court having jurisdiction gives notice of the amount of the assessment to the supervisors of any county in which the highway is located, and the supervisors may file their objections in the same manner as a landowner. *Sec. 1765:* Where the works cross a railroad and agreement cannot be reached on the method or cost, the state corporation commission acts as arbiter. *Sec. 1766:* The viewers assess benefits to railroads on account of the better drainage or better outlets, but no benefit may be assessed on account of increased business.

Sec. 1770. Lateral drains—Intervening lands: The owners of lands assessed for construction have the right to use the ditches as outlets for lateral drains from their lands; and if other lands intervene and they are unable to agree with the intervening owner on the conditions on which they may enter and construct said laterals, they may petition the court in an ancillary proceeding and the procedure is as provided by the general law. The drains when constructed become a part of the system under the control of the county drainage commissioners.

WASHINGTON

(Remington's Revised Statutes of Washington,
Volume 6, secs. 4236 to 4492)

- Chapter 1—Diking Districts, Sec. 4236
- Chapter 2—Drainage Districts, Sec. 4298
- Chapter 3—Reorganization of Diking or Drainage Districts, Sec. 4347
- Chapter 4—Districts in two or more counties, Sec. 4361
- Chapter 5—Private Ditches, Sec. 4394
- Chapter 6—Drainage and Diking Improvement Systems, Sec. 4405

CHAPTER 1—DIKING DISTRICTS

Sec. 4236. Organization: Any portion of a county requiring diking may be organized into a diking district, and when so

organized the board of commissioners provided for have the powers conferred herein and hereafter. Said district is known by number and the name of the county in which it is situated, and has the right to sue and be sued in the name of its board of commissioners, has perpetual succession, and must adopt a seal. The commissioners, from the time of organization, have the power and duty to conduct the business affairs of the district. (L. 1921, p. 548. Cf. L. 1895, p. 304.)

Sec. 4237. How formed: By petition to the board of county commissioners of the county where the district is situated, signed by the owners of at least a majority of the acreage. (L. 1921, p. 548.)

Secs. 4239, 4240, and 4243. Election: After the final hearing on the petition by the board of county commissioners, they give notice of an election to determine whether the district shall be organized and to choose three commissioners to be known as "diking commissioners" for the district, who on their election become the district authorities. (L. 1895, p. 307.)

Sec. 4240: No person is entitled to vote unless he is a qualified elector of the county and owns land in the diking district.

Sec. 4243: Districts are given the right of eminent domain.

CHAPTER 2—DRAINAGE DISTRICTS

Sec. 4298. Organization: Any portion of a county requiring drainage, which contains five or more inhabitants and freeholders therein, may be organized into a drainage district. When so organized, the district must be designated as "District No. ___ of the County of ____, State of Washington," and it has the right to sue and be sued in the name of its board of commissioners, has perpetual succession, and must adopt a seal. The commissioners, from the time of organization, have the power and duty to conduct the affairs and business of the district. (L. 1895, p. 271.)

Secs. 4299 and 4301. How formed: A petition is presented to the board of county commissioners of the county in which the district is located, designating the boundaries of the district and the outlets for drainage. Such petition must be signed by the owners of at least a majority of the acreage in the proposed district. (L. 1913, p. 260.) **Sec. 4301:** After the final hearing on the petition, the county commissioners give notice of an election to determine whether the district shall be organized and for the further purpose of choosing the three "drainage commissioners," who, upon election, are the district authorities. (L. 1895, p. 274.)

Sec. 4305. Eminent domain: All drainage districts are given the right of eminent domain. (L. 1919, p. 526.)

CHAPTER 3—REORGANIZATION OF DIKING OR DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 4347. Reorganization authorized: Any drainage or diking district organized under chapter 1 or chapter 2 of this Title may be reorganized as a drainage improvement district or a diking improvement district. (L. 1917, p. 553.)

Sec. 4348. Petition: A petition is presented to the clerk of the board of county commissioners of the county where the district is situated, signed by the board of commissioners of the district.

Sec. 4349. Election: The clerk of the county commissioners gives notice of an election at which the electors of the district vote for or against reorganization as a drainage or diking improvement district. If a majority of the votes cast be in favor of reorganization, the board enters an order on their minutes, declaring the district reorganized as a drainage or diking improvement district. On a contrary vote, the board dismisses the proceedings.

Sec. 4351. Supervisors—Dissolution: Upon the entry of such order, the district becomes an "improvement district" of the same number as borne by it as a diking or drainage district; and the commissioners of such district, together with the county engineer, constitute the board of supervisors of the reorganized improvement district until the second Tuesday in December following, when an election is held as provided for annual elections in drainage improvement districts, at which two supervisors are elected. From the date of the entry of the order by the county board, the reorganized district and its board of supervisors provided for herein have all the rights and powers of a diking or drainage improvement district; and the district which is reorganized is automatically dissolved. Outstanding bonds or indebtedness of the reorganized district are not affected. (L. 1917, p. 553.)

CHAPTER 4—DISTRICTS IN TWO OR MORE COUNTIES

Sec. 4361. Organization: When portions of two or more counties require diking or drainage, such portions may be organized into a district, the board of commissioners of which have the same powers as conferred on other districts; and the district has perpetual succession, the right to sue and be sued, and must have a seal. (L. 1923, p. 444.)

Sec. 4362. Petition: A petition is presented to the board of county commissioners of each of the counties having land in the proposed district. The petition must be signed by at least 100 of the freeholders of the proposed district, or by a majority of the freeholders of the district in each of the counties in case there are less than 200 freeholders in the district.

Sec. 4363. Procedure: The chairman of each county board notifies the commissioner of public lands of the State of Washington, and he gives written notice to the county board of each county of a joint meeting, of which the land commissioner is chairman. If the joint meeting finds that the district should be established, it enters an order on its minutes creating the district. The resolution creating the district is certified by the public land commissioner to the board of commissioners of each county affected and recorded in the records of each county. (L. 1909, p. 790.)

Sec. 4364. Election of commissioners: The joint board of commissioners and the public land commissioner give notice of an election to determine whether the action of the board shall be approved and whether the district shall be organized, and also to elect three commissioners to be known as commissioners of Diking or Drainage District No. ___ of the Counties of ____, State of Washington. The commissioner of public lands canvasses the vote and if a majority of the votes cast in each of the counties be favorable, then the joint board immediately certifies to the board of county commissioners of each county interested, and to the commissioners of public lands, the result of the election, and in the certificate declares the proposed district duly organized. The three persons receiving the highest number of votes are elected commissioners of the diking or drainage district. Thereafter a general election is held every second year to elect commissioners, and the result is certified by the commissioner of public lands to the board of commissioners of the respective counties interested.

CHAPTER 5—PRIVATE DITCHES

Sec. 4394: The owners of land requiring drainage, so situated that it is necessary, in order to drain the same, to construct ditches across the lands of others, may obtain the location and establishment of such drainage as provided for in this Act. (L. 1899, p. 239.)

Secs. 4395 and 4397. Petition: The person desiring to establish the drain files in the superior court of the county in which the lands sought to be appropriated are situated, a petition giving a description of the land and other necessary information and showing the necessity for the appropriation. **Sec. 4397:** The court appoints three disinterested viewers, two of whom must be resident freeholders of the county and the other the county surveyor, to view the lands, determine the necessity and practicability of the drainage, and assess the damages.

Sec. 4401. Procedure: After the report of the viewers and service of notice on interested parties, the court holds a hearing on the report. If the court finds the ditch necessary, the route practicable, and the damages allowed just and reasonable, it will confirm the viewers' report and establish the drain. Provisions are made for appeal and for trial by jury as to the amount of damages, where demanded.

CHAPTER 6—DRAINAGE AND DIKING IMPROVEMENT SYSTEMS
ORGANIZATION—Petition

Sec. 4405. Proceedings to organize: Whenever four or more persons whose lands will be benefited desire to have improvements constructed for drainage of any contiguous body of land situated in the same county, whether wholly or partly within the limits of an incorporated city or town, proceedings may be had under this act; provided, if the land be wholly situated within an incorporated town, the municipality may exercise all of the functions of a drainage district upon declaration by ordinance of its right to do so.

Cities and towns, where necessary or beneficial for sanitary purposes and when approved by the State Board of Health, may use existing works of an established drainage district by agreement or by condemnation.

See: State, *ex rel. Keck v. City of Sunnyside*, 181 Wash. 511; 43 Pac. (2d) 621.
Perkins v. Diking Dist. #3 of Island Co., 162 Wash. 227; 298 Pac. 462.

Sec. 4407. Petition: Application for the improvement is made to the board of county commissioners of the county in which the improvement is located, signed by four or more of the owners of property that will be benefited. The petition sets forth the necessity and describes the location, route, and termini of the improvements. Bond of \$200 must accompany the petition to pay expenses, and the commissioners may require additional bond.

Sec. 4408. Report by county engineer: The clerk of the board of county commissioners delivers a copy of the petition to the county engineer who proceeds to view the line and location of the proposed improvement and the property to be affected thereby, and determines whether the improvement is necessary or will be conducive to the public welfare and whether the route described is the best for the improvement. He reports what omissions or additions should be made to the proposed improvement.

If the land to be benefited comprises 3,000 acres or more, the commissioners may, after hearing and if requested, ask the state reclamation board to make the survey and investigation of the proposed improvement to determine its feasibility and the best method of accomplishing it. The reclamation board files its findings in writing with the board of county commissioners, including all of the findings of the county engineer and having the same effect. When investigation is made by the reclamation board, the petitioners are not required to furnish bond. The proceeding thereafter is as follows:

(a) Upon receipt of the petition, the county board sends a copy to the state reclamation board and requests an estimate of the total cost of survey, investigation and report, which the

state board in its discretion makes out and files with the county board. Thereupon the commissioners give notice by publication of a hearing on the petition and the estimate of the expense and state that the expense of survey and investigation will be charged against the land described in the petition. Interested parties are required to show cause, if any, why the petition should not be granted.

(b) Upon the hearing the county board determines whether the survey and investigation should be made and whether all lands mentioned in the petition or any additional lands should bear their proportionate expense of the survey and investigation. The hearing may be adjourned not to exceed 90 days in all. No additional lands may be made to bear the proportional expense of the survey without notice having first been given to all parties interested and in no case may the total expense exceed the estimate of the reclamation board by more than 50 percent. The determination of the county board must be by resolution and is conclusive on all parties in the absence of fraud or lack of jurisdiction.

(c) If the county board determines in favor of the survey and examination, it enters into a contract with the reclamation board to do the work, which is paid for with any money in the state reclamation fund. The reclamation board files a sworn copy of its statement of expense and a hearing is had thereon before the county board, after notice to interested parties by publication. At the hearing the board examines the statement, hears evidence if offered, and approves the statement or so much thereof as is deemed correct, the approval being by resolution recorded in its minutes.

(d) The county board by resolution apportions the approved expenses among the lands affected in proportion to the acreage, each acre or fraction bearing the same amount, and assesses same as a tax against said lands, payable as a part of the general county and state taxes with the same penalties and collected in the same manner. The county treasurer credits all collections to the current expense fund of the county. The county board may not assess the expense of any investigation unless it has been made by or under the supervision of the state reclamation board. (*Kadow v. Paul*, 134 Wash. 539; 236 Pac. 90; 274 U.S. 175.)

Secs. 4410 to 4413. Engineer's report—Proceedings: If the report of the county engineer be against the petition, the county board dismisses it at the cost of the petitioners. **Sec. 4411:** If the county engineer reports favorably, the county court gives the improvement district a serial number next following that of the last organized district and directs the engineer to go upon the land and make a detailed survey, to set stakes every 100 feet, and to present profiles, plats, and estimates of cost of construction. **Sec. 4412:** The board, by order of record, directs the engineer to return a schedule and estimate of all property damaged and benefited, giving the total number of acres which will be benefited, and including details of the proposed works. The engineer reports his estimate of the gross damage and benefits in tabular form with provision for the landowners' signatures agreeing to such estimate of benefits and damages. (L. 1923, p. 112.) **Sec. 4413:** The plats and profiles must show all details of the works and the lands affected. The engineer files with the county board an itemized bill of expenses incurred. (L. 1917, p. 525.)

Secs. 4414 to 4420. Hearing: Upon the filing of the engineer's report, the county court fixes a hearing thereon with notice to interested parties by publication. The notice designates the route and termini of the improvement. The hearing

must be held at a place convenient to the lands affected. *Sec. 4415:* The board hears all pertinent evidence concerning the probable cost of the system and the benefit to accrue and may change or modify the engineer's report and estimate, or may employ another engineer to make separate findings on any or all matters. They may dismiss the proceedings if they determine that the cost is not warranted by the benefits to be derived. If they find the plan feasible and economical and that the benefits will exceed the costs, they, by resolution, establish the district and fix the plan of improvement. If lands are added to the proposed district, a new hearing similar to the original hearing is conducted in the same manner. They may appoint a board of appraisers as provided in section 4430. (L. 1923, p. 113.) *Sec. 4416:* Landowners damaged may accept the award of damages by the engineer or the board and give deed to the district upon receipt of a warrant from the county treasurer drawn upon the current expense fund of the county. Where the damages are equalled or exceeded by the benefits, the deed is delivered without consideration except the right to offset the damages against the benefits in the apportionment of the costs of the improvement. All such deeds have to be approved by the prosecuting attorney. *Sec. 4417:* If awarded damages are not accepted by the landowner, the board may institute proceedings in the superior court of the county for condemnation of the property. (L. 1913, p. 618.) *Sec. 4418:* The power of eminent domain is given to the county on behalf of the drainage district and all actions may be consolidated. (L. 1917, p. 527.) *Sec. 4419:* The jury in fixing the damages takes into consideration the benefits that will accrue and makes special findings of the gross amount of damages and the gross amount of benefits. If damages exceed benefits, judgment is entered for the difference against the county. If the benefits exceed the damages as found by the jury, judgment is entered against the owner for costs only. Upon payment of the judgment a decree of appropriation is entered in favor of the improvement district. *Sec. 4420:* Damages in excess of benefits are paid from the current expense fund of the county. (L. 1913, sec. 15.)

Sec. 4446. Districts in two or more counties: When a proposed district is located in more than one county, application is made to the board of county commissioners in each of the counties and the county engineers make preliminary reports for their respective counties. The proposed improvement is examined by the county engineers jointly. Hearings on such improvement are had by the boards of county commissioners in joint sessions and all other matters required to be done by the county commissioners are conducted either in joint session or by concurrent order of the boards. Notice is given by the auditors of both counties jointly, by publication in the official paper of each county. The county engineer of the county wherein the greatest length of drainage will exist shall have charge of the engineering work and is *ex officio* member of the different boards provided for. The schedule of apportionment is prepared in separate parts for the lands in the respective counties and the assessment roll for the proper portion of the improvement is transmitted to the treasurer of the county wherein the lands lie and he collects assessments and annual maintenance levies upon the lands lying in his county. The auditor of the county in which the greatest length of drainage shall lie acts as clerk of the joint session of the boards of county commissioners and issues the warrants of the improvement district. He furnishes to the auditors of the other counties duplicate copies of the record of proceedings of the joint sessions. Protests or other papers filed with a county auditor who is not the clerk of the joint sessions, are forthwith forwarded by him to

the auditor who acts as clerk. The treasurer of the county having the greatest length of the improvement certifies and pays the warrants and the bonds, and has charge of the funds of the district, and the treasurers of the other counties remit to him semiannually the collections in their counties on account of the joint improvement. Such a district is designated as a "joint district" with a number and the names of the counties. (L. 1923, p. 129.)

ORGANIZATION—Officers

Sec. 4424. Election: Upon determination by the county commissioners to proceed with the construction, they order an election and appoint the judges thereof and give notice by publication and posting. All electors of the state owning land in the district are entitled to vote, and each elector owning more than 10 acres is entitled to an additional vote for each 10 acres owned or major fraction thereof. This amendment does not apply to districts already constructed. (Effective April 7, 1926.) Election officers may require from electors an oath that they are qualified voters. Duly authorized agents of a corporation may vote on behalf of the corporation.

Sec. 4425. Supervisors: Two qualified electors of the county owning land in the district are elected and, with the county engineer, constitute the first board of supervisors of the district. They have charge of the construction and maintenance of the system of improvements and may employ a superintendent of construction, who may be one of the supervisors. Supervisors may also be employed on the work with the same compensation as other employees. The supervisor receiving the higher number of votes at the election holds office until one year after the first annual election; the other holds office until the first annual election. In districts containing not more than 500 acres, or upon petition signed by 50 percent of the acreage, the county engineer acts as supervisor and no board of supervisors is elected.

FINANCING—Assessments

Secs. 4421 and 4422. Construction of works: When the county commissioners have passed a resolution establishing a district, they may, at their meeting on the first Monday in October next ensuing, and at the same time in each year thereafter until completion, levy an assessment to defray the preliminary expenses. The levy is based on the estimated benefits. (L. 1925, p. 578.) Assessments for the preliminary expenses are levied and collected in the same manner as the final assessment. *Sec. 4422:* The cost of constructing the improvement is paid by proportionate assessments on the property benefited. At the hearing provided for in section 4415 the commissioners determine in what manner and within how many years the assessments shall be paid and whether bonds or warrants will be issued. If bonds are to be issued, the commissioners fix either 10 or 15 annual installments for the payment of the assessments. If warrants are to be issued, the commissioners fix not exceeding 5 annual installments for the payment of assessments. The statute fixes the annual installment of assessments on the basis of a percentage of the total indebtedness. The board may, by resolution, provide that bonds sold shall include sufficient money to pay the first 4 years' interest. If warrants are issued, no annual installment of the assessments may be less than one-tenth nor more than one-half of the entire assessment. When the assessment on any one tract is \$25 or less, it becomes due at the time of the payment of the first general taxes, and the provisions of this section do not apply.

Secs. 4430 to 4433. Itemized statement of costs: When the improvement is completed and accepted, the clerk of the

supervisors files with the board of county commissioners an itemized statement of the total cost. The items going to make up the total are recited in detail in the statute. Upon the filing of such statement of costs, the county commissioners correct it if necessary and may add thereto a reasonable sum, not less than 5 nor more than 10 percent in drainage improvement districts, to cover possible errors in the statement or the apportionment provided for. The commissioners then appoint a board of appraisers consisting of the county engineer and two other competent persons to apportion the grand total as contained in the statement of cost. The appraisers must carefully examine the system and the public and private property within the district and fairly and equitably apportion the total cost against the property in the district in proportion to the benefits accruing. *Sec. 4431*: Whenever a system of improvement will drain, protect, or otherwise improve public roads or will furnish an outlet or facilitate the construction or maintenance of a sewage system in any city or town, there shall be apportioned against the state in case of state roads, and against the county on county roads outside of incorporated cities or towns, or against any city or town that has received benefits, the proper proportion of the total amount to be apportioned. *Sec. 4432*: If the plans or the improvement as constructed will afford an outlet to prevent injury to land from seepage or saturation by irrigation water and for the carrying off of necessary waste water from irrigation, such benefits shall be considered in making the apportionment of cost. *Sec. 4433*: There is apportioned against all state, school, granted, or other lands in the district the proper amount of the total cost apportioned in proportion to the benefits accruing. (State *ex rel. Latimer v. Henry*, 28 Wash. 38, 68 Pac. 368.)

Sec. 4434. Schedule of costs to be filed: Upon the completion of the apportionment, the appraisers prepare and file with the clerk of the board of county commissioners a schedule showing the amount of cost apportioned to each piece of property in the district found to be benefited.

Sec. 4435-1. Hearing on schedule of apportionment: Upon the filing of the schedule of apportionment, the county commissioners fix the time and place for a hearing thereon, which must be within 60 days, and give notice of such hearing. With the schedule there must be a statement of the cost of the improvement apportioned to each county, city, town, and parcel of land benefited, and a copy of the notice must be kept on file at the office of the board for public inspection. Interested parties may file objection to the schedule prior to the date fixed for the hearing, and at the hearing the county commissioners sit as a board of equalization for the purpose of considering the schedule and the objections thereto that have been filed. The board may correct or modify the schedule, or set aside any part thereof and order a reapportionment as to that part. It confirms the schedule as finally approved, and levies an assessment against the properties described for the amounts as fixed by them. The county commissioners must notify the commissioner of public lands of the state if there be state land to which assessments have been apportioned, and likewise the state supervisor of highways when roads are assessed. (*Kadow v. Paul*, 134 Wash. 539, 236 Pac. 90.)

Sec. 4435-2. Apportionment of costs: After the hearing is completed, the county commissioners cause the clerk of the board to enter on the schedule all changes and reapportionments as well as all credits for damages allowed but not paid; a credit to the county for all sums paid on account of the improvement and on account of services rendered by county officers; and all credits allowed property owners constructing

crossings as provided in section 4429. When the county commissioners have finally determined that the apportionment is fair, just, and equitable, and proper credits have been entered thereon, they sign the schedule and enter an order on their journal approving the final apportionment and all proceedings leading thereto. They then levy the amount so apportioned against the property benefited and their determination and approval of such apportionment is final and conclusive.

The county commissioners at said hearing levy such assessment as they shall deem necessary to provide funds for the maintenance of the system until the first annual assessment for maintenance. (L. 1923, p. 120.)

Sec. 4435-3: When the final apportionment and assessment is made by the county commissioners, the county auditor immediately prepares an assessment roll, which includes a map showing each property assessed. Collection is made by the county treasurer. He publishes notice in the official newspaper of the county for two weeks, stating that the roll is in his hands for collection and that any assessment or any portion thereof may be paid without interest at any time before a date stated in the notice, which date is within 30 days after the first publication. Upon the expiration of the 30-day period, the treasurer certifies to the county auditor the total amount collected and the amount of assessments remaining unpaid.

Sec. 4435-4. Lien of assessments: After the expiration of the 30-day period, payment of assessments in full with interest may be made at any time; provided, that the aggregate amount of such advance payments in any year, together with the total amount of the assessments due at the beginning of the year, may not exceed the total amount of the bonds that may be called in that year. The treasurer accepts advance payments in the order tendered until this limit is reached. Assessments bear interest from the expiration of the 30-day period at 8 percent, and interest on the entire assessment then unpaid is due and payable at the time each of said installments becomes due; provided, that if the bonds or warrants were sold at a lower rate of interest than 8 percent, then the assessments bear the same rate of interest.

The assessments contained in the assessment roll are liens upon the property assessed, of equal rank with other liens assessed for local improvements and paramount to all other liens except the lien of general taxes. The drainage tax lien relates back to take effect as of the date when the county commissioners made final determination. [*State ex rel. Keck v. City of Sunnyside*, 181 Wash. 511, 43 Pac. (2d) 621.]

Sec. 4436. Appeals: The decision of the county commissioners upon any objections to the schedule of apportionment may be reviewed by the superior court of the county upon appeal. Such appeal may be taken within 10 days after the order of confirmation becomes effective. Further appeal will also lie to the Supreme Court from the judgment of the superior court as in other cases; provided, that such appeal must be taken within 15 days after the entry of judgment of the superior court.

Sec. 4439-1. "Funds": There must be set up in the county treasury of every county in which any drainage district is established appropriate "funds" as follows: (1) A construction fund, into which must be paid the proceeds of all bonds or warrants and of all assessments paid prior to the sale of bonds or warrants. When no bonds or warrants have been issued, the fund receives the proceeds of all assessments levied to pay cost of construction. All warrants, including temporary warrants, issued in payment of construction are paid out of this fund. (2) A redemption fund, for the redemption of all bonds issued or warrants sold. Into this fund must be paid all proceeds derived

from assessments levied to pay cost of construction that have not been paid prior to the sale of bonds or warrants, and all moneys remaining in the construction fund after the payment of all warrants that have been drawn against it. The redemption fund is applied to the payment of principal and interest of bonds. Any balance remaining therein is applied first to the payment of any outstanding construction warrants and next to the maintenance fund. (3) A maintenance fund, into which is paid proceeds of all assessments for maintenance and all other funds received that are not required to be paid into the construction or redemption funds.

Sec. 4439-2. Collection—Foreclosure: Installments of assessments for construction or maintenance are collected in the same manner and become delinquent at the same time as general taxes. Certificates of delinquency must be issued, and the lien of assessment is enforced by foreclosure and the sale of the property assessed as in the case of general taxes.

Annual assessments or installments for both construction and maintenance of the drainage system become due in two equal installments on May 30 and November 30, and delinquency interest thereon runs from those dates. The rate of interest after delinquency is 10 percent and the same rate applies to certificates of delinquency. Certificate of delinquency for any assessment or installment must be issued upon demand and payment of such delinquent assessment at any time after 12 months from the date of delinquency. When no certificate of delinquency has been issued, after the expiration of 4 years from the date of delinquency of assessments for construction costs, or after 2 years from date of delinquency of assessments for maintenance, certificates of delinquency are issued to the county and foreclosure thereof is forthwith.

Expenses of foreclosure proceedings by the county are paid by the district whose liens are foreclosed.

See: *Foster v. Commissioners of Cowlitz County*, 100 Wash. 502, 171 Pac. 539.

Cowlitz County v. Jurmu, 177 Wash. 492, 32 Pac. (2d) 528.

Sec. 4439-6. Supplemental assessments: If upon foreclosure of the assessment upon any property the same shall not sell for enough to pay the assessment against it, or if any assessment made shall have been eliminated by foreclosure of a tax lien or be void for any reason, the county commissioners must cause a supplemental assessment to be made on the property benefited by the improvement in the manner provided for the original assessment, for the purpose of covering the deficiency so caused. If for any reason the assessment as levied shall be found to be insufficient to meet the entire cost of construction, supplemental assessment must be made by the county commissioners upon the lands of the district in the same proportion as the original assessment, and be spread over not to exceed 3 years as the commissioners may determine.

See: *Boyd v. Cunningham*, 164 Wash. 335, 2 Pac. (2d) 647.

Kiona Irrigation District v. Benton County, 180 Wash. 197, 39 Pac. (2d) 394.

Sec. 4440. Annual maintenance assessment: Annually, before the first Monday in September, the board of supervisors of each district files with the county commissioners of the county a statement in writing of the amount required for maintenance for the ensuing year, and the county commissioners must, before the first Monday in October, levy an assessment for the amount of said estimate in the same proportion as the assessment to pay the original cost of construction. The levy is certified by the auditor to the treasurer, who extends it upon the assessment roll. Maintenance assessments on tracts of land not more than one-half acre in area are permitted to accumulate until the fifth year.

Upon petition filed by two or more assessed property owners, in a district, the county commissioners in their discretion may hold a hearing at the county seat for the purpose of reapportioning the maintenance charges in that district. Preliminary to such hearing the county commissioners appoint a board of three appraisers, of which the county engineer must be one. The appraisers proceed in the same manner as those appointed to apportion the original cost, and file their recommendations within 20 days. Notice of the report and a hearing thereon is given by publication in the official county newspaper, and at the hearing the commissioners make such change in the basis of apportionment of the levies for maintenance as may seem to be just and equitable.

FINANCING—Bonds

Sec. 4428. Temporary warrants: If at the hearing provided for in Section 4415 the county commissioners determine that bonds shall be issued to pay the cost of the improvement, or to pay warrants sold to secure funds with which to pay those costs, temporary warrants may be sold for any part or all of the costs and the warrants must be paid in cash upon the sale of bonds or exchanged at par for bonds. All such warrants are liens against the funds against which drawn, superior to any lien or claim of any surety upon any bond given to secure the payment of persons who have performed work.

Sec. 4459-1. Refunding bonds: Whenever the board of county commissioners determine it to be for the best interest of the district, refunding bonds may be issued payable over a period not exceeding 25 years, except in case the refunding loan is obtained from the United States.

The assessment for such refunding bonds shall become due in annual installments for not to exceed 25 years, in amounts adequate to retire the bonds as they fall due, and the assessments bear the same rate of interest as the bonds. Any and all assessments may be paid at any time, with interest to the next interest paying date.

CONSTRUCTION

Secs. 4427 and 4428: The board of supervisors upon qualification immediately begins construction of the improvement in accordance with the adopted plans. The supervisors, with the approval of the board of county commissioners, may modify the original plans where necessary or advisable, but the changes must not increase the estimated cost of the entire system by more than one-fifth. Additional rights-of-way required are obtained as for the original plan. The county commissioners may contract with the United States for construction of the improvement in accordance with the Reclamation Act. **Sec. 4428:** All costs of construction are paid by warrants drawn by the county auditor upon the proper fund in the hands of the county treasurer, which warrants draw interest at not to exceed 8 percent until paid or called by the county treasurer.

CONSOLIDATION

Secs. 4449 and 4450. When districts may be consolidated: When it appears to the county commissioners that consolidation of two or more districts will result in economy of maintenance, they shall by resolution declare their intention to order such consolidation and fix a time and place for hearing objections thereto. **Sec. 4450:** Notice of the hearing is given by publication and posting. At the time fixed the county commissioners hear objections to the proposed consolidation, if any, and may refuse to proceed further or may enter an order declaring any two districts consolidated and that thereafter the territory of such districts shall constitute and be known as "Consolidated

Drainage District" with number and name of county. (Thurston County v. Clausen, 118 Wash. 653, 204 Pac. 787.)

Secs. 4452 and 4453. Supervisors of consolidated districts: Until the expiration of the terms of the elected supervisors having the shortest term to serve, the two elected supervisors of each district together with the county engineer, form the board of supervisors of the consolidated district. At the annual election following the entry of the order of consolidation, one supervisor is elected in the consolidated district for two years and, with the supervisor of each district whose term has not expired and the county engineer, constitutes the board of supervisors of the consolidated district. *Sec. 4453:* Consolidated districts and their officers have all the right and power and are subject to all the laws applicable to the separate districts, and the component districts after consolidation become dissolved automatically. Such dissolution, however, in no way affects outstanding bonds or other obligations, or the assessments levied to pay them.

ABANDONMENT

Sec. 4442. Abandonment or enlargement of system: Upon a petition and bond being filed by one or more landowners either within or without the boundaries of a district, and like proceedings being had as in the case of original establishment, the county commissioners may declare any system of improvement or any part thereof abandoned or may strike from the district lands no longer benefited. The commissioners may also cause any system of improvement to be altered, reduced, or enlarged, or in any other manner be bettered or improved. The striking of any lands from a district does not affect any assessment theretofore levied against such lands.

WISCONSIN

(*Wisconsin Statutes, 1939*)

FARM DRAINAGE LAW

(*Chapter 88, secs. 88.01 to 88.41*)

ORGANIZATION

Sec. 88.04. Farm Drainage Board: Upon the filing of the first petition for drainage under the Farm Drainage Law, the county court appoints, in writing, a Farm Drainage Board, having powers prescribed in the Act: (1) The board consists of three suitable persons, resident in the county, one of whom preferably is an experienced farmer familiar with drainage and one to some extent familiar with drainage engineering. (2) At the time of the first appointment the terms of the members of the board are 1, 2, and 3 years respectively, and upon the expiration of a term the county court appoints a successor for a term of 3 years. The county court may remove for cause and may fill vacancies. (3) Each member takes an official oath of office. (4) Ownership or interest in lands to be drained does not disqualify, but the court may appoint another person to serve in the place of the interested member when the board is considering the particular drain in which that member is interested. (5) Upon qualification the board becomes a body corporate, and has charge of all drains thereafter constructed under the Farm Drainage Law. Drainage already being constructed under the town drainage statutes may be completed thereunder. (6) One member is elected president and another secretary of the board. (7) The board may borrow money in the name of the proposed "drainage" to pay expenses of organization.

ORGANIZATION—Petition

Sec. 88.05. Who may petition: Whenever lands will be improved and public welfare promoted by drainage, the owner or owners of

a majority of such lands, or a majority of the owners owning one-third in area, or a majority of the county board of the county in which the lands are situated, or a majority of the town board or boards of supervisors of towns in which the lands are situated, may file a petition in the county court asking that a "drainage" be established. The petition gives a description of the land; a statement that the same will be improved by drainage; a statement that the public health and welfare will be promoted; a map of the area with the proposed works shown thereon; a statement that the benefits will exceed the cost of construction; and a name or number for the "drainage." The petition need not be verified, and in place of the allegation that the benefits will exceed costs of construction one or more petitioners may file a written agreement to pay such cost as may exceed the benefits. The court refers the petition to the drainage board and directs a report thereon.

Sec. 88.06. Board examines land: The board with the aid of an engineer examines the land and all other land that will be benefited or damaged by the proposed work. It fixes a time and a place conveniently near the land for a hearing on the petition, and gives notice to all interested parties by personal service or by leaving a copy at their residences, and by posting. The form of the notice is set out in the statute. At the hearing the board ascertains the sufficiency of the petition and hears evidence for or against it, and reports within 30 days. Their report must cover all of the essential facts as to the validity of the petition, the necessity and utility of the "drainage," benefits, damages, costs, character of work, and any other pertinent fact. If the area recommended for drainage exceeds 200 acres, they file a report from the chief engineer of the state on the design, feasibility, and costs, with a general description of the drainage necessary to reclaim the land fully for general agricultural purposes. The report must make a comparison of the benefits in the different parts of the district on the basis of the location and design of the proposed drains and the physical features of the land. The chief engineer must also include a report of the College of Agriculture of the University of Wisconsin on soil, value, and crops. Upon the filing of the report the court fixes a hearing thereon, causing notice to be given by mail to interested parties and all mortgagees.

Sec. 88.07. Hearing on report of board: If at the hearing the court finds that the petition is properly signed, that the land described will be improved by the works, that the public welfare will be promoted, and that the benefits will exceed the costs, the court makes an order organizing the "drainage" and directs the board to proceed with the work. If the court finds that the cost will exceed the benefits, one or more petitioners may file a bond conditioned to pay the excess of cost over benefit and the court will still organize the "drainage." Otherwise the petition will be denied and the costs of the proceeding assessed against the petitioners. The court may include in the "drainage" adjacent lands requiring drainage, and not lose its jurisdiction thereby.

Sec. 88.075. Work may be stopped: When landowners representing more than a majority of the confirmed benefits in a farm "drainage" file a petition requesting that no more work be done nor expense incurred, the court orders a hearing thereon with notice by posting. If the court finds the petition properly signed and notice properly given, it issues an order that no more work be done or expense incurred. Such order does not affect existing contracts. Thereafter the county clerk certifies to the city, town, or village clerk the amount of taxes to be collected to pay the indebtedness of the "drainage." The "drainage" is liable for debts existing at the time of the order.

Where there is bonded indebtedness the secretary continues to make an annual report as provided in section 88.13. The order continues in force until like application and like notice requesting that work be resumed is heard and determined. (L. 1931, ch. 90.) (New Berlin Farm Drg. #3, 207 Wis. 338; 241 N.W. 347.)

ORGANIZATION—Powers

Sec. 88.11. Inclusion of lands: If the original works authorized and confirmed by the court do not sufficiently drain lands assessed, or if the owners of other lands desire to secure the benefits of the works installed, any owner may petition for the construction of necessary supplemental drains for the inclusion of his land within the "drainage." The petitioners and other interested parties directly affected may, in writing, waive any and all notices of hearing and may consent to the immediate filing of a report by the board, to the laying out of drains, and to the assessment of benefits and supplemental benefits, in substantial conformity with section 88.06. In the event there is no waiver or consent, the proceeding is the same as for original construction.

Sec. 88.20. Consolidation: Two or more "drainages" may be consolidated upon the petition of the interested parties, the recommendation of the board, or the initiative of the court upon such terms as may be just, if the court after hearing is of the opinion that each "drainage" will be benefited.

Sec. 88.21. Intercounty "drainages": When an area too small to be profitably drained under the Drainage District Law is in more than one county, a petition must be filed in the county containing the largest acreage and the court of that county will organize the "drainage." All orders and judgments are filed in each county, and all money is transmitted to the treasurer of the county where the county court has jurisdiction.

Sec. 88.25. Appeals: Appeal from all orders is to the circuit court of the county having jurisdiction to establish. All issues except benefits and damages are tried by the court, and the excepted issues are also tried by the court unless jury trial is demanded. Appeal from the circuit court is to the Supreme Court of the state, within 30 days.

Sec. 88.26. Public corporation: The drainage board is a public corporation subject to all the rules of law applicable to such organizations. The county court at all times has supervision over the board and may require it to report at any time on any matter connected with its duties.

Sec. 88.27. Entry on lands: Members of the board, the chief engineer, contractors, and their respective agents and employees, may go upon any lands proposed for inclusion or included, for all necessary purposes of location and construction.

FINANCING—Assessments

Secs. 88.08 and 88.09. Board to assess benefits and damages: Whenever a "drainage" is organized, the board with the assistance of an engineer (approved by the chief engineer if there is more than 200 acres) lay out the drain and assess the benefits that will accrue to each parcel of land and corporation. In assessing the benefits to farm lands the board must ascertain the character and quality of the surface soils and sub-soils, the uses to which the land will be adapted, and all elements entering into the increase in value of the land resulting from the proposed work. The board assesses the damages to all farms and corporations, estimates cost of construction, assesses cost of construction against the benefited lands and corporations in proportion to the benefit to accrue, and prepares a map showing the boundaries of the "drainage" and the location of the works. If the area is more than 200 acres, the report must be submitted

to the chief engineer for his approval or disapproval. If the damage in any case exceeds the benefits, the difference is paid from the assessments levied against all lands and corporations. The court orders a hearing on the report after notice. **Sec. 88.09:** The court hears all objections to the report, amends and corrects it to conform to the facts shown, confirms the report as amended and corrected, and directs the drainage board to enter into contract, after advertisement, for the construction of the work.

Sec. 88.10. Collection of assessments and additional assessments: All assessments and additional assessments for the cost of construction and for supplemental cost of construction, when confirmed by the court, are certified to and recorded in the office of the recorder of deeds of the county in which the lands are situated and thereafter are liens on such lands.

Assessments for construction are immediately due unless the court shall order them paid in annual installments not exceeding 15 in number. Installments bear interest at 6 percent and are payable September 1 each year. In case the original assessments for construction or supplemental construction are not sufficient to complete the works, the court may direct the levy of an additional assessment for construction apportioned on the benefits previously confirmed. The total assessment for construction, including supplemental assessments, may not exceed the benefits assessed against the lands and the corporations unless an interested party agrees to pay the excess and furnishes security therefor.

Secs. 88.13 and 88.14. Assessments certified: The secretary of the board keeps a separate record of all assessments in each "drainage," and before the first of December in each year certifies to the clerk of the town, city, or village the amount due from each tract of land and each corporation located or assessed in such municipality. **Sec. 88.14:** Each clerk must insert in the tax roll each year the amounts of unpaid assessments and interest due that year against the respective lands and corporations. Assessments are collected by the treasurer of each municipality and returned by him to the county treasurer where they are kept separate from general taxes. When other taxes and drainage assessments against the same land are sold at the annual tax sale, they shall be sold together to the same bidder. Tax deeds may issue after 3 years. No drainage assessment deed shall cut off any unpaid or subsequent drainage assessment or tax, nor shall any tax deed cut off any drainage assessment. The provisions of section 75.20 apply also to drainage assessment certificates. Failure to collect unpaid assessments in any one year may be corrected and the assessments collected in any other year. (L. 1939, ch. 329.)

Sec. 88.16. Treasurer: The county treasurer is treasurer of the district, keeps separate accounts for each "drainage," and pays out funds only upon order of the court or proper warrants of the drainage board.

Sec. 88.19. Annual report and assessment: The drainage board makes an annual report of the estimated amount needed for all purposes during the ensuing year, with an assessment proportioned upon the confirmed benefits against all lands and corporations. A hearing is had thereon, the court amends and confirms the report, and thereupon the assessments are levied. (L. 1937, ch. 175.)

FINANCING—Bonds

Sec. 88.12. May borrow money: Subject to the approval of the court, the board may borrow money at not exceeding 6 percent and issue notes or bonds of the "drainage" therefor, but such obligations must become due and payable not later than one year beyond the time fixed for the payment of assessments on which

they are based. These obligations are a lien on the assessments for cost of construction, repair, and supplemental work, as well as all other assessments theretofore confirmed by the court. Subject to the court's approval, the drainage board may borrow money to pay any obligation of the "drainage" and to refund existing notes and bonds. (L. 1933, ch. 266.)

DRAINAGE DISTRICT LAW

(Chapter 89, secs. 89.01 to 89.80)

ORGANIZATION—Petition

Sec. 89.19. Petition for organization: Whenever a majority of the owners representing one-third in area of the land of a proposed district, or whenever the owners of more than one-half of the land, desire to organize a drainage district, provided that no owner be counted for more than 320 acres of land, they may file in the circuit court of any county in which any part of the lands are situated a petition which must recite the name of the district, the necessity for the proposed work, describing it, a general description of the works and of the lands intended to be included in the district, a statement that the public health and welfare will be promoted by the work, and a statement that the benefits will exceed the damages and costs. The petition must state also the names and addresses of the owners and mortgagees of all lands in the district so far as known. The court will permit the petition to be amended to conform to the facts. The territory in a district need not be all in one body, provided that each part will be benefited to a greater extent than the damages and costs to that part, and that it is more economical to construct and maintain the works as a single district.

Sec. 89.20. Hearing on petition: On the filing of the petition, the court fixes a time and place for a hearing thereon, giving 20 days' notice by posting, publication, and personal service. A copy of the petition is mailed to each nonresident owner. Such posting, publication, personal service, and mailing of notice gives the court jurisdiction of the subject matter. It is not necessary to serve notice on the petitioners themselves.

Sec. 89.22. Remonstrances: Any interested party may appear and contest the sufficiency of the petition or of the notice or the jurisdiction of the court. The affidavit of any petitioner that the petition is signed by a sufficient number of owners is *prima facie* evidence of that fact. All deeds made for the purpose of establishing or defeating the petition are void unless made in good faith and for valuable consideration. If the court finds that the petition is not properly signed, it will dismiss the proceedings at the cost of the petitioners. If the petition is properly signed, the court makes a finding of fact to that effect and orders all necessary amendments. The court then appoints three competent and suitable persons as commissioners of the district.

ORGANIZATION—Officers

Sec. 89.23. Commissioners: Ownership of land in the district does not disqualify a person as commissioner. Commissioners must reside within 50 miles of the district and in the State of Wisconsin. Commissioners' terms are 5 years, and vacancies may be filled by the court for uncompleted portions of terms. The removal of a commissioner from the state or from within 50 miles of the district vacates his office. The commissioners keep separate accounts for bonds and interest payments and for general purposes; and may not draw on the bond and interest account except to pay principal and interest of bonds or notes issued. They keep a complete record of all assessed land and the payment of assessments thereon.

Sec. 89.26. Organization of board—Chief engineer: The commissioners organize by electing from their number a president and secretary-treasurer. As soon as practicable they employ a district engineer, to be approved by the chief engineer of the State. The engineer, under the direction of the chief engineer, makes a preliminary report to the commissioners, and they in turn report to the court (1) whether the proposed work is necessary or will be of utility and will promote the public health and welfare; (2) whether the total benefits will exceed the costs of construction and damages, both within and without the district; (3) whether it will be necessary to do any work in navigable waters, and whether such work will interfere with the general navigability thereof or materially impair any public rights in the use of said water; (4) the boundaries of the district according to government subdivisions as far as possible, but the boundaries may not be changed so as to deprive the court of jurisdiction. The commissioners file a report of the chief engineer on the feasibility of the project, with a preliminary plan of drainage and an estimate of the probable cost of the work. The report of the chief engineer must also include a joint report of the College of Agriculture of the University of Wisconsin and of the Department of Agriculture and Markets on the quality of the soil and sub-soil, with a soil map of the district, stating the present value of the land and the kind of crops that may be raised thereon, and containing a recommendation for or against the organization of the district. Such report, and the report of the commissioners, are *prima facie* evidence of the fact therein stated. If the recommendation of either state department is against the formation of the district, the petition will be dismissed. (L. 1935, ch. 550.)

ORGANIZATION—Powers

Sec. 89.24. Commissioners' powers: The commissioners may go on any land in or adjoining their districts to make surveys and lay out the works and to construct, repair, and maintain them. Subject to the approval of the court, they may condemn land within and without the district needed for necessary works and for maintenance. They may bring all necessary actions for the protection and preservation of the works, and may appoint not exceeding 3 fire wardens.

Sec. 89.27. Preliminary report—Public Service Commission: Upon the filing of the preliminary report, the board fixes the time for a hearing thereon and gives notice by publication, posting, and personal service. The report describes the lands that are included but not mentioned in the petition, and those mentioned in the petition but excluded. Where lands are sought to be included, the same notice is given their owners as that given for the original hearing on the petition. Any interested party may remonstrate against the report or any part thereof. If the court finds that it has not jurisdiction, or that the benefits will not exceed the costs and damages, or that the work will not promote the public welfare, or that it is not feasible, or if the cost of satisfactory drainage is found to be more than 75 percent of the fair market value of good tillable lands in the township, then the petition is dismissed. If the court finds the contrary upon all of those points, it makes an order in writing confirming the report as filed or as amended, and directs the commissioners to proceed with the work. If upon confirmation of the report it appears that it will not be necessary to enter on any navigable water or to remove any dam or obstruction, the district becomes thereby fully organized as a body corporate. If it appears to the contrary as to navigable waters, the court directs the commissioners to file with the Public Service Commission of Wisconsin a certified copy of the proceedings together with an application setting forth the

public utility feature of the proposed works. The Public Service Commission fixes a hearing on the application of the commissioners, gives notice in the usual manner, and hears all interested persons. The Commission may make an independent investigation. If the Commission find that a public utility and benefit will be served by the proposed works and that no navigability nor public right will be impaired thereby, it makes a finding to that effect, and establishes the minimum level at which the affected waters shall be maintained, and transmits its finding to the clerk of the court having jurisdiction. Any interested person aggrieved by the finding has the right to bring action for review thereof under section 196.41. The Public Service Commission having found that public health and welfare will be promoted, and that no public right nor navigability will be impaired, and that the works are necessary for the proper operation of the proposed drainage, they grant authority to the drainage commissioners to do all acts necessary to obtain rights-of-way and construct the works of the district. Property may be acquired by the district by condemnation in the same manner as for railroad rights-of-way. Upon the filing of the Public Service Commission's confirmation of the report with the court having jurisdiction, the court will confirm the preliminary report and the district thereby becomes fully organized as a body corporate; otherwise, the proceeding is dismissed. (L. 1931, ch. 79.) (*Delta Fish & Fur Farms, v. P. 203, Wis. 519; 234 N.W. 881.*)

Secs. 89.28 to 89.31, and 89.33. Commissioners' duties: Immediately after the confirmation of the preliminary report, the commissioners proceed to make all necessary surveys and lay out the work, award damages for lands to be taken or injured, and assess the lands in proportion to the benefits that will be received. They report to the court in detail as to what lands and corporations will be damaged and the amounts of the damages, and what lands and corporations will be benefited and the amounts of the benefits. They report an estimate of the annual maintenance cost, and furnish maps, profiles, and specifications for the work. The commissioners are not confined to the plans as made in the petition, but make and report the most feasible plan in the interests of public welfare and benefit to the lands to be drained. The commissioners may extend or contract the boundaries of the district to include other lands that will be benefited or to exclude lands not benefited. Such changes may not, however, deprive the court of jurisdiction. The report must be presented to the State Chief Engineer for approval, and may not be filed until it amended to meet his approval. Hearings on the report may be held upon the application of any interested party. *Sec. 89.29:* Spoil banks of ditches may be converted into roads where feasible, and after public use for two years such become public highways to be maintained by the township. *Sec. 89.30:* County lands may be assessed the same as other lands. *Sec. 89.31:* Ditches may cross state lands upon application of the drainage board. *Sec. 89.33:* Any owner, mortgagee, or corporation assessed may remonstrate against the report, and the court after hearing all the evidence, if such appear equitable and just, will amend or modify the report.

FINANCING—Assessments

Secs. 89.34 and 89.35. Confirmation of assessments and damages: When all remonstrances relating to the validity of the proceedings or the general plan of work have been determined, the court will confirm the assessments and the damages awarded on all lands and corporations as to which no remonstrance remains undetermined, and will direct and empower the commissioners to proceed with the work. The order of confirmation may not be entered unless the court finds that the cost of

construction will not exceed the benefits assessed. *Sec. 89.35:* At the time of confirmation of the report, or at any time before bonds or notes that are liens on the assessments have been issued, the court may order the assessments for construction against lands and corporations, or either, to be paid in not more than 15 annual installments, and assessments for repairs in not more than 3 annual installments, in such amounts and at such times as will be convenient for completion of the works or for payment of the principal and interest of bonds or notes to be issued. The court fixes the date when the first installment for construction becomes due, which must be September 1 not more than 5 years after the date of the order. All installments bear 6 percent interest from the date of the order of confirmation.

Unless otherwise ordered, all assessments are payable at once. Assessments for construction, additional assessments, and assessments for repairs and interest are a first lien on the lands assessed from the time of recording the order of confirmation in the office of the recorder of deeds in the county in which the lands are situated. This lien is paramount to all other liens, whether they have accrued prior to the filing of the petition or not, except only the lien of general taxes. Any party assessed may pay his assessment in cash at any time before the commissioners have contracted to borrow money on bonds or notes based upon such assessments.

In July of each year the commissioners file with the clerk of the court an itemized report showing all receipts and disbursements during the preceding year and an estimate of the needs for the succeeding year. The statement includes bonds issued and paid, work done, repairs to be made and the cost of the same, the funds that will be necessary for the succeeding year, and the amount of assessments against lands and corporations necessary to cover the same. Objections may be filed and hearing held on this report of the commissioners before it is confirmed by the court with such amendments as appear desirable. The state engineer may in his discretion order an approved engineer to inspect any work under construction. If the commissioners make any material change in any plan without the approval of the state chief engineer, they become liable on their bonds.

See: *In re Wood Co. D.D., 201 Wis. 368; 230 N.W. 57.*
Wileman v. L., 209 Wis. 594; 245 N.W. 838.

Sec. 89.36. Unpaid assessments: If assessments are not paid when due, the commissioners on or before December 1 certify them to the clerk of the town, city, or village in which the lands are situated, and the clerk enters the same on the tax rolls of that year against the lands assessed and they are collected in the same way as general taxes, except that personal property and all lands other than those actually assessed are not liable to seizure and sale.

Sec. 89.37. Delinquent taxes: Assessments not paid to the commissioners or to the town, city, or village treasurer are returned to the county treasurer at the same time as delinquent taxes. He issues a separate certificate of sale for drainage taxes. When lands are offered for sale and are not sold, the county treasurer may bid them in for the county. But the county is not liable for future drainage assessments thereon. In case lands so bid in by the county are not redeemed within the statutory period, the circuit court upon application of the county, the commissioners, or any creditor or bondholder of the district will direct the treasurer to sell the lands at public auction. From the amount received the county treasurer first deducts the costs and any unpaid taxes due the county, and pays the balance out to such creditors or bondholders as the court may direct.

Lands so sold are released from all liens of assessments made prior to sale. Tax deeds will issue in 3 years for land so sold. "No tax deed shall cut off any drainage assessment nor shall any drainage assessment deed cut off any tax." (L. 1939, ch. 329.)

See: *Bankers Farm M. Co. v. Christofferson*, 221 Wis. 148; 266 N.W. 220.

Lewiston D.D. v. Diehl, 227 Wis. 372; 279 N.W. 45.

Secs. 89.38 and 89.42. Enlargements: Upon petition of the owners of one-tenth of the land seeking to repair and enlarge existing drains or to lay out and construct any new drains, or when the commissioners shall be of the opinion that additional and supplemental drains are necessary, the commissioners cause plans and specifications for the enlargements to be prepared and proceed in substantially the same manner as for original construction. They estimate the cost of the new construction, and apportion the supplemental benefits and assess them as provided in section 89.28. **Sec. 89.42:** Specific and detailed instructions for carrying drains across railroad rights-of-way are set out in the statute.

Sec. 89.44. Additional assessments: If the first assessment, either for original or supplemental work, proves insufficient to do the work of construction, or if additional sums are necessary to pay principal and interest on bonds, additional assessments may be made upon order of the court, proportioned on the sum of all benefits which have been confirmed by the court. They may be made without notice, and are payable in installments and treated and collected in the same manner as original assessments. The commissioners have the same power to borrow money based on such additional assessments as in the case of original assessments.

Sec. 89.61. Assessment of another district: One district may assess another for special benefits received by it, and have the assessment confirmed by the court or recover it in an action at law. The clerk certifies the assessment to the commissioners of the district assessed and they must levy a sufficient tax to pay it. The court may order the payment to be made in installments.

FINANCING—Bonds

Sec. 89.47. Borrowing money—Refunding: The court may authorize the commissioners to borrow money for preliminary expenses, before the confirmation of the report levying assessments, and issue notes of the district therefor to run not more than two years at 6 per cent interest. Upon order of the court the commissioners may borrow money not exceeding the assessments made and unpaid at the time of borrowing, for construction or repair or for payment of any lawfully incurred indebtedness, and may secure the borrowed money by notes or bonds of the district running not longer than one year after the last installment of such assessments is due. The commissioners advertise for proposals to furnish money at favorable rates of interest or to purchase bonds or notes at the most favorable premium. If unable to sell the bonds at par or above, they may, with the approval of the court, sell them at private sale at the best price obtainable.

The court, upon petition of the commissioners, may authorize them to refund lawful indebtedness of the district by taking up and cancelling all notes and bonds and issuing new bonds and notes therefor payable in such longer time as the court may deem proper, not to exceed in the aggregate the amount of all notes and bonds then outstanding and accrued interest thereon. Refunding bonds bear 6 percent interest.

When the indebtedness of the district has been refunded, or is about to be, the court may extend the time of payment of

assessments for construction to September 1 next before a like portion of refunding bonds that are liens thereon become due. Assessments so extended, with interest and charges, remain liens on the land originally assessed. No note or bonds or other evidences of indebtedness (except refunding bonds approved by the court) running for more than one year is valid unless approved by the commissioner of banking, the commissioner of agriculture, the state chief engineer, and the attorney general, and unless it bears a statement showing that approval.

CONSOLIDATION

Sec. 89.60. Consolidation of districts: Whenever the owners of at least 10 percent of the lands in each of two or more districts under the jurisdiction of the courts of the same circuit petition that the districts be consolidated, any court having jurisdiction of one or more such districts may consolidate two or more such districts and give a name to the consolidated district and appoint commissioners therefor.

When the districts are under jurisdiction of courts of different circuits, the petition is to the court having the largest area in its jurisdiction. Assessments in the several districts remain in force and the lien thereof is not affected by the consolidation. After the consolidation, the benefits may be reassessed to render them just and equitable as a basis for future assessments, but such reassessments may not in any manner affect any bonds, notes, or other obligations of either of the districts consolidated.

DISSOLUTION

Sec. 89.665. Dissolution of districts: The owners of more than one-half of the lands in a drainage district that have been assessed for benefits may file with the circuit court having jurisdiction a petition signed by them, asking for disorganization of the district. The court holds a hearing on the petition after 20 days notice by posting and publication. No district may be disorganized until its debts are all paid or the money to pay them has been deposited with the treasurer; or the lands in the district have been assessed to the full amount of the confirmed assessed benefits and such assessments fully paid; or after assessments have been levied to the full amount of the confirmed assessed benefits, and sale of all delinquent lands has been made pursuant to section 89.37.

The court, being satisfied that all debts are paid and that dissolution will be a public benefit, enters an order to that effect. Any funds remaining in the hands of the treasurer after dissolution are distributed *pro rata* to the landowners in the proportion of benefits assessed.

WYOMING

(*Wyoming Revised Statutes, 1931; Supplement, 1940;*
Articles 8-9, secs. 122-801 to 122-918)

DRAINAGE DISTRICTS

ORGANIZATION—Petition

Sec. 122-801. Petition for organization: Whenever a majority of the adult landowners within a district who represent one-third in area of the lands within such district, or whenever the adult owners of more than one-half of the lands, desire to construct drainage works across the lands of others for the promotion of the public health and welfare and for drainage of said lands, or to maintain drainage works theretofore constructed, such owners may file in the district court of any county in which the lands or a part of them are situated, a petition setting forth the name of the district, the necessity for drainage, a general description of the route and termini of

the works, a general description of the lands to be included, and the names of the owners of all lands where known. If the petition is for maintenance of works already constructed, it gives a general description of those works. The petition prays for the organization of a drainage district and the appointment of commissioners to execute the work. State lands may be included in the same manner as is provided for the inclusion of additional lands in drainage districts, and notice is to be served on the board having control of the state lands.

See: *Delfelder Dr. Dist. v. Givens*, 45 Wyo. 123; 16 Pac. (2d) 57.

Dickey v. Bullock, 28 Wyo. 265; 202 Pac. 1104.

Secs. 122-802 and 122-803. Amended petition: No petition having the required signers shall be declared void, but the court may at any time permit a petition to be amended to conform to the facts if the facts justify the organization of a district. Similar petitions for the organization of a district may be circulated, and when filed will be regarded as one petition having as many signers as there are separate adult signers on the several petitions who own land within the proposed district. All petitions received prior to the hearing will be considered by the court the same as if filed with the first petition. *Sec. 122-803:* The territory need not be contiguous, provided it is so situated that the public health and welfare will be promoted by the drainage of each part and the benefit in each part will exceed the cost in that part, and provided that the court is satisfied that the work can be done more cheaply in a single district.

Secs. 122-804 to 122-807. Hearing on organization: The court fixes a time and place for a hearing on the petition and the clerk gives 20 days' notice by personal service upon all landowners in all counties or by leaving a copy at the last place of abode of such landowners, by registered mail to any mortgages or judgment lienholders, and by publication in each county affected. The notice gives a general resume of the allegations of the petition. *Sec. 122-805:* Where there are nonresident landowners, the petition is accompanied by affidavits giving names and addresses where known or by a statement that after diligent search their names and addresses cannot be ascertained. The clerk mails a copy of the notice to each nonresident known. *Sec. 122-806:* The certificate of the clerk or the affidavit of any other person is sufficient evidence of the posting, serving, mailing, and publication of the notice. *Sec. 122-807:* Personal service gives the court complete jurisdiction without posting, publication, or mailing.

Secs. 122-811, 122-812, 122-814, and 122-815. Contests: At the hearing, interested parties who would be affected may protest the sufficiency of the petition or the notice, the constitutionality of the law, or the jurisdiction of the court. Contestants may offer competent evidence, and all notices of contests must be in writing and specify the grounds thereof. *Sec. 122-812:* The court hears and determines the contests as to the sufficiency of the petition. The affidavit of three or more of the signers to the effect that they are acquainted with the locality, have examined it, and that the petition is signed by a sufficient number of adult owners may be taken by the court as *prima facie* evidence of the facts stated. The affidavit of any landowner who is before the court, as to his age and ownership, is sufficient evidence. *Sec. 122-814:* Deeds made in order to defeat or establish the prayers of the petition, unless in good faith for valuable consideration, are void. *Sec. 122-815:* If the court find the petition not properly signed it will be dismissed at the cost of the petitioners and judgment entered against them for such costs.

ORGANIZATION—Officers

Secs. 122-816, 122-817, and 122-824. Commissioners: If it appear that the petition is properly signed, the court will so find and will appoint three suitable persons as commissioners. If the district is intercounty, no more than two commissioners may reside in any one of said counties. Ownership of lands does not disqualify a person from being a commissioner. After the appointment of the first board of commissioners, if a majority of the landowners who own one-third of the land shall petition the court asking that the commissioners be elected by vote of the assessed landowners, the court will so order. At the election each landowner and corporation assessed is entitled to cast one vote for each acre of land or fraction thereof owned and assessed. Upon like petition the order may be revoked and the commissioners be appointed by the court. *Sec. 122-817:* The commissioners give bond approved by the court. A majority constitutes a quorum and is sufficient in any matter within their jurisdiction. *Sec. 122-824:* The commissioners are at all times under the control and direction of the court, and failure to obey its directions is punishable as contempt.

Secs. 122-826 and 122-827. Preliminary report: The commissioners organize by electing one of their number secretary. As soon as may be, they personally examine the lands in the district and report to the court as to whether the proposed work is necessary or would be a public utility; whether it would promote public welfare; and whether the total benefit would exceed the costs of the work together with the damages resulting therefrom, including all benefits and damages within and without the district. They also fix the boundaries of the district, which may not be changed so as to deprive the court of jurisdiction. *Sec. 122-827:* If the commissioners discover a more suitable plan for carrying out the purposes of the petition, they so report to the court.

Secs. 122-828 to 122-833. Hearing on commissioners' report: Not less than 30 days after the filing of the commissioners' report the court fixes a time and place for a hearing thereon, the notice of which is by publication and gives a brief statement of the substance of the report. Any additional land not mentioned in the petition must be described, as well as any land excluded. *Sec. 122-830:* Any interested parties may remonstrate against the report or any material part thereof, in writing verified under oath and filed at least five days before the hearing. *Sec. 122-831:* Owners of added lands receive the same notice as given for the hearing on the petition. *Sec. 122-832:* All issues on the hearing are tried by the court without a jury. If the court determine in favor of the remonstrance, or if the report be that the work will not promote the public welfare or that the benefit will not exceed the cost and damages, the petition must be dismissed at the cost of the petitioners and judgment will be entered against them. *Sec. 122-833:* If the contrary is found by the court on all points, the court will file its findings in writing and issue an order confirming the report, as amended to conform to the findings, and will direct the commissioners to proceed with the work.

Sec. 122-835. Corporation created: Upon the entering of the order confirming the commissioners' report, the district is declared to be organized as a drainage district under the name given in the petition or by the court, with the boundaries stated, and is a body corporate and has perpetual succession. The commissioners constitute the corporate authority of the district.

ORGANIZATION—Powers

Secs. 122-838 to 122-846, 122-849, and 122-850. Surveys: After the confirmation of the preliminary report the commissioners

make surveys, lay out the proposed work, make a map with plans, profiles, and specifications, and report the same in writing to the court. *Sec. 122-839*: They report whether the route and termini stated in the petition are feasible, and if not, what route and termini are proper and feasible. *Sec. 122-840*: If they find that change of boundaries is necessary, they report the new boundaries and the owners of the land affected thereby, but no such change may be made that will deprive the court of jurisdiction. If the owners of lands adjacent to the district petition to have their lands included, the petition is considered in the same way as the original petition. *Sec. 122-841*: The commissioners report what lands within the district will be damaged, and award to each tract or interest the amount of the damage. *Sec. 122-842*: The commissioners state what lands within the district assessed by them will be benefited, and assess against each tract or interest the amount of benefits that will accrue. The benefits so assessed are referred to as the "assessment of benefits." *Sec. 122-843*: The commissioners determine and report, as nearly as they can estimate the total amount that the proposed work will cost, including all incidental expenses, organization expenses, cost of proceedings, probable damages to land both within and without the district, attorney's fees, and such sum as they may deem necessary to cover defaults and delinquencies in the payment of assessments. This report will be known as the "cost of construction." *Sec. 122-844*: If the costs of any particular part of the work should be assessed against any particular tract or corporation, the commissioners so specify and fix and determine the sum that should be assessed. *Sec. 122-845*: If any corporation will derive special benefit from the works, the commissioners so report and assess the special benefits. The word "corporation" means railroad companies, private corporations, towns, cities, villages, and drainage districts. *Sec. 122-846*: That part of the "cost of construction" not assessed as above, is apportioned and assessed by the commissioners against the several benefited tracts, lots, and easements in the district in proportion to the benefits to each. The assessments that together make up the cost of construction are referred to as "assessments for construction." The commissioners also report the probable cost of keeping the proposed works in repair after completion. *Sec. 122-849*: The commissioners are not confined to the route, termini, extent, or size of the works as stated in the petition, but they design, lay out, and plan as they may deem best to promote the public welfare and drain or protect the lands with the least damages and the greatest benefit to all. Any plan presented may, upon application of any interested party and hearing thereon, be amended by the written order of the court. *Sec. 122-850*: If the commissioners find that the proposed district described in the petition will not embrace all lands that will be benefited, or will include lands not benefited and not necessary to be included, they extend or contract the boundaries of the district accordingly, and the boundaries reported by them may, on the application of interested parties and hearing, be altered by the court in such manner as it may judge to be best, provided there shall be no change in boundaries which will render the petition dismissible.

Sec. 122-851-58. Hearing on commissioners' report: Upon the filing of the commissioners' report the court orders a hearing thereon after due notice by publication and personal service upon all parties whose lands are assessed or recommended to be included in the district. Where the district is intercounty, the notice in the county where the court has jurisdiction describes all the lands, assessment, and damages awarded but the notice in the other counties gives only that information for

the particular count. If there be no remonstrance, or if the finding be in favor of the validity of the proceeding after the report shall have been modified to conform to the findings, the court will confirm the report. The order of confirmation is final and conclusive, and the proposed work is thereby established and organized. Appeal to the Supreme Court may be taken within 30 days. The order of confirmation may be modified at a subsequent term of court on petition of the commissioners after such notice as the court may require. The court may permit a supplementary or amended report to be filed as to any matter which might be included in the original report, after reasonable notice to all interested parties, and hearing.

Secs. 122-859 and 122-861. Judgment against petitioners: When the court dismisses the petition in any cause it enters judgment against the petitioners for the cost of the proceeding. The commissioners file with the clerk an itemized statement of the costs before judgment is issued. *Sec. 122-861*: All petitioners contribute to the payment of the costs in proportion to the number of acres of land they have within the boundaries of the district at the time of the filing of the petition.

Secs. 122-868 to 122-870. Entry on lands: The commissioners and their agents have the right of entry on lands adjacent to the works of the district for inspection and repair and shall not be liable for trespass. *Sec. 122-869*: The commissioners have the right to cross railroads and their yards, and the railroad company must open its right-of-way or yards and permit the works to cross them as soon as the works are constructed to such right-of-way or yard. *Sec. 122-870*: The district is liable to the railroad company for reasonable cost of bridges and culverts made necessary by the works, but not more than an average cost of similar structures within 100 miles of the district limits.

Secs. 122-878 to 122-882. Reconstruction--Enlargement: If after completion of the district works it becomes necessary to reconstruct or enlarge the same, the commissioners may file a petition with the court substantially similar to the original petition, praying that they be authorized to proceed with such work. *Sec. 122-879*: If the commissioners fail to file a petition, it may be filed with like effect by 50 percent of the landowners or by owners representing not less than 50 percent in area of the land. *Sec. 122-880*: The procedure is the same as in the case of filing the preliminary report. *Sec. 122-881*: If the petition is granted, like proceedings are had in all respects the same as for the confirmation of the preliminary report, except that the boundary and organization of the district may not be affected by the proceedings. The cost is paid by the district if the petition is signed by the commissioners. All subsequent proceedings are the same as for original construction. *Sec. 122-882*: In making assessments of benefits the commissioners must regard the work as an integral part of an entire system, and take into consideration all assessments of benefits previously made in order that no part of the district shall bear an unjust proportion of the total cost of the entire system.

Sec. 122-883. Eminent domain: Any district requiring a way of necessity outside of its boundaries for authorized works may exercise the right of eminent domain in the manner prescribed for condemnation of rights-of-way for railroads.

Secs. 122-907 to 122-909. Contract with the United States: Drainage districts are given power to enter into contracts with the United States to construct drainage works, after the contract has been first submitted to the qualified electors of the district at an election held for that purpose and a majority of the electors present and voting have voted in favor of such

contract. *Sec. 122-908:* The commissioners may secure the indebtedness incurred by the contract by issuing bonds of the district in such form, terms, and denominations as may be fixed by the Secretary of the Interior. *Sec. 122-909:* When a majority of the lands in a district are unentered public lands, a majority of the commissioners of the district, who shall be residents of the state, may be appointed by the Secretary of the Interior. Such hold office until the unentered lands in the district become a minority. When the Secretary of the Interior appoints a majority of the commissioners, the remainder are elected at large from the whole district.

Sec. 122-911-18. Division of district: When a majority of the adult owners of land within any portion of an organized district, who represent more than one-half in area of the land within that portion which it is proposed to cut off and divide from the drainage district as organized, desire to effect such division, they may file a petition in the county court having jurisdiction of the district. The general nature of the division is substantially the same as proceedings for original organization.

Sec. 122-1001-13. Cooperation of districts: Two or more incorporated drainage districts desiring to cooperate in the operation and maintenance of their respective systems may do so under this article (article X) which provides for an election on the subject; appointment of district managers; definition of their powers and duties; apportionment of expenses; and withdrawal after another election.

FINANCING—Assessments

Sec. 122-862. Installments: At the time of the confirmation of the assessments, the court may order them paid in installments in such amounts and at such times as will be convenient in meeting the obligations of the district including bonds, interest, and notes that may be issued. The installments become delinquent on the same dates as state and county taxes, and bear interest from the date of any notes or bonds issued by the district for the payment of which said assessments are pledged, at a rate fixed by the court, not exceeding 7 percent.

Sec. 122-863. Lien of assessments: Unless otherwise provided by the order of confirmation, assessments are payable at once and from the time of the entry of said order are a lien upon the lands assessed until paid. Any owner or corporation may within 30 days pay the amount of the assessments against his land or any tract thereof. Such payment relieves the lands from the lien and the corporation from the liability on said assessment. Warrants are drawn by the state auditor to pay for assessments against state lands upon presentation of an order of the district court having jurisdiction properly certified.

Sec. 122-864. Assessments for repairs: Assessments to meet expenses of any current year are due and delinquent at such time or times each year as may be fixed by law for state and county taxes to become due and delinquent. The commissioners file with the clerk of the court having jurisdiction, before the first Tuesday in June, an itemized estimate of the money to be raised by assessments for new construction, maintenance, and current expenses. The commissioners may add a sum in addition sufficient in their judgment to provide for possible delinquencies. The court fixes a hearing of any objections thereto, after notice, and determines the amount to be raised by assessment for the current year and causes the adjudication to be entered of record and filed with the commissioners. The commissioners add such amount as may be necessary to meet principal and interest on lawful indebtedness of the district maturing during the current year, with an additional sum for possible delinquencies.

When thus completed, it is known as the budget of the district and verified under oath by one of the commissioners.

Sec. 122-865. Assessment roll: Before the first Monday in August the commissioners must prepare an assessment roll containing the names of the owners and a description of the property within the district and the aggregate assessment of benefits confirmed against it as well as the names of the corporations assessed and the aggregate assessment against each corporation. The assessment roll shows also the amount assessed against each piece of property in the district for current expenses and to meet the principal and interest of indebtedness for the current year. All assessments are apportioned on the aggregate assessment of benefits last confirmed by the court. The drainage commissioners deliver the assessment roll to the county commissioners of the county having jurisdiction and they, at the time of making the county tax levy, must levy against each piece of property in the drainage district the respective amounts assessed in the assessment roll. The county commissioners deliver the assessment roll to the county assessor in each county interested, and the assessor extends upon the tax roll of the county the respective amounts assessed against each piece of property in the assessment roll. (*State v. Cole*, 43 Wyo. 209; 209 Pac. 1040.)

Sec. 122-866. State revenue laws apply: The state revenue laws for the collection of taxes on real estate apply to drainage assessments. The county treasurer, at the time of advertising real property for sale for state and county taxes, includes in such advertisement the amount of drainage assessments against each lot and tract or easement. The treasurer sells the property separately for delinquent drainage taxes and issues separate certificates of sale therefor. The treasurer offers the entire tract assessed and the first bid sufficient to pay the assessment, interest, penalties, and cost must be accepted. If there be no bid, the treasurer issues tax sale certificate to the drainage district. The period of redemption is 18 months after the date of the certificate. The district has all of the rights of an individual as to owning and disposing of land so acquired and not redeemed. They may not, however, sell property at a loss. [*Big Bend Dr. Dist. v. State*, 50 Wyo. 242; 60 Pac. (2d) 815.]

Secs. 122-872 to 122-874. Additional assessments: If the first assessment for construction should prove insufficient, or if an additional sum is needed in any year to pay principal and interest on lawful indebtedness, additional assessments on land and corporations benefited, proportioned on the last assessment of benefits approved by the court, are made by the commissioners under order of court. Notice is by publication in each county affected. The additional assessments may be made payable in installments, and are collected in the same manner as original assessments for construction. *Sec. 122-873:* Omissions of assessments of either benefits or damages are not jurisdictional, and upon discovery of an omission the commissioners correct it by agreement or by assessments the same as assessments for construction. *Sec. 122-874:* Parties objecting to assessments levied may, at any time after ten days' notice or order to show cause, be brought into court. The presumption is in favor of regularity of the assessment unless the owner can show it to be inequitable or void.

Sec. 122-885. Current expenses: Commissioners may not incur indebtedness in excess of the amount provided in the budget except by approval of the court after petition filed and hearing thereon. If the court authorizes the expenditure, it is placed on the assessment roll for the current or ensuing year. All debts contracted by the commissioners in any other manner are void.

Secs. 122-886 and 122-887. Liens—Collection: All assessments with interest, penalties, and costs are a perpetual lien, not in excess of the benefits severally assessed, on all lands and other property against which such assessments have been levied, second only to liens of state, county, city, town, or school taxes. No sale of delinquent property to enforce general taxes shall extinguish the lien of the drainage assessments. *Sec. 122-887:* Drainage assessments are collected by the same officers in the same manner and at the same time that state and county taxes are collected, and are paid to the treasurer of the district except assessments levied for the payment of bonds and interest which are held by the county treasurer in a fund from which he pays such principal and interest. When all bonds are paid, the fund is turned over to the district treasurer. The commissioners may elect the county treasurer as treasurer of the district also.

See: *State v. Cole*, 43 Wyo. 209; 299 Pac. 1040.

Bd. of Comms. of Big Horn Co. v. Byron Dr. D., 52 Wyo. 417; 75 Pac. (2d) 759.

Sec. 122-900. Effect of assessments: All assessments for construction, additional assessments, or assessments for repairs against any land or any corporation, as soon as confirmed by the court, are a judgment against such land or corporation and are collected in the same way as other judgments; provided, that whenever said assessment is a lien upon land, it shall be collected only out of that land.

FINANCING—Bonds

Sec. 122-877. Notes and bonds: The commissioners may borrow money, not exceeding the amount of the assessments for construction and additional assessments and assessments for repairs, reconstruction, extension, enlargement, and improvement unpaid at the time of borrowing; for the construction, repair, and reconstruction or enlargement of any works within their authority, or for the payment of any indebtedness that they have lawfully

incurred; and may secure the borrowed money by notes or bonds bearing interest at not to exceed 6 percent and running not beyond one year after the last installment of assessments on account of which the money is borrowed shall fall due. Notes and bonds may not be sold at less than 90 percent of their face value. They are negotiable, and do not make the commissioners personally liable. They constitute a lien upon the assessments. If any money derived from bonds remains after the works are paid for, it may be used in maintenance and repair work before making assessments for such work. [*Big Ben Dr. D. v. State*, 50 Wyo. 242; 60 Pac. (2d) 815.]

Sec. 122-884. Refunding bonds: Upon petition of the commissioners, the court will authorize them to refund any lawful indebtedness by issuing in lieu thereof new notes or bonds payable in such longer time as the court may deem proper, in amounts sufficient to retire all outstanding notes and bonds of the district and unpaid accrued interest thereon, together with such amount as the commissioners deem necessary to meet possible future delinquencies in the payment of assessments. Refunding bonds bear not to exceed 6 percent interest. To pay such bonds the commissioners may levy assessments, but not in excess of the benefits assessed. In the alternative the commissioners may issue refunding bonds only to retire notes and bonds outstanding and unpaid and accrued interest thereon, and to provide a fund for possible defaults and delinquencies, by levying from year to year assessments for that purpose, but not in excess of the benefits assessed. (L. 1933, Special Session, ch. 15 amending Revised Statutes 122-884.)

CONSTRUCTION

Sec. 122-888. Bids for construction: At any time when the work to be done will exceed \$500 in cost, the commissioners must advertise for sealed bids and let the work to the lowest bidder. They may reject all bids and readvertise.

STATE	JURISDICTION	PROCEDURE				FINANCING	
		Petition	Method of organization	Form of organization	Management	Preliminary expense	
ALABAMA	The court of probate of the county in which more of the district lands are situated than in any other county. Such court thereafter retains original and exclusive jurisdiction co-extensive with the boundaries of the district without regard to county lines. Appeal is to the circuit court of said county. (209, 213)	Petition to the probate court must be signed by a majority of the landowners owning more than 1/3 of the acreage, or by at least 1/3 of the landowners owning more than 1/2 of the acreage, in a contiguous body of wet, swamp, or overflowed lands or lands subject to overflow. (211)	The probate court, with the approval of the Commissioner of Agriculture and Industries, immediately appoints an engineer to report on boundaries, public benefit, plan for drainage, and cost. After hearing, the court determines the sufficiency of the petition and, if the purposes of the act will be subserved, enters an order declaring the district organized. (211, 215)	Drainage district. The district is a public corporation of the state, with the right to do all acts necessary to the purposes for which created. It has eminent domain to secure rights-of-way, and the right to make assessments and issue bonds. (215)	A board of 3 drainage commissioners appointed by the probate court, recommended by a majority in acres in the district. Commissioners must be adult landowners in the district and at least 1 must be a resident of the county where the proceedings were inaugurated. (217)	If the petition is dismissed, the court levies a uniform tax against the lands of the petitioners within the proposed district. Upon establishing the district, the court levies a uniform acreage tax of not more than 50 cents per acre to defray organization expenses. (215, 216)	
ARIZONA	The board of supervisors of the county in which the greater portion of the lands of the proposed district are situated. They establish the boundaries of the district, but may not exclude land susceptible of drainage by the same works nor include lands that will not be benefited. Appeal is to the superior court of the county. (3516-3518)	Petition is presented by 5 or more holders of title or evidence of title to agricultural lands susceptible of drainage by the same system of works. The equalized assessment roll next preceding the petition is sufficient evidence of title. The petition must describe the proposed boundaries of the district, and be accompanied by bond to pay costs if the district is not organized. (3515, 3516)	The supervisors divide the district into 3 or 5 approximately equal divisions. Each division elects a director, who must be a resident freeholder of the division, or if requested in the petition, 3 directors are elected at large. An election in each county interested determines the question of organization. Electors must be landowners who have paid taxes under the last county tax roll. (3519-3523, 3531)	Drainage district, with the general powers of public corporations including the right of eminent domain to secure rights-of-way and necessary property. Rights-of-way and other property belonging to the district, as well as its bonds and other indebtedness, may not be taxed for state, county, or municipal purposes. (3528-3540, 3572)	A board of 3 or 5 elected directors. Directors classify themselves by lot to determine their terms of office. Thereafter the term is 4 years. The office of the board having been once established may not be changed except upon notice. (3519, 3526, 3531)	Before collection of the first assessments the directors may incur indebtedness not to exceed \$2,000 to meet the expenses of organization, to be paid when funds come into their hands from assessments or bonds. A surety bond must be filed with the petition, conditioned to pay costs if the district is not organized. (3515, 3571)	
ARKANSAS	The county court, where the district is wholly within 1 county. In intercounty districts, the circuit court of the county where the largest portion of the lands are situated. The words "county court" and "county clerk" in the statute mean "circuit court" and "circuit clerk," where the lands of the district lie in more than 1 county. (4455)	Three or more owners of real property within a proposed district may petition the court to establish such district. If the petition is signed by a majority in number, acreage, or value of the holders of real property within the proposed district, establishment is mandatory. In the absence of such signatures the court investigates, and establishes the district if deemed advantageous to the real property therein. (4455, 4456)	The court appoints an engineer selected by the petitioners, if satisfactory to the court, to survey and ascertain the limits of the region that will be benefited and to report on the character of the required works. After notice and hearing on the report, the court, deeming it best for all parties, enters an order establishing the district.	Drainage district, with the usual powers of a public corporation. It may employ the right of eminent domain to acquire proper outlets, and may construct its works beyond the limits of the district for that purpose. Such works remain the property of the district, and may not be used as outlets for lateral drains of outside lands without compensation to the district. (4472, 4480)	The court appoints a board of 3 commissioners, who must be landowners, to govern the affairs of the district. Upon petition of a majority in value of the landowners, the court will appoint any particular person recommended or will remove any commissioner already appointed. The court may also remove a commissioner for cause stated in writing, after hearing, and with the right of appeal by the commissioner. (4458, 4472, 4490)	The preliminary expenses of the proceedings are paid by the county, to be refunded from the first collection of assessments on benefits. In intercounty districts the costs are apportioned between the counties interested in proportion to the benefits assessed in each county. Bond is filed with the petition, conditioned to pay costs if the district is not organized.	
CALIFORNIA	Drainage Law of 1885.	The board of supervisors of the county in which the greater portion of the lands of the district are situated. The petition and the order defining the boundaries of the district must be filed with the recorder of each county affected, and another district may not be formed within such territory without the consent of the trustees of the first district. (1-3)	The petition must be signed by the owners of 2/3 of any body of land susceptible of drainage. It must be verified by at least 1 signer, presented at a regular meeting of the supervisors, describe the lands and name the owners, and name 3 persons to serve as trustees for the first 3 months. (1)	The trustees organize, employ an engineer, locate the works, and make plans and estimates of cost. They report to the supervisors of each county interested. Persons owning the whole of lands susceptible of drainage by one method may, upon petition, undertake drainage on their own responsibility and, with the approval of the supervisors, have the same powers as boards of trustees. (7, 8, 19, 20)	Drainage district, with the power to acquire necessary rights-of-way and materials from lands inside or outside the district by condemnation under the general statutes.	The trustees recommended in the petition control the district for 3 months; then a board of 3 trustees is elected. After approval of the petition, landowners who own a majority of the acreage adopt bylaws for governing the district and for electing trustees, which bylaws must be signed by a majority ownership in acreage. (4, 6, 7)	The expenses of organization are borne by the petitioners. On any petition to include additional lands, those petitioners must pay costs.
	Drainage District Law of 1903.	The board of supervisors of the county in which the greater portion of the lands are situated is authorized to establish a drainage district upon petition presented at a regular meeting after having been published for 2 weeks with notice of the meeting to which it will be presented. (2)	The petition must be signed by 50 or a majority of the holders of title or evidence of title to agricultural lands susceptible of drainage by the same system of works. The last equalized county assessment roll is sufficient evidence of title. Lands may not be acquired for the purpose of signing the petition or voting. (1)	An election by the landowners determines whether the district shall be organized. Electors must possess the qualifications required under the general election laws. On a majority favorable vote the supervisors declare the territory organized into a drainage district and record the order in each county interested. Elections may be contested on appeal to the superior court. (6)	Drainage district, with power to construct necessary works and condemn rights-of-way to cross railroads, highways, or water courses. Rights-of-way through state lands are dedicated. The drainage works and other property of the district may not be taxed for state, county, or municipal purposes. (8, 9, 57)	A board of 3 or 5 elected directors manage the affairs of the district. The supervisors divide the district into 3 or 5 nearly equal divisions, and 1 director is elected by each division; or, if requested in the petition, 3 directors, who shall be resident electors and freeholders, are elected at large. (5, 12, 13-26)	Bond for double the probable cost of organization must accompany the petition, conditioned to pay costs if the district is not organized. After organization and before collection of assessments, the directors may incur indebtedness not to exceed \$5,000 and issue warrants therefor, payable after assessments are collected. (2, 56)

CHART OF DRAINAGE LAWS

CENSUS OF DRAINAGE, 1940

FINANCING--Continued				MAINTENANCE	DISSOLUTION
Apportionment of benefits	Assessments	Bonds	Security for bonds		
<p>The drainage commissioners adopt a "plan of reclamation," which is filed with the probate court and submitted to the Commissioner of Agriculture and Industries. Upon petition of the commissioners, the court appoints 3 viewers to assess benefits and damages to each property. If the costs are not more than 90% of the benefits, the court approves or modifies the report and confirms it. (225, 226)</p>	<p>The drainage commissioners levy a tax of such portion of the benefits confirmed as may be necessary to pay the costs of the improvement. Additional levies may be made, but the aggregate exclusive of maintenance and interest may not exceed 90% of the benefits assessed. Drainage taxes are a lien of equal dignity with state and county taxes. (230, 231)</p>	<p>The drainage commissioners may issue district bonds for the cost of the improvement and preliminary expenses, less such amount of the assessments as may have been paid in cash. The par value of the bonds plus the cash payments may never exceed 90% of the benefits assessed. Bonds mature annually for 20 years, beginning not later than 5 years from date of issue. Bonds may be sold for not less than 95% of par value with interest. (236, 237)</p>	<p>To make provision for payment of bonds the commissioners may make additional levies on benefits. The total levy exclusive of maintenance and interest may not exceed 90% of the benefits. Holders of defaulted bonds may seek mandamus for levy of sufficient taxes, and appointment of receiver to collect taxes and sell delinquent lands. (238, 239)</p>	<p>Completed improvements are under the management of the drainage commissioners, who must keep them in repair and for that purpose annually levy a maintenance tax on the lands benefited. The maintenance tax may not exceed 10% of the assessed benefits in any one year. (247)</p>	<p>Upon petition of $\frac{2}{3}$ of the owners owning not less than $\frac{2}{3}$ of the area taxed, the probate court may dissolve any district when it appears that the works need no further care or will not be further conducive to the public benefit, and that all obligations of the district have been liquidated. The proceeding is the same as for organization. (262)</p>
<p>The directors appoint an engineer and 2 appraisers to divide the district into tracts of not more than 40 acres and to apportion to each tract the amount of benefits it will receive. The land least benefited is assessed 1 unit, and each tract receiving more benefit is assessed proportionately higher but not more than 5 units. (3602)</p>	<p>The directors annually furnish to the county supervisors an estimate of the money needed for the succeeding year, including principal and interest on maturing bonds. The supervisors levy the amount of such estimate according to the units assessed, and collect it at the same time as state and county taxes. (3554-3557)</p>	<p>The directors estimate the amount needed for construction, and on a majority affirmative vote at a special election issue the amount of bonds voted. Bonds are in 10 series, due in 11 to 20 years. (3541-2) Upon petition and a special election with a favorable $\frac{2}{3}$ majority, funding bonds may be issued. (3546, 3551-3553)</p>	<p>Within 30 days after bonds are voted the directors must bring action in the superior court to determine the validity of the bonds. Such validity may not be tested in any manner other than that herein provided. (3573-3578) Bonds are a lien upon the real property in the district in proportion to the assessment of benefits, and are paid from revenue derived from assessments on such property. The lien of any issue has preference over that of any subsequent issue. (3544)</p>	<p>The estimated cost of maintenance is included in the annual statements, furnished by the directors to the county supervisors, on which drainage taxes are levied and collected. If the supervisors fail to levy such tax, the county assessors must do so. (3554, 3604)</p>	<p>Upon petition of the directors or any landowner, the county supervisors, after hearing showing that the district is no longer needed and that all its obligations have been paid, will enter an order declaring the district dissolved. (3599)</p>
<p>The commissioners examine the land, rights-of-way, and easements within the district and assess the amounts of benefits and damages that each separate property will receive. When the commissioners find outside lands benefited, they assess them and report to the court; and, if the finding of the court after hearing be in favor of the commissioners, such lands are annexed. (4462, 4524-4529)</p>	<p>After hearing, the court will correct and confirm the benefits assessed and enter its decree, having the effect of a judgment, taxing the real property, rights-of-way, and easements for the estimated cost of the improvement, plus 10% for contingencies. Such tax is a lien in proportion to the benefits assessed each piece of property. Damages are deemed accepted unless demand is made for jury assessment within 30 days. (4463-4465, 4471)</p>	<p>The commissioners may issue bonds to pay preliminary expenses, pledging the assessments for payment. Bonds may be issued to pay expenses of construction. They must mature within 30 years. They may be divided into annual installments or mature at one time, with proper provision for a sinking fund. Refunding bonds may be issued in an amount not greater than necessary to pay past due outstanding bonds and future outstanding bonds maturing within 5 years. (4467, 4474, 4520)</p>	<p>Bonds are secured by lien on all lands, rights-of-way, and easements in the district; and the levy of an annual tax to pay them may be enforced by mandamus. If any bonds or interest are not paid within 30 days after maturity, it is the duty of the chancery court, upon application on the bondholder, to appoint a receiver to collect taxes to pay them; and such receiver may foreclose the lien on the lands and other property. (4464, 4465)</p>	<p>After completion of the improvement, the commissioners may from time to time apply to the court for the levy of additional taxes for maintenance and repair. The proceeding thereafter is the same as that for original assessment of taxes in proportion to the benefits assessed.</p>	<p>The commissioners, when they deem it inadvisable to construct contemplated improvements, and if all indebtedness has been paid, petition the court asking that the district be abolished and giving the reasons therefor. After notice and hearing, the court at its discretion will grant or dismiss the petition. The petition may be renewed at any time. No specific provision is made for dissolution of an established district. (4525)</p>
<p>Upon the filing of the trustees' report, the supervisors appoint 3 disinterested commissioners, residents of the county or counties affected, to view the lands, assess the benefits that each tract will receive from the works of the district, and assess to each tract a proportionate share of the whole cost. The assessment list is published and the commissioners meet as a board of equalization thereon. (9, 13)</p>	<p>Assessments are paid into the county treasury and disbursed on warrants of the trustees. The tabulated list of assessments, filed with the treasurer, is a lien on the lands. Collection is enforced by civil action conducted by the district attorney. (10, 14)</p>	<p>There is no provision for issuing bonds.</p>	<p>No bonds.</p>	<p>Trustees annually file an estimate of the amount needed for maintenance with the county supervisors, who assess the amount in proportion to the benefits and collect the levy in the same manner as original assessments.</p>	<p>Upon petition of a majority of electors, the trustees call an election on the question of disorganization. On a $\frac{2}{3}$ affirmative majority, the result is recorded with the county supervisors, and after payment of all debts the district is deemed disorganized. (20 $\frac{1}{2}$)</p>
<p>No benefits are apportioned.</p>	<p>The directors annually file an estimate of expenses for the ensuing year, including a sinking fund to pay bonds. The supervisors levy a tax to raise the needed amount. The rate is determined by deducting 15% from the assessed value of the lands and dividing the required amount by the remainder. Special assessments may be made upon a $\frac{2}{3}$ favorable vote. (40-42, 55)</p>	<p>On a majority favorable vote at a special election, bonds may be issued from time to time to pay construction costs. Bonds must mature within 40 years. Refunding bonds may be issued on petition of a majority in number of freeholders after vote at a special election with a $\frac{2}{3}$ affirmative majority. (27-29, 32)</p>	<p>Directors must file suit in the superior court to determine the validity of all bonds. Bonds are paid from annual assessments on the real property in the district and are a lien on such property, which remains liable to be assessed for payment. The lien of any issue of bonds is preferred to that of a subsequent issue. (30, 58)</p>	<p>The yearly cost of maintenance is provided in the annual report by the directors to the county supervisors, stating the total amount required for all purposes in the ensuing year.</p>	<p>No specific provision.</p>

STATE	JURISDICTION	PROCEDURE				FINANCING	
		Petition	Method of organization	Form of organization	Management	Preliminary expense	
CALIFORNIA —Continued	Drainage District Improvement Act of 1919.	Twenty or more property owners, or the owners of a majority of the lands within the proposed district, must sign the petition. For an intercounty district the petition must be signed by 10 landowners or the owners of a majority of the land in the district in each county to be affected. (1, 2)	Before ordering any work to be done, the supervisors must pass a resolution of intention, giving notice of the location, plan, and boundaries of the district, and stating that bonds will be issued to pay incidental expenses and construction costs. They give notice to interested parties of a hearing thereon. After hearing, the board by resolution determines whether the works will be constructed. (6-9)	An improvement district of the county.	The officers of the county having jurisdiction are the officers of the district and the board of supervisors has complete control. The county surveyor is engineer of construction and the supervisors may appoint a consulting engineer. Approval of the state reclamation board is required if the work is of a character to come under its jurisdiction. (2, 4)	The preliminary expense is paid by the county and added to the final cost of the improvement, for which bonds are issued to the contractor. (18)	
	Drainage District Act of 1923.	The board of supervisors of the county in which the greater portion of the lands of the district are situated. Petition is presented at a regular meeting of the supervisors and they appoint an engineer, selected by the petitioners and approved by the board, to report with plans, maps, and estimates of cost. (2, 3)	After notice and hearing on the engineer's report, the supervisors grant or dismiss the petition. If granted, they establish the boundaries of the district and appoint 3 directors, who must be landowners and qualified electors, to direct the affairs of the district. (4, 8-10)	Drainage district. The district has the usual powers of public corporations and may condemn rights-of-way and property needed for the works under the general laws of the state. The directors of the district may acquire title to any and all water developed, and dispose of such water, but not to deprive the district of title. (15, 26, 33)	The board of directors manage the affairs of the district. They may call a special election on any question, after notice. They establish by-laws for the control of the district, and create separate funds for the payment of its obligations. They may enter on any land to make surveys to establish the works. (11, 15)	The directors levy an organization tax, not exceeding \$2.00 per acre, to pay the expenses of organization before funds are available. Only 1 organization tax may be levied. The same tax applies to annexed lands. Petition must be accompanied by bond in double the estimated cost, conditioned to pay costs if the district is not organized. (2, 18)	
COLORADO.....	The county commissioners of the county in which the greater portion of the lands are situated. The commissioners may change the boundaries of the proposed district to include lands which will be drained or benefited by the proposed works. They may not exclude lands susceptible of drainage which will be benefited. (1, 8)	The petition must be signed by a majority of the owners of land in the district, whether resident or nonresident of any county, as well as by the owners in the aggregate of a majority of the total acreage. It must be accompanied by a map showing each tract of land and the name of the owner, and by surety bond for preliminary expenses. (2)	Commissioners call election of landowners to determine whether district shall be organized and to elect directors. Majority vote controls. Certified copy of Commissioners' order establishing district is filed with clerk of each county affected, and thereafter none of the land may be included in another district without owner's consent. (11-18)	Drainage district, with power to condemn rights-of-way and to appropriate and use water gathered or discharged by its works.	Three elected directors manage the district; or, if requested in original petition, the commissioners will administer until owners petition for elected directors. They may not contract an expense more than \$5,000 without written approval of a majority of the voters, and contracts for \$10,000 or more must be approved by majority vote of the landowners. (22)	The commissioners require bond or cash in double the estimated cost, conditioned to pay such costs if the petition is denied. After organization, such costs are returned to petitioners from drainage assessments.	
DELAWARE..	I. "Ditches" II. "Corporations"	(I) The superior court of the county in which the greater portion of the lands are situated. The court appoints 3 commissioners to view the lands and lay out the proposed works. (II) Articles of incorporation are filed and the superior court appoints commissioners. (1, 2)	(I) One or more of the owners of any low ground may present a petition to the superior court. (II) Any number of persons not less than 3, all of whom must be landowners, may form a corporation with perpetual succession and petition the superior court for the appointment of commissioners. (1, 96)	(I) The commissioners award damages, assess benefits, and report in writing to the court. After confirmation of their report, the commissioners convene all taxables to elect 2 managers and a treasurer. The confirmed report remains in force for 7 years. (II) The same procedure, but corporations may have perpetual succession. (2, 3, 7, 96)	(I) "Ditches," controlled by the managers elected by the taxables, who have 1 vote for each dollar of tax paid. (II) "Corporation," with no capital stock nor directors, but not less than 3 elected managers. (7, 9, 96)	(I) Two elected managers and one treasurer chosen by the taxables from their own number. The treasurer has the same power as the collector of taxes. (II) The managers elect 1 of their number president, and the president and managers possess the usual powers of officers of corporations. The managers and taxables make by-laws for the corporation. (7, 10, 96)	(I) All persons benefited are liable to contribute to the costs of the ditch and the expense of the proceedings. The treasurer pays costs and expenses on warrants drawn by the managers. (II) Corporations are subject to the same provisions. (4, 9, 96)
	Drainage Districts	The resident associate judge of any county has jurisdiction to establish drainage and improve any drain or water course to reclaim wet or overflowed lands. The removal of surplus water from agricultural lands is declared to be a public benefit. (97)	A majority of the resident landowners in a proposed district, or the owners of 1/2 in acreage affected or assessed, may file a petition in the office of the prothonotary of any county in which such lands are situated, describing the territory and the proposed work. Venue is in the county in which the petition is first filed. (98)	The court, after preliminary hearing, appoints an engineer and 2 disinterested resident freeholders as a board of viewers to make detailed report with map and estimate of costs. After full hearing on this report, and finding that the benefits will exceed the costs, the court declares the district established. (99, 106)	Drainage district. The board of drainage commissioners is a body corporate and politic with the usual rights and powers of corporations. The district may acquire necessary outlets and rights-of-way outside of its boundaries, and may exercise the right of eminent domain. (108, 114)	After the district is established, the resident associate judge appoints 3 persons, who have first been elected by a majority of the landowners, as a board of drainage commissioners of the district. This board manages and controls all of the district affairs.	Bond must be filed with the petition in an amount not exceeding \$100 per mile of the improvement, conditioned to pay costs if the petition is dismissed. After the district is established, the preliminary costs are paid from collections of assessments. (96)

CHART OF DRAINAGE LAWS

OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportionment of benefits	Assessments	Bonds	Security for bonds		
<p>After the execution of the contract for construction, the supervisors direct the engineer to view the lands and assess the total cost against the lands and public utilities within the district in proportion to the benefits to be received. The resolution of intention may provide that a stated portion of the cost will be paid out of the county general fund if public welfare is promoted. (6a, 12)</p>	<p>The engineer makes written report to the supervisors showing the amount assessed against each parcel and dividing the same into yearly installments, clearly sufficient to retire bonds and interest. After notice and hearing, the supervisors correct or modify the report of the engineer and levy an assessment on the lands benefited in the amount set forth in the confirmed report. (12)</p>	<p>The final order of the supervisors on the engineer's assessment is certified to the county treasurer, who issues bonds in the amount of the costs stated in such order. Bonds must mature within 20 years, beginning from 1 to 5 years after their date. (16)</p>	<p>Bonds are secured by the lien of the assessments in proportion to benefits in the confirmed engineer's report. Such assessments are a lien on the lands and property assessed and are collectible like state and county taxes. Money from such assessments is placed in a special fund to be used exclusively in payment of bonds. (12)</p>	<p>The supervisors levy an annual ad valorem tax on the taxable property in the district, sufficient to maintain and repair the works during the current year. Such taxes are placed in the maintenance fund. All collections are turned over to the treasurer of the county having jurisdiction. (23a)</p>	<p>No specific provision.</p>
<p>The directors, assisted by the engineer, view all land and other property and assess the benefits that will accrue to each tract. They may adopt a maximum number of acres as a unit for separate assessment. They may adopt a uniform acreage assessment if the benefits are approximately equal. The assessment list is filed with the recorder of each county. (20, 22)</p>	<p>From and after the filing of the assessment list with the recorders, the assessments constitute a lien against the lands and property assessed. No subsequent act of the directors may invalidate such lien. (20, 22)</p>	<p>When the supervisors approve any bond issue proposed by the directors, such approval is certified to the commissioner authorized to approve irrigation bonds. Upon such approval, an election is held on the question of issuing bonds. Bonds may not exceed 90% of the assessment for construction and must mature within 20 years. Bonds may be sold at not less than 90% of par. (23, 25, 34)</p>	<p>Bonds must be approved by the commissioner authorized to approve irrigation bonds as legal investments for savings banks and for other purposes. Bonds are paid from the special bond fund, and assessments therefor are liens on the land and other property assessed. (23, 35)</p>	<p>The directors annually submit a budget showing the amount necessary to be levied for all purposes, including maintenance during the ensuing year. At the same time that county taxes are levied the supervisors levy a drainage tax covering said budget after adding 15% for contingencies. (29)</p>	<p>The directors present a verified petition to the superior court of the county having jurisdiction, signed by $\frac{3}{4}$ of the landowners owning $\frac{3}{4}$ of the acreage. The petition sets forth the entire assets and indebtedness of the district. The court may, after notice in each county, order the discharge of the indebtedness and dissolution of the district. (45, 52)</p>
<p>The directors classify the lands in tracts of 40 acres on a graduated scale in accordance with benefits. The highest classification is 100 and lesser benefits are on a percentage basis. They may classify the greatest benefit per acre as 100, and lesser benefits as percentages thereof; or, they may assess the increase in value to result to each tract. Appeal will be heard by a special jury in the county court, and the county judge may allow appeal to the district court. (55-58, 63)</p>	<p>Classification as finally determined and recorded is thereafter the basis of all assessments. The directors each year determine the amount required for all purposes, including bonds, and prepare an assessment roll, which is recorded in each county and on which taxes are levied. Drainage taxes are collected like state and county taxes. (58, 61, 62, 65)</p>	<p>Bonds are issued after approval at a special election held for that purpose. They mature in not more than 20 years, beginning after 11 years, and are payable in yearly series. (81-87) Refunding bonds may be issued to redeem or compromise outstanding bonds and interest. (95, 105)</p>	<p>The annual assessment under the established classification includes the amount necessary to pay bonds maturing that year. Directors bring special proceedings in the district court to have bonds validated. The real property in the district remains liable to be assessed for the payment of bonds. (89, 94)</p>	<p>The annual assessment under the established classification includes the estimated cost of maintenance during the ensuing year, and is collected on the assessment roll at the same time and in the same manner as other assessments. (61)</p>	<p>Upon petition of a majority of the landowners representing a majority in acreage and proof that all obligations have been paid, the directors call a special election, and a majority affirmative vote dissolves the district. The dissolution is recorded in each county. (116)</p>
<p>(I) Commissioners appointed by the superior court estimate the costs and report the proportion thereof that each person benefited shall pay. After hearing and confirmation of the commissioners' report, the treasurer collects the amount assessed. (II) The same provisions are applicable to corporations, and the certificate of incorporation may contain provisions for the conduct of its affairs. (2)</p>	<p>(I) After notice to all taxables, hearing, and confirmation of the commissioners' report, the treasurer collects the portion of the cost and expenses that each person benefited must pay. Any taxable may discharge his assessment by work done under direction of the managers. (II) Corporations are subject to the same provisions. (9, 10, 96)</p>	<p>(I) There is no provision for the issuance of bonds for tax ditches. (II) A corporation, on a majority vote of its taxables, may borrow money and issue bonds of the corporation in form and amount as prescribed by the vote of its taxables. (96)</p>	<p>(I) No bonds are issued. (II) The assets of the corporation under its power to assess the lands of the taxables as provided in its certificate of incorporation or by-laws, are liable for payment of the bonds. (96)</p>	<p>(I) The confirmed return of the commissioners remains in force 7 years as the basis for subsequent assessments for maintenance, and until another order is granted upon application of one or more taxables. (II) One or more taxables may apply to the superior court for a new assessment for maintenance, notwithstanding the charter provides otherwise. (8, 96)</p>	<p>(I) No specific provision for dissolution. When old ditches are improved by a new organization, allowance is made in abatement of taxes for work done on the old ditch that lessens the cost of the new. (II) Corporations may have perpetual succession. (96)</p>
<p>The engineer and viewers classify the lands with reference to benefits that will be received, into five classes ranging from "A" to "E". As often as 5 mills is assessed against Class A, 4 mills is assessed against Class B, etc. The holdings of 1 landowner may not necessarily be all in 1 class, but the number of acres in each class is ascertained and reported. (103)</p>	<p>When the drainage commissioners have estimated the total cost, they prepare 10 drainage tax lists, proportioned on benefits, to be collected annually to cover the maturity of any bonds issued. The first roll provides for payment of bonds and interest maturing the third year, the second roll for the fourth year, etc. (103)</p>	<p>The drainage commissioners may issue bonds for the total cost of the improvement, less assessments paid in cash, plus an amount sufficient to pay interest for the first 3 years. Bonds are payable in 10 equal installments, the first installment maturing in 3 years. (119)</p>	<p>If any installment of bonds or interest is in default for 6 months, the bondholders have right of action by mandamus to compel the levy of a tax or special assessment to meet unpaid installments. Bondholders may sue officers of the district on their official bond for failing to perform their duties. (119)</p>	<p>After completion, the drainage commissioners may levy assessments for maintenance on the lands benefited in the same proportion as the original assessment, but not to exceed 25% of such original assessment. Repairs made necessary by any landowner's negligence are assessed against his land alone. (121)</p>	<p>No specific provision.</p>

STATE	JURISDICTION	PROCEDURE			FINANCING		
		Petition	Method of organization	Form of organization	Management	Preliminary expense	
FLORIDA.....	The circuit court of the county in which the greater portion of the lands are situated has exclusive jurisdiction, coextensive with the boundaries of the district without regard to county lines. (1452)	The state board of drainage commissioners, or a majority of the owners in number or in acres of a contiguous body of land, may file a petition asking organization into a drainage district. Signing the petition obligates the lands of petitioners to pay proportionately the assessments for costs. (1451)	After notice and summary hearing on the petition, the court, being of opinion that the formation of the district will be advantageous to the landowners and to the public welfare, decrees that the same be established, but not without the approval of the owners of a majority in acres. (1453)	The district is a public corporation of the state, with the usual powers of corporations, for a term not exceeding that stated in the petition. Corporate existence may be extended after affirmative vote of a majority in acres and petition to the circuit court. (1453, 1499)	The district is managed by a board of 3 supervisors elected at a special election, with the electors casting 1 vote for each acre owned. The state drainage commissioner votes state lands.	The supervisors levy a uniform tax, not exceeding 50¢ per acre, for preliminary expenses. If necessary, they may borrow money until the tax is collected and pledge assessments to be collected for payment.	
GEORGIA.....	The clerk of the superior court, with the Commissioners of Roads and Revenue, constitute a court with power to establish drainage districts. The petition, however, is filed with the clerk of the superior court of any county, and such court establishes the district. (2503)	A majority of the resident landowners in a proposed district, or the owners of 2/3 of all lands which will be affected or assessed, file a petition with clerk of the superior court of any county in which lands of the proposed district are situated. (2504)	Summons is issued to all interested parties not signing the petition; viewers are appointed; and after hearing on petition and viewers' report, the court establishes the district and gives it a name and number. (2505-2513)	Drainage district. After establishment of the district and approval of the plan, the superior court appoints 3 drainage commissioners, who have first been elected by the landowners. Such commissioners automatically become a body corporate and possess the usual powers of corporations. (2526)	The board of drainage commissioners manage the affairs of the district. To secure rights-of-way through lands not affected, the commissioners are granted the power of eminent domain. (2526)	The petitioners give bond to pay costs in the event the district is not organized. After organization, the preliminary expenses are paid from assessments. (2504)	
IDAHO.....	The district court of the county having the largest area in the proposed district. Certified copy of the court order establishing the district must be filed with the Secretary of State. (41: 2505)	The petition must be signed by the owners of not less than 1/3 of the acreage in the district. No signer may withdraw his name without paying into court his pro rata share of the costs of the proceedings to date. (2505, 2506)	After hearing on the petition, the court, finding that the district will be advantageous to a majority in acreage, and of public benefit, enters an order defining the boundaries and naming the district. The district may be established even if the outlet is outside of its boundaries or of the county or state. (2507-2509)	Drainage district. The district has the usual powers of corporations and may have perpetual succession and exercise the right of eminent domain. Natural water courses may be altered and developed for the interests of the district. (2539)	The court appoints 3 resident drainage commissioners to manage the affairs of the district, and fills all vacancies. Commissioners may file upon and appropriate water made available by the works for the beneficial use of the district. (2502-2510)	Petitioners must file bond for \$500 to pay the costs if the district is not established. When the district is established, the preliminary costs are paid from assessments on benefits. (2506, 2537)	
ILLINOIS	Drainage Districts, Act of 1879, amended. (Includes outlet dists.)	The county court of the county in which the largest portion of the lands in the proposed district are situated.	Petition must be signed by a majority of the adult owners of lands representing 1/3 in area, or 1/2 of such owners representing a majority in area. No petitioner may withdraw without the consent of a majority of the remainder. (2-4)	After hearing on the petition, finding same sufficient, the court appoints 3 commissioners to lay out the work, estimate costs, and report. After full hearing, the court corrects and confirms the report and establishes the district. (5, 10-17)	Drainage district. The district is a body corporate and politic with perpetual succession, and has the usual powers of public corporations. The drainage commissioners constitute the corporate authority. (17, 26, 37)	The court appoints 3 competent persons as commissioners, not more than 2 of whom may be from 1 interested county. The commissioners manage the affairs of the district and make detailed report to the court on its physical and financial features. (10-15)	If the commissioners find that the costs will exceed the benefits, the petition is dismissed and the costs of the proceedings are taxed against petitioners. When the district is established, preliminary costs are paid from collections of assessments on benefits. (5-11)
	Farm Drainage Act, 1885. (Also includes union, special, and user dists.)	In 1-town, 2-town, and user districts the town clerk receives the petition; in special districts, the county court; in 3-town districts, the county court where the larger portion is situated. (92, 133, 134)	The petition is signed by a majority of the adult owners who own more than 1/2 of the land, or by the owners of a majority of the land who constitute 1/2 or more of the landowners. (92) In user districts, by 1 landowner. (161)	In townships, highway commissioners of the township are the drainage commissioners until drainage commissioners are elected. (97) In 3-town drains, the county clerk calls an election to select drainage commissioners. (96-138)	Drainage district; union district (133); special district (134-153); district by user (161); mutual district (162).	In special districts, 3 elected commissioners. If less than 15 landowners, the commissioners are appointed by the court. (138) In township districts, 3 elected commissioners manage the district affairs. (97)	In special districts, bond must accompany petition to pay costs if not organized. After organization, costs are paid from assessments. (134)
INDIANA.....	The superior or circuit court of the county having the greatest length of ditch, for intercounty districts. The county board of drainage commissioners or the superior or circuit court, for intracounty districts. (5740, 5741)	After notice, the court clerk docket the petition as a cause pending. Upon remonstrance by 2/3 of the landowners, the petition is dismissed. Each petition must describe an area equal to 1/2 of all lands which will be affected. (5741-5743)	The court appoints 2 disinterested freeholders to act with the county surveyor as viewers. They report on the practicability and public benefit, and whether costs will be less than benefits. After notice and hearing, the court dismisses the petition or establishes the district. (5742-5752)	County ditch. The order of the court establishing the district is conclusive in the absence of appeal to the supreme or appellate court within 30 days.	Management is in the hands of the county surveyor under the supervision of the county commissioners. (5737, 5767, 5768, 5772, 5776)	Petitioners give bond to pay costs if the proceeding is dismissed. After organization, the preliminary expense is paid by the county treasurer and refunded from assessments.	

CHART OF DRAINAGE LAWS

OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportionment of benefits	Assessments	Bonds	Security for bonds		
Upon petition of the supervisors, the court appoints a board of 3 appraisers to assess benefits on each 40-acre tract. After notice and hearing, the court corrects and confirms the appraisers' report. Appeal is to the supreme court. Re-adjustment of benefits may be had on petition of 25% in acreage. (1461, 1463, 1497)	Upon confirmation of the appraisers' report, the supervisors levy a tax on the benefits sufficient to carry out the plan, plus 10% for contingencies. The tax, in proportion to benefits and not in excess thereof, is collected like state and county taxes and is a lien of equal dignity. (1467)	Supervisors may issue bonds in their discretion. The first levy of taxes is for an amount 90% of which equals the amount of bonds. Bonds mature at annual intervals within 30 years, beginning not later than 10 years from date.	A sufficient amount of drainage taxes must be apportioned by the supervisors to pay bonds when due. Holders of bonds delinquent for 60 days may have a receiver for the district appointed to collect taxes and pay bonds and interest.	Supervisors levy an annual maintenance tax apportioned on the basis of the net assessment of benefits, but not exceeding 10% thereof in any one year.	There is no specific provision for dissolution, but if the court ascertains that the cost will exceed the benefits, it will declare the corporation dissolved. Districts become defunct at the expiration of the term for which organized unless extended by the court upon petition of a majority in acreage. (1499)
The engineer and viewers divide the lands into 5 classes according to benefits, the lands receiving the highest benefit being Class A, etc. The holdings of one landowner need not be all in 1 class, but the total of each class must be shown. (2519)	Commissioners assess each tract according to benefits received as shown by the classification. The ratio of assessment is 5 mills per acre for Class A, 4 mills for Class B, etc. The commissioners prepare an assessment roll and deliver it to the sheriff who collects the drainage taxes in the same manner as state and county taxes. (2519, 2541)	If the estimated costs exceed 25% per acre, the commissioners give notice of a bond issue. In each year in which bonds mature, an assessment is levied to yield 5% more than the amount of bonds and interest due. Bonds are paid in 10 equal installments beginning after 3 years. (2541, 2544)	The assessments on which bonds are payable are per amount liens on the lands assessed, second only to state and county taxes. Holders of delinquent bonds may sue out a writ of mandamus directing the levy and collection of a special assessment to pay them. (2544, 2548)	The commissioners may levy assessment for maintenance in the same manner and proportion as the construction assessments. When collections accumulate to more than 10% of outstanding bonds, the surplus is available for maintenance. (2504, 2541)	There is no specific provision.
The drainage commissioners examine the land, assess benefits, and apportioning the cost against each tract in proportion to the benefits. Lands contributing seepage are considered benefited to the extent that they are responsible for damages to low lands by saturation from irrigation water. (2514, 2415)	Upon confirming the apportionment of benefits, the court certifies the amount of the assessment on each parcel to the recorder of the county in which located. When recorded, the assessments become liens on property. (2535, 2536)	The commissioners may issue bonds up to 90% of the confirmed assessments, payable in annual installments after 5 years, with a maximum maturity of 20 years. (2552) Refunding bonds may be issued. (2553-2555)	During 5 years before bonds are due, the commissioners are required to levy assessments to pay same at maturity. Such levy is kept in a separate fund by the county treasurer for exclusive use in paying bonds. (2556-2558)	The commissioners annually estimate the cost of maintenance and certify the same to the auditor of the county. The amount is apportioned to the maximum benefits assessed, and is added to and collected with general taxes.	If objections to the commissioners' report are sustained, the court will dismiss the proceedings, with costs against the petitioners. There is no specific provision for dissolution after organization.
Benefits are apportioned by the commissioners and confirmed by the court, after notice and hearing on the commissioners' report by a jury impaneled by the court. The "annual amount of benefits" to each tract is determined if the court so directs. (18-22)	After the commissioners report with an assessment roll showing the amount assessed against each tract, the question of benefits is heard by jury. Verdict of the jury, states "annual amount of benefits" which each tract or other property will receive, and the confirmed verdict is a lien on such property. (19, 24-33b, 40)	The commissioners may borrow not more than 90% of the assessments and secure same by notes or bonds. Refunding bonds may be issued upon petition of the commissioners or of the owners assessed for 25% of the unpaid assessments. (38, 38a)	Bonds are liens upon the assessments. The state auditor registers bonds and annually certifies to the county clerk the principal and interest due for assessment against the lands and other property. The collected assessments are transmitted to the state for payment of registered bonds. (38, 38a)	The commissioners may, by resolution, levy a maintenance tax on the basis of the benefits assessed. (37)	The county court may dissolve a district upon verified petition of 1/3 of the landowners owning not less than 1/4 in area of the lands assessed after 6 weeks' notice and when no debts are outstanding. (44, 198)
The commissioners classify the lands on a percentage basis, the highest benefit being 100%, and the lesser benefits in proportion. When the classification is confirmed, the commissioners order special assessments and certify same to the court clerk, who apportions the assessment according to benefits. (103-145)	When the classification of lands according to benefits is confirmed, after hearing, the commissioners make a tax list levying the amount needed for construction on the basis of the classification.	The commissioners may borrow money on the notes or bonds of the district, running not longer than 1 year after the due date of the last installment of assessments. Bonds may not run more than 15 years. (148)	Bonds may be registered with the auditor of public accounts and he, with the state treasurer, annually transmits to the clerk where the district is situated a statement of the amount to be collected to pay such bonds. Collection is in the same manner as state taxes. (151-153)	Commissioners, by resolution, levy an annual maintenance tax on the basis of the original apportionment. In special districts, they file an annual statement, which is certified to the county clerk and collected like other drainage taxes.	When 2/3 of the owners, owning not less than 1/3 of the lands wholly within the limits of 1 township, present a petition for dissolution, and there are no debts outstanding, the district will be dissolved. (132)
The commissioners and surveyor personally inspect the lands, estimate the cost, and assess benefits. Their report, after hearing, is corrected and confirmed by the court. (5745-5750)	The surveyor, having computed the entire cost of the improvement, apportions said cost to the several tracts benefited according to benefits, but not in excess thereof. He certifies the assessments to the auditor of each county, who collects them like state and county taxes. (5770, 5771)	The county commissioners, in their discretion, may issue bonds to reimburse the ditch improvement fund. Bonds are not the obligation of the county but are liens against each parcel of real estate assessed for benefits. (5772, 5773)	Bonds are a lien against the assessments. The county makes payment of delinquent bonds out of the ditch fund and is subrogated to the rights of the bondholders in the delinquent property. (5772, 5773)	Maintenance is under the supervision of the county surveyor and all ditches are cleaned biennially. Tile drains are repaired from an emergency fund equal to 1% of the cost of construction. (5775-5795)	There is no specific provision for dissolution.

CENSUS OF DRAINAGE: 1940

GROUP I.—STATES INCLUDED IN CENSUS

STATE	JURISDICTION	PROCEDURE				FINANCING	
		Petition	Method of organization	Form of organization	Management	Preliminary expense	
IOWA.....	The board of supervisors of any county may establish a drainage district and cause same to be constructed. (7421-7425) In intercounty districts a duplicate petition is filed in each county and the boards act jointly on the petitions. (7604-7611)	The petition must be signed by the owners of at least 25% of the land. Where the proposed district involves only the straightening of a water course, the petition must be signed by 35% of the owners of the acreage affected. (7427, 7428)	The supervisors appoint an engineer who makes survey and report. The supervisors adopt a tentative plan, and after hearing dismiss the proceedings or adopt a permanent plan and establish the district. On protest of 70% of the acreage, the petition is dismissed. Appeal from the final order on an intercounty district may be taken to the district court. (7449-53, 7514)	"Drainage District" by name, but county drain by Census classification on basis of management.	The county board of supervisors, for construction and maintenance; except that when a district has completed construction control will be placed, on petition of a majority of owners assessed, in a board of elected trustees. (7455-56, 7503, 7674)	Bond must accompany the petition, conditioned to pay costs if the proceedings are dismissed. When the district is established, preliminary costs are paid from assessments on benefits. (7430, 7452, 7453)	
KANSAS.	Districts within counties and cities.	The boards of county commissioners have power, after petition, to organize and incorporate drainage districts. Lands in cities may be included if subject to overflow from the same natural watercourse. (24: 401)	Petition must be signed by 2/3 of the taxpayers residing within the district. Where the owners of 2/3 of any contiguous acreage are nonresident and there are not 5 taxpayers residing in the territory, the district may be incorporated upon petition of 2/3 of the taxpayers in the territory. (404, 458)	After notice and hearing, the county commissioners, finding the requirements complied with, enter an order establishing the district; and their findings are conclusive as to the facts determined. (405-6) Within 5 days, taxpayers who are qualified electors elect 3 directors, who are resident freeholders. (409-411)	The district is a body corporate and politic with the usual powers of corporations including the right of eminent domain. It also has extensive powers specially conferred. (407, 408, 436-453)	A board of 3 resident and elected directors manage the affairs of the district. In intercounty districts directors may be residents of either county. Where 2/3 of the landowners are nonresident, directors must be owners but not necessarily residents. (409-459)	Costs of organization are paid from assessments after the district is established. Directors may levy 5 mills on the dollar on all taxable property to provide a general fund. (407, 408)
	Drainage in one or more counties.	The district court of the county in which the greater portion of the proposed district is situated. Upon presentation of articles of association signed by a majority in interest of the owners of any contiguous body of swamp or overflowed lands. (24: 601)	Articles of association must be signed by a majority in interest; must generally describe all lands affected, name the owners, state the number of years the association is to continue, and obligate the signers to pay taxes assessed for the improvement. (601)	The court clerk issues a summons to the landowners who have not signed the articles to appear at the next term and present any objections. After summary hearing, the district court, if it overrules the objection, by order of record declares the district to be a public corporation. (603)	Drainage district. The district is a public corporation and its articles are recorded with the Secretary of State like other corporations. Certified copy of the record is filed with the county clerk of each county affected. (604) The charter may be renewed after expiration, upon petition of a majority in interest. (639-654)	A board of 5 elected supervisors, who must be landowners and a majority of them resident in the counties affected, manage the district. Each landowner is entitled to 1 vote for each acre owned. The supervisors appoint a drainage commissioner to superintend construction. (605-610)	The signers of the articles of incorporation obligate their lands to pay taxes and assessments for the expenses of the improvement. (601) After incorporation, organization and administration expenses are paid from assessments levied after the classification of benefits. (618)
KENTUCKY.....	Act of 1912, county judge. Act of 1918, county and circuit courts have concurrent jurisdiction. Petition may be filed in either court of any county having lands in the district.	The petition must be signed by 25% of the landowners, or the owners of 25% of the land; when petition is for reconstruction, by 50% of the landowners or the owners of 50% of the lands.	The court appoints a board of 3 viewers to determine the boundaries of the district. After hearing on their favorable report, the court amends or modifies same and establishes the district. The court order has the effect of a judgment against the lands. (2380: b. 4-10)	Drainage district. The district is a public corporation of the state with the usual powers of corporations, including the right of eminent domain to acquire necessary rights-of-way. (b. 9)	The court divides the district into 3 precincts, and a drainage commissioner for each precinct is elected by the landowners, voting one for each acre assessed or for each \$100 of benefit. (b. 12) In counties having 75 districts the court appoints a single commissioner. (c. 1)	The petitioners give bond for \$2,000, conditioned to pay costs if the petition is denied. The drainage commissioners levy a uniform tax of 50¢ per acre for expenses before collection of assessments. (b. 3-13)	
LOUISIANA	Gravity Drainage Districts	The police juries of the various parishes, except Orleans, may establish drainage districts. Interparish districts are established by joint resolution of the several police juries. No district may include an entire parish nor have less than 5 landowners. (6989, 6993)	Petition must be signed by a majority in number of acres or a majority of resident landowners, where there are 40 or less, or by 25 landowners where there are more than 40. (6989)	Resolution of the police jury organizing the district fixes its boundaries, and is published for 30 days during which time any landowner may file objection. After 30 days, the jury's action is incontestible for any cause. (6990)	Drainage district. Districts are subdivisions of the state within the meaning of the constitution and statutes relating to incurring debts and issuing bonds therefor. Districts have perpetual succession and may expropriate property necessary for their purposes. (6989, 6996)	Districts are governed by 5 commissioners of whom the organizing police jury appoints 3 and the governor appoints 2 upon recommendation of a majority in acres or of the resident landowners where there are 40 or less, or of 25 landowners where there are more than 40. (6992)	Commissioners have power to provide necessary funds by levying an acreage tax or forced contribution on the lands in the district upon the vote of the electors. The preliminary expenses may be paid from this tax. (6999)
	Leveed and Pumped Drainage Districts	Police juries of the parishes may create drainage districts on their own initiative or on petition of landowners. Lands must be contiguous and there must be at least 5 landowners.	Police juries are compelled to act on petition of a majority in acreage. The State Board of Engineers must approve, and furnish a map of the lands which should properly be included. (7035, 7036)	Five drainage commissioners are appointed on the recommendation of a majority in acreage, where there are 40 or less landowners; if more than 40, then on the recommendation of 25. The commissioners appoint an engineer and 3 appraisers and, on their report, adopt a plan of drainage. (7038, 7063-7055)	Drainage district. The district is a body corporate with perpetual succession and power to expropriate property necessary to its purposes. Districts have the same power to secure outlets outside of their boundaries. (7043)	A board of drainage commissioners, composed of owners of real estate in the district, appointed in the ordinance creating such district, manage its affairs. They have the power to carry out the plan of reclamation. The chief engineer is the superintendent of construction. The commissioners control all subdistricts. (7050, 7061)	Immediately after organizing, the commissioners levy a uniform acreage tax of 25¢ per acre to pay preliminary expenses. Such tax is immediately due and is a lien on the property assessed. This tax is immediately levied on annexed lands. (7051)

CHART OF DRAINAGE LAWS

OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportionment of benefits	Assessments	Bonds	Security for bonds		
When contract for construction has been let, the county board appoints 3 commissioners to classify the lands on a percentage basis in tracts of 40 acres or less. After hearing, the board apportions the cost according to benefits. (7471, 7464, 7465)	The board of supervisors levies the apportioned assessments as a tax on the lands, which tax is a lien to the same degree as state and county taxes. (7471, 7472) Assessments may be paid in installments. (7463, 7464)	When assessments for costs are more than can be borne in 1 year, the supervisors fix the amount to be levied each year and issue drainage bonds of the county. Bonds are payable only from assessments on the specified property and may not aggregate more than the benefits. (7503-7508)	Bonds are issued by the county and have the same lien value as general taxes. (7504) Additional assessments may be made to pay outstanding bonds and interest, based on the original classification. (7509)	The county supervisors, or the trustees if elected, must keep the works in repair. If the cost exceeds 10% of the original cost, a new apportionment of assessments is made in the same manner as the original assessments. (7556)	When no contract is let within 2 years, upon petition of a majority of the owners of 70% of the land and after provision for indebtedness, supervisors by resolution will dissolve the district. (7454) When maintenance exceeds the benefit and upon petition of a majority owning 60%, the district may be dissolved. (7598-g-1)
The directors appoint 3 resident freeholders as assessors to assess all of the real estate in the district in proportion to the benefits determined. Where the assessment is more than 10% of value, the question of proceeding is determined by a majority vote of the landowners affected. (422-424)	Upon confirmation of the assessors' report, after hearing, it is certified to the county clerk and entered on the tax rolls and collected in the same manner as general taxes. (424-462) Appeal must be within 30 days. The assessments are a lien on the real estate against which levied. (431)	If the estimated cost does not exceed the amount for which bonds may be issued, the directors call a special election on the issuance of bonds. Bonds recite that they are payable from special assessments and constitute a lien upon the real estate benefited. The recital in the bonds may be relied on as conclusive evidence of validity. (431)	Special assessments are levied for the purpose of redeeming bonds and are collected in annual installments sufficient to pay principal and interest as the bonds mature. Such assessments are liens on the lands against which assessed. (430-435)	Maintenance is under the general powers of the directors and they may pay for same from the general fund of 5 mills on the dollar or may levy a special assessment on the lands benefited. (407-409)	The district is a public corporation with perpetual succession. No specific provision is made for dissolution but it might be accomplished under the general law.
The engineer appointed by the supervisors makes a complete survey and assesses the benefits which will accrue to each tract of land or other property. He classifies the property on a percentage basis, beginning with the greatest benefit as 100%. Public and private corporations may be classified in a separate list. (609)	The supervisors hear all objections to the engineer's classification and modify or adopt it. (613-617) They then levy a tax in proportion to benefits of an amount equal to the total estimated costs. Total tax may not exceed total benefits. (618-623)	Supervisors may issue bonds not exceeding the total tax levied. Bonds mature during 20 years; and when different dates of maturity have been arranged, the assessments are divided into appropriate installments to meet such maturities. (621)	All proceedings and all bonds are certified to the state auditor, who determines and certifies to their legality. Before issuing bonds, the supervisors by resolution state the total tax available for payment of principal and interest and divide the total levy into convenient installments designed to meet bond payments when due. (621, 622)	Supervisors may levy assessments for repair and maintenance on the basis of the original classification and to be collected in the same manner. The supervisors may appoint not more than 3 overseers to keep the works of the district in good repair. (634, 635)	Upon written petition of a majority in acres in a district which has not constructed a drainage system, and after notice and hearing, the supervisors may, by resolution, dissolve same. The supervisors become trustees to levy taxes and pay all obligations of the district and report to the court. (647-651)
When the engineer appointed by the court reports a "plan," it is referred to 3 appraisers, who assess the benefits to each parcel of land and classify the land in 5 or more classes. After hearing, the commissioners modify or confirm the assessments. (b. 15-18)	After the cost of organization and construction is ascertained, the drainage board add 10%, and the result is the "minimum assessment." Bond interest is assessed separately. The board apportions the assessments to each tract ratably according to benefits. Assessments are liens, second only to general taxes. (b. 22-29)	The drainage commissioners may issue bonds, not exceeding 90% of the total minimum assessments. Bonds mature annually for 30 years, beginning after 5 years. (b. 42) When advantageous, the commissioners may issue refunding bonds payable in 40 years. Such bonds may be used only to retire outstanding bonds and interest. (d. 1)	Bonds recite on their face that they are payable out of assessments. The board must make ample provision for bonds and interest in the annual assessments. (b. 42) Assessments are liens on the property assessed and are collected like general taxes. (b. 28)	The drainage commissioners levy maintenance assessments each year, apportioned on the basis of assessed benefits, but not exceeding 10% of the original assessment. The assessment may not exceed 2% of the original construction cost without written consent of 2/3 of the owners. (b. 43-43a)	A majority in number and amount of those assessed for maintenance may petition the court to discontinue the district. After hearing, if no reason to the contrary is shown, the court will grant the petition. (49a)
The commissioners levy an acreage tax, upon vote of the electors, for the full term for which voted; or an advalorem tax, upon like vote, to pay principal and interest of bonds, and levied annually. (6999)	Commissioners are authorized to collect an annual acreage tax, not exceeding 50¢ per acre, for not over 40 years, upon petition of the owners of 2/3 of the acreage. Upon petition of a majority in number and acres, the commissioners order an election on such tax. (7000)	Upon vote of a majority in number and acres, the commissioners of a district may issue bonds, not exceeding for principal and interest the aggregate amount of the acreage tax for the period less 2 1/2 cents per acre set aside for maintenance. Bonds run not more than 40 years. (7000-7016)	Before bonds are issued, the commissioners, by resolution, determine their regularity. Bonds may be registered with the Secretary of State without charge. They are payable in annual installments beginning not more than 3 years after their date. Taxes levied to pay bonds are incontestible after 60 days from the resolution levying same. (7017-7022)	Out of any acreage tax or forced contribution levied, 2 1/2 cents per acre is set aside by the governing authority each year, to be used solely for maintenance of the works. (7015)	The commissioners, at any time before bonds are issued, may submit to the voters the question of repealing the acreage tax and dissolving the district. If supported by a majority in number and amount of those voting, the district is dissolved and a tax is levied to pay all outstanding claims against it. (7028)
The commissioners appoint 3 disinterested appraisers to assess benefits. They petition the court of the parish where the district was organized to confirm the appraisers' report. After summary hearing, the court approves or corrects the report, subject to appeal. (7055-7059)	After confirmation of the assessor's report, the commissioners levy such portion of the benefits as is necessary to complete the work and pay interest on estimated bonds, plus 10% for contingencies. This tax is a lien on the lands and other property. (7062-7063)	Commissioners may issue bonds up to 90% of the total taxes levied. They are payable in annual installments corresponding with the installments of taxes. Refunding bonds may be issued on petition of the owners of a majority in acreage. Bonds are exempt from taxation. (7080-7089, 7071)	Bonds are secured by corresponding annual installments of assessments, which are tax liens on the lands and other property in the district. Bonds are exempt from taxation. No tax levy may be made which will impair the security of the bonds. (7062, 7080, 7089)	Commissioners may levy an annual maintenance tax on the basis of the net assessment of benefits, and not to exceed 5% thereof. This tax is collected at the same time and in the same manner as assessments for benefits. (7064-7066)	The statute contains no specific provision for dissolution. The district is a body corporate with perpetual succession and might be dissolved under the general law.

STATE	JURISDICTION	PROCEDURE				FINANCING	
		Petition	Method of organization	Form of organization	Management	Preliminary expense	
MARYLAND	"Tax Ditches."	The board of county commissioners of the county where the petition is first filed have jurisdiction to establish "tax ditches" and to appoint 3 or more ditch commissioners to estimate the cost and apportion it to the lands involved. (38-40)	Any of the owners of swamp or low grounds, being unable to agree with other owners, or being incompetent or nonresident, may petition the county commissioners to appoint drainage commissioners to lay out "tax ditches." (39-40)	The drainage commissioners, with the aid of a competent surveyor, view the lands, lay out the works, and estimate and apportion the costs. After confirmation of their report, these commissioners call an election by the taxables to select 2 or more managers and a treasurer. (45-50)	The organization is known as a "tax ditch." Every ditch so made must remain open for the benefit of the persons assessed. Failure to begin work within 2 years voids the proceedings. Appeal is to the circuit court. (62, 63-75)	Two or more managers and a treasurer are chosen by the taxables to control the affairs of the ditch. Taxables vote in proportion to the taxes paid and a majority is a quorum. Inter-county districts must have 1 manager from each county. (46, 50-52)	The ditch commissioners assess a tax on the lands benefited proportionate to the benefits received, and the money so raised is used for the costs of construction, damages, and preliminary expenses. (42-44)
	Drainage Districts.	The board of county commissioners of any county may establish drainage districts, and jurisdiction is in the commissioners of the county where petition is first filed. The removal of water from agricultural land is declared to be a public benefit. (85)	The petition must be signed by a majority of the resident landowners or by the owners of 3/5 of all lands which will be affected and assessed. The petition describes the lands and the route and termini of the proposed works. (86)	The county commissioners appoint an engineer, recommended by the state engineer, and 2 resident freeholders as a board of viewers. On adverse report of the viewers, the petition is dismissed. Otherwise after hearing, the district is established and the viewers make detailed survey, plans, and estimates of cost. (87)	Drainage district. The drainage commissioners of the district become a body politic and corporate with the usual powers of corporations and have the right of eminent domain to acquire necessary rights-of-way over lands not affected by the drainage. (97, 103)	After the district is established, the board of county commissioners, with the approval of a majority of the landowners, appoint 3 freeholders as a board of drainage commissioners, who organize as a corporate body and control the construction and operation of the district. (97, 98)	A bond of \$50 per mile of the proposed works must accompany the petition, conditioned to pay costs if the same is not granted. A drainage district fund is provided from which an established district may borrow up to \$2,000 for preliminary expenses, to be repaid after assessments are collected. (88, 111)
MICHIGAN		A county drain commissioner is elected biennially. He and a specially appointed board of determination establish one-county drains; intercounty drains are established by a joint board with the Commissioner of Agriculture as chairman. (Chs. II-V)	After the drain is established, on petition of 10 freeholders, of whom half are landowners, there must be a petition to construct drain, signed by freeholders assessable therefor equal to 2/3 of those freeholders whose lands will be traversed by the drain. (Chs. III-V)	Petition to construct; establishment of drain by board of determination appointed by probate judge (establishment by joint board under Commissioner of Agriculture, if intercounty); hearing on benefits assessed; final order of determination; public meeting of landowners reviews benefits and lets contract.	Either county drain wholly within 1 county, or intercounty drain where the lands are situated in more than 1 county. (Ch. III, secs. 1-9)	If a county drain, control is in county drainage commissioner elected biennially; if intercounty, control is in a joint board of which the state Commissioner of Agriculture is chairman. (Ch. III, secs. 1-4)	A revolving fund collected by general taxation may be used for preliminary expenses. The fund is reimbursed from the first assessments collected. The petitioners are jointly and severally liable for costs if the proceedings are dismissed. (Ch. XI, secs. 1-2)
MINNESOTA	State Drains and Judicial Ditches.	The commissioner of drainage and waters has the power to construct any drain and such drain may consist of the bed of a watercourse. No meandered lake may be drained unless no longer beneficial and upon petition by 60% of the freeholders whose lands are affected. (6635-6636, 6659, 6667)	A petition must be filed with the judge of the district court of the county or counties affected, alleging public benefit. Maps and estimates of costs prepared by the engineer of the commissioners or under his direction must also be filed. (6637)	The district judge appoints two viewers and the state commissioner appoints one, and they report on benefits and damages to the various tracts. After notice and hearing on the viewers' report, the court, finding that the drainage will be a public benefit and the costs will be less than the benefits, will confirm the report and establish the drain. (6638-6643)	The ditch so established is a public drain, known as a state or judicial ditch, and controlled by the board of the county or counties wherein the lands are situated.	The county boards of the several counties in which the drain is located have control over the ditch in their respective counties after confirmation of the viewers' report by the district judge. (6656)	In determining the cost of the drain, the viewers include the costs of organization. When the county board issues bonds, the amount includes a sufficient sum to pay the costs of establishing the drain. (6641, 6647, 6648, 6656)
	County Drains and Ditches.	The county boards of the several counties and the district courts of the several districts are authorized to establish and maintain public drainage systems. Meandered lakes may be drained only under specified conditions. (6840.2)	Petition must be filed with the county auditor for a county drain or the clerk of the district court for a judicial drain. The petition must be signed by a majority of the resident landowners or the owners of not less than 5% of the area. Municipalities may sign by their governing authorities. (6840.3)	Detailed survey and report on cost; approval of the state drainage commissioner; appointment of viewers to assess benefits; hearing on the viewers' report; and order of the court or the board establishing the district. (6840.5, 6840.26)	County drains, if established by the county board, or judicial drains, if established by the district court. (6840.5)	The county boards or the district courts, as the case may be, control and manage the affairs of the different drains.	Bond of \$2,000 must accompany the petition, conditioned to pay costs in the event the district is not established. When organized, the preliminary expense becomes a part of the total cost paid by assessments. (6840.3)
MISSISSIPPI	Districts with Local Commissioners.	The chancery court of any county in which lands of the proposed district are situated may establish a district, and thereafter all proceedings are had in that court. (4449, 4451)	One-fourth of the landowners may file a petition and, unless a majority of the landowners owning 1/2 of the area object, the district may be established. Upon petition of a majority owning 1/3, or 1/2 owning a majority of the area, the establishment of the district is mandatory. (4449-4450)	The court appoints 3 landowners as temporary commissioners to make survey and report. Their terms expire with the formation of the organization. After notice and hearing on the report, the court, finding the district to the advantage of the landowners and of public benefit, will establish it. (4450)	Drainage district. Upon organization, after confirmation of the temporary commissioners' report, the district becomes a body corporate and, through its commissioners, has all the powers of a public corporation. (4450)	When the district is established, the court appoints 3 owners of real property in the district as commissioners of the district and they control the corporation. Upon petition of a majority in number, the court must appoint any recommended person as commissioner. (4455-4457)	If the district is not established, the preliminary costs are collected by assessment of an acreage or ad valorem tax against the real property. Temporary commissioners may borrow for expenses and pledge assessments as security. After establishment, the costs are paid by the county and refunded from assessments. (4449)

(Continued, p. 672)

CHART OF DRAINAGE LAWS

671

OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportioning benefits	Assessments	Bonds	Security for bonds		
<p>The ditch commissioners view the lands and report to the county commissioners, with maps and a description of each parcel of land and the amount which each owner must pay in proportion to the benefits received. Such taxes remain in force for 20 years but a new assessment may be had after 5 years. (40-44, 116)</p>	<p>The ditch commissioners deliver to the treasurer a statement of the sum which each taxable must pay. There may be a new assessment upon petition of a majority of the taxpayers after the lapse of 5 years. Such tax is a lien upon the real estate assessed. (53, 79, 116)</p>	<p>No bonds are authorized.</p>	<p>None.</p>	<p>It is mandatory that the managers clean and repair the ditches every 2 years, and a levy to pay the costs of repair and maintenance may be made by the managers against the lands benefited. (116)</p>	<p>There is no provision for dissolution. The confirmation of the assessors report becomes void if the ditch is not begun within 2 years and completed within 7 years. (63)</p>
<p>The engineer and viewers classify the lands with reference to the benefit they will receive, dividing them into 5 classes, the highest benefit being Class A and the next Class B, etc. As often as 5 mills is assessed against Class A, 4 mills is assessed against Class B, etc. (90)</p>	<p>After confirmation of the classification, the drainage commissioners estimate the total cost of the improvement, including maintenance for 3 years and interest on bonds, and prepare 10 duplicate assessment rolls to cover the period of any bond issue. Such assessment rolls are delivered to the sheriff for collection like general taxes. (99, 100)</p>	<p>The drainage commissioners, after notice, may issue bonds for an amount equal to the total cost of the improvement, less assessments paid in cash, plus interest on bonds for 3 years. Bonds are payable in 10 equal installments, commencing 3 years from the date of issue. All bonds are recorded in the drainage record. (105, 106)</p>	<p>Bonds are secured by assessments, which are paramount liens on the lands assessed, second only to state and county taxes. After default in payment of bonds for 6 months, bondholders have right of action against the drainage commissioners to compel the levying of a special tax to meet principal and interest. (100, 106)</p>	<p>It is the duty of the drainage commissioners to maintain the works, and they may levy assessments for that purpose in the same manner as for construction, but not to exceed 25% of the original assessments. (108)</p>	<p>There is no specific provision for dissolution.</p>
<p>The drain commissioner apportions the benefits accruing to each tract. After hearing on the apportionment, appeal is to the probate court, where a board of review is appointed by the court, and its action when approved is final. (Ch. VI, sec. 1)</p>	<p>The drainage commissioner makes a special assessment roll for each drain and adds a certificate of his determination whether taxes must be paid in one or more years. The roll is certified to the county clerk for collection like general taxes. Such taxes are a perpetual lien upon the lands. (Ch. X, secs. 5, 9-11, 17)</p>	<p>When taxes are to be collected in more than 2 installments, the drainage commissioner may issue bonds against all installments after the first. Total bonds may not exceed the taxes levied. (Ch. V, secs. 14-21)</p>	<p>Bonds show on their face that they are payable out of installments of drainage taxes. If there be insufficient funds at the last maturity, the drainage commissioner levies an additional assessment to make up the deficit.</p>	<p>In county drains 5 freeholders, 2 liable for assessment, petition for maintenance. The procedure follows that for construction. In intercounty drains 10 freeholders petition the joint board. Twenty percent of the original cost may be spent without petition. (Ch. VII, secs. 1-8)</p>	<p>When a drain has ceased to be a public utility, upon proper petition therefor the drain commissioner or the joint board may declare it abandoned after all indebtedness has been paid. Private rights may not be impaired.</p>
<p>The viewers appointed by the board or the court report in tabular form the benefits to each tract or other property. Upon full notice and hearing, the court or the board confirm the viewers' report and establish the district. Appeal is to the district court. (6641, 6647, 6648)</p>	<p>After the letting of the contract, the auditor of each county affected prepares a tabulated lien statement showing the amount that each tract or other property must pay into the county treasury. The statement is filed with the recorder of deeds and is immediately a paramount lien. (6641, 6647, 6658)</p>	<p>The county board may issue bonds of their respective counties in an amount not greater than the assessments against the lands in such county to pay the expenses of organization and construction. (6656, 6657)</p>	<p>County bonds are issued, backed by the full credit of the county, which in turn looks to the assessments on the benefited property for payment of such bonds. The county auditor's statement recorded with the registrar of deeds is a paramount lien on the property assessed. (6648-6656)</p>	<p>County boards may levy annual assessments for maintenance in the original proportion and not exceeding 30 mills on a dollar. When repairs cost 30% of original cost and 51% of the owners petition for a maintenance fund, the court or board will establish the fund.</p>	<p>Drainage being accomplished through public systems under county officials, with perpetual maintenance, there is no special provision in the act for abandonment or dissolution.</p>
<p>The viewers, appointed by the board of the court, report in tabular form the benefits to each tract or other property. Upon full hearing, the viewers' report is confirmed and the district is established. (6840.16, 17, 21-24)</p>	<p>After contract is let, the auditor of each county prepares a tabulated lien statement proportioned to the total cost, showing the amount that each tract or other property must pay; and such statement when filed with the recorder of deeds is immediately a paramount lien.</p>	<p>When the lien statement has been filed, the county board may issue bonds of the county, sufficient to construct and maintain the system in that county. Proceeds are placed in the county treasury to the credit of the particular ditch. (6840.43)</p>	<p>Proceeds of bonds are placed in the general ditch fund of the county to the credit of the particular ditch, and the county board may pay drainage bonds out of any available funds when the general fund is inadequate. The county is reimbursed from drainage assessments. (6840.51)</p>	<p>Any county containing a state, judicial, or county drainage system must maintain it. Where funds are insufficient, the county may pay the costs and assess the lands and other property in proportion to the original assessment. (6840.53-74)</p>	<p>Drainage being accomplished through public systems under county officials with perpetual maintenance, no special provision is made for abandonment or dissolution.</p>
<p>The district drainage commissioners assess the benefits against each tract or other property. This record is filed with the court clerk and becomes the assessment roll after approval by the court. (4460-4480)</p>	<p>After hearing, the court corrects and confirms the assessment roll and it becomes the final assessment of benefits. The court orders a levy, which has the effect of a judgment. Assessments are liens on the lands. (4460-4480)</p>	<p>The district drainage commissioners may borrow money and issue bonds therefor, not exceeding the total benefits assessed. Bonds must mature within 30 years in such annual amounts as the commissioners determine. (4480)</p>	<p>All evidences of indebtedness issued by the districts are liens on the property in the district, not to exceed the benefits assessed. All revenues are pledged for the payment of bonds. Assessments are paramount liens. (4480)</p>	<p>The district drainage commissioners may from time to time apply to the court for additional assessments for maintenance. Such assessments are in the same proportion as the original assessment. (4460-4480)</p>	<p>After 3 years from organization, on petition from a majority of the landowners or the owners of a majority of the acreage, excluding state lands, the Chancery Court will hold hearing and will dissolve the district if that appears to the interest of the landowners. (4508—Suppl. 913)</p>

CENSUS OF DRAINAGE: 1940

GROUP I.—STATES INCLUDED IN CENSUS

STATE	JURISDICTION	PROCEDURE				FINANCING	
		Petition	Method of organization	Form of organization	Management	Preliminary expense	
MISSISSIPPI -Continued	Districts with County Commissioners. The chancery court of the county or judicial district having the larger area in the proposed drainage district has jurisdiction in inter-county drains, co-extensive with the boundaries of the district. (4373)	The petition must be signed by a majority of the adult owners of lands within the district, who represent 1/3 in area, or 1/3 of the adult owners owning more than 1/2 of the lands. If 1/3 of the landowners owning more than 1/2 of the lands protest, the petition must be dismissed. (4375, 4379)	The court refers the petition to the county drainage commissioners' for report. After hearing on their report, the court will correct and confirm it and establish the district. Appeal is to the supreme court. (4377-4381)	The district is a body politic and corporate with perpetual succession and the county drainage commissioners constitute the corporate authority of the district. (4382-4386)	All drainage districts except those with local commissioners and swampland districts, are managed by a board of 3 county drainage commissioners selected by the county board of supervisors for a term of 6 years. Resident citizen landowners over 25 are eligible for commissioner. (4371-4373)	If the district is not organized, the court assesses an acreage tax against petitioners to pay the cost. After establishment, the drainage commissioners may issue certificates of indebtedness to cover costs or organization.	
MISSOURI.....	The circuit court of the county having the largest area receives articles of association praying that the territory described be decreed to be a drainage district. Jurisdiction is co-extensive with the boundaries of the district. (12324)	The owners of a majority in acreage in any contiguous body of swamp or overflowed lands file articles of association and pray to be declared a drainage district. (12324)	After summary hearing, the circuit court, being satisfied that the district should be formed, enters a decree incorporating it. The decree is filed with the Secretary of State and the recorders of each county affected. (12326)	Drainage district. The district is a corporation for the period stated in the petition. The corporate existence may be extended upon petition to the court after favorable majority vote of the landowners. (12326)	A board of 5 supervisors elected by the landowners, voting once for each acre of land owned, control the affairs of the district. They must be landowners and 2 of them residents of the county or adjoining county. (12338, 12349)	The supervisors of the district levy a uniform acreage tax of not more than 50¢ per acre to pay preliminary costs. If the petition is dismissed, the costs are apportioned to the signers of the articles. (12326)	
MONTANA.....	The district court of any county in which a portion of the lands are situated may establish drainage districts upon petition setting forth the name, necessity, and general description of the lands and the names of the owners. (7265)	The petition must be signed by a majority of the adult landowners who represent 1/3 in area, or the adult owners of more than 1/2 of the lands affected. (7265)	The court appoints 3 drainage commissioners for the district, who report a plan and cost, and after hearing, corrects and confirms the report and establishes the district as a body corporate with perpetual succession. (7268)	Drainage district. The district is a body corporate with perpetual succession and has the usual powers of public corporations. The commissioners constitute the corporate authority. (7298-7300)	The court divides the district into 3 divisions and appoints a commissioner from each division. Thereafter 1 commissioner is elected annually from each division, who must be an actual resident landowner of the county. (7280-7283)	If the petition is dismissed, judgment is entered by the court against the petitioners for costs. After organization, preliminary expenses are paid from assessments on benefits. (7279, 7322-7324)	
NEBRASKA..	Drainage by County Authorities.	The county board of any county has authority to locate and construct drains or alter watercourses when necessary for drainage or conducive to the public welfare. (31:101)	The petition must be signed by one or more owners of lands that will be affected. For intercounty ditches, application is to the board of each county and a majority of each board is necessary to establish. (104, 131)	The county board by actual view determines the necessity and public utility of the improvement and record their findings. They cause survey to be made and, after hearing, correct and confirm the report and establish the district. (105, 117)	County drain. The controlling board has necessary power to secure rights-of-way and outlets.	Completed districts remain under the direct control and supervision of the county board or the joint boards, who obtain construction and repair of the works and levy assessments therefor. (135, 138)	Bond must accompany the petition conditioned to pay costs if the district is not established. Preliminary expenses are paid from assessments after organization. (104)
	Drainage by Incorporated Companies.	Articles of association must be filed with the county clerk of each county affected and are recorded in such county clerk's office. (31:202)	Any number of landowners, not less than 3, may sign the articles of association; and any landowner affected may become a member by signing the articles. (203)	After the filing and recording of the signed articles of association in the county clerk's office of each county having lands affected, the directors are elected and they govern the affairs of the association. (204)	The district is a body corporate with the usual powers of corporations, controlled by directors elected annually by the members of the association. (203, 204)	A board of directors elected annually by the members of the association manage the affairs of the corporation. They elect a secretary and treasurer. (205)	The preliminary expenses of the corporation are paid from funds collected from assessments on the property of its members.
	Drainage by Individual Landowners.	The county board of any county, on petition, after survey and appraisal, and finding necessity and public benefit, will establish the drainage. (31:304)	Any person or persons may file a petition stating the boundaries of the drainage; the necessity for same; that it will empty into a natural watercourse; and that it will be conducive to the public benefit. (305)	Approving the petition, the board directs a survey to determine the public benefit and whether the costs will exceed the benefits to be derived. After hearing and affirmative finding, the court establishes the drainage. (306, 307)	The enterprise becomes a body corporate under the control of the county board, who are the corporate authority. (303, 308)	The county boards become the drainage supervisors for their respective counties and as such are the corporate authority of all enterprises within their counties established under this act. (303, 308)	The petition must be accompanied by approved bond to pay costs if the drainage is not established. After organization, preliminary costs are paid from assessments. (304, 311)
	Drainage by Proceedings in District Court.	The district court of the county in which the greater portion of the lands are situated receives articles of association and petition for incorporation of a drainage district. (31:401)	A majority in interest of the owners of any contiguous body of swamp or overflowed lands, more than 160 acres, may sign articles of association and file them with the district court with a petition for organization. (401)	Summary hearing on the petition; order establishing the district; election of supervisors; complete survey and plan; and election on the question of proceeding to construct. (402, 417, 470)	Drainage district. Upon approval by the court, the articles of association are filed with the Secretary of State and the district becomes a public corporation. (404)	A board of 5 supervisors, composed of landowners in the district, a majority of whom must be residents of the county or counties affected, manage and control the district. Annually after the first election, 1 supervisor is elected for 3 years. (405, 464)	If a majority vote for abandonment after the cost has been ascertained, tax is levied by valuation to pay preliminary costs. After establishment, preliminary costs are paid from assessments. (429, 445, 470)
	Drainage by Vote of Landowners.	The county board receives a petition to establish a drainage district, and, with the help of the county surveyor, determines the boundaries thereof. (31:504)	When there are less than 20 owners, petition must be signed by one-fourth. When there are more than 20, 10 or more must sign. The petition is filed with the county clerk. (502)	After notice, an election is held by the landowners on the question or organization and selection of directors. A majority vote is conclusive of the public benefit. Vote is by signed ballot giving a list of the lands owned by the voter. (505, 508)	Drainage district. The district has the power of eminent domain to acquire rights-of-way in the same manner as provided for railroad rights-of-way. (515)	A board of 5 directors manage the district. A majority of directors first elected must be residents of the counties affected and their terms of office are adjusted so that 1 director is elected each year. (509)	Petitioners file approved bond, conditioned to pay the costs if the district is not organized. After organization, preliminary expenses are paid from assessments. (503)

CHART OF DRAINAGE LAWS

OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportioning benefits	Assessments	Bonds	Security for bonds		
The county board of drainage commissioners view the lands and other properties and assess the benefits and damages and report to the court. Upon confirmation of their report, they apportion the benefits to each tract or other property and make record thereof. (4387)	The drainage commissioners estimate the entire cost and file a levy certifying the amount required. The court may order assessments paid in installments. Annually the commissioners levy a tax in proportion to the fixed installments of assessed benefits and certify it to the supervisors for collection. (4396-4398, 4419)	The drainage commissioners may issue bonds, not to exceed 80% of the assessed benefits and payable in from 1 to 40 years. Refunding bonds may be issued when a district is unable to pay outstanding debts. (4396-4398)	All assessments and bonds are liens on the property in the district and the lands may be sold to enforce payment. All revenues and real estate of a district are specifically pledged for the payment of its obligations but not exceeding the original amount of assessed benefits. (4395)	Upon completion, the district continues as a body corporate and the drainage commissioners from time to time may apply to the court for additional assessments for maintenance. The proceeding is the same as for original construction. (4404)	Whenever 25% of the landowners owning a majority of the acreage desire to have a district dissolved, the chancery court will enter decree dissolving same on such terms as it may deem best, when there is no outstanding indebtedness or the district is solvent. (L. 1936, ch. 256, suppl. 901)
Upon petition of the district supervisors, the court appoints 3 disinterested commissioners to view the lands and assess benefits. After hearing, the court corrects and confirms the assessment. (12350)	The supervisors levy a tax 10% greater than sufficient to carry out the "plan," and apportion it in proportion to the confirmed benefits. The tax is a lien on the lands and other property, and is collected like general taxes. (12340)	Supervisors may issue bonds in amount not to exceed 90% of the taxes levied. Bonds show the purpose for which issued, and that they are payable from drainage taxes. (12369)	The supervisors must set aside each year sufficient drainage taxes to pay bonds and interest. The life of the corporation may be extended if necessary in order to raise funds to pay bonds. (12369)	The supervisors may levy maintenance taxes on the basis of assessed benefits, and not exceeding 10% thereof in any year. They may appoint overseers to keep the works in good repair. (12368)	Districts may be dissolved upon petition of a majority in acres before bonds are issued, and levy of tax to pay obligations; or upon petition of 1/10 of the landowners owning 1/10 of the land and vote thereon, if there is money in the treasury to pay all debts. (12361)
When the district is established, the commissioners make a final tabulated report showing the benefits assessed; the total cost of the works; and the probable cost of maintenance. After hearing, the court corrects and confirms the final report. (7325-7329)	On confirmation of the final report, the court orders assessments levied in proportion to the benefits and to be paid in not more than 15 annual installments beginning not later than 5 years after the order. (7325, 7336, 7357)	Drainage commissioners may borrow money and issue bonds therefor, not to exceed the amount of unpaid assessments at the time. Refunding bonds of longer maturity may be issued by order of the court upon petition of the commissioners. (7343, 7344)	Bonds are liens upon the assessments against which they are issued. Every assessment confirmed is a judgment in favor of the district against the land or other property and may be collected in the same manner as other judgments. (7343, 7357)	The commissioners report annually to the court the amount to be assessed against each piece of property for maintenance and interest charges. After hearing, the court confirms the assessments and certifies them for collection like other taxes. (7338)	Upon petition of the owners of more than 1/2 of the land, the court will dissolve the district, order written report of its obligations, assess taxes to pay them, and order the commissioners to settle the affairs of the district. (7265.1)
After hearing, and determination that the apportionment of benefits made by the surveyor is fair and just, the board confirms the surveyor's report. Appeal is to the district court. (100-117)	When the cost of construction and damages have been ascertained, the board determines in what number of assessments they will require payment. They place the assessments on the duplicate tax list of the county to be collected in the same manner as county taxes. (121-124)	When the board determines that assessments are too large for immediate payment, they may issue bonds of the county, maturing in not more than 10 installments, to pay costs of construction and damages. (125)	The bonds are county bonds and are a first and permanent lien on the property benefited and assessed. The issue is limited to the actual assessments less cash payments thereof. (125, 129)	The county board may levy 1 mill per dollar of assessed valuation for the removal of obstructions. Upon petition of 5 owners, the board levies an assessment for maintenance. (132, 35, 38)	Completed drains remain under the control of the county board. If dissolved, the rights-of-way become the property of the county. There is no specific provision for dissolution.
The company may apply to the district or county court of any county for the appointment of appraisers, and such appraisers assess the benefits and return a sworn schedule to the court for record in the county clerk's office. (206)	The appraisers' recorded schedule of assessments is enforced by the foreclosure of the lien thereof in the same manner as mortgage liens. (209, 211)	When the work is estimated to cost \$3,000 or more, the company may issue bonds not to exceed the estimated cost. Interest may not exceed 10%. (213)	The company may secure bonds by a pledge of the assessments, and provide for a sinking fund to pay bonds. No proceedings may be instituted having the object or tendency to impair the validity of the bonds. (213)	Maintenance is under control of the elected directors. Reassessment on all lands may be made at any time upon request of the directors in the same manner as the original assessment.	There is no specific provision for dissolution in this statute. It might be accomplished under the general law for the dissolution of corporations.
A board of 3 disinterested appraisers, appointed by the county board, assesses the benefits. The board hears objections and corrects and confirms the assessments. Appeal is to the district court. (311, 315)	The assessment roll made up by the appraisers and confirmed by the board is placed on the tax books against the lands and other property affected and is collected like general taxes. (317, 323)	There is no provision for bonds, but when assessments are found to be inadequate to complete the works or necessary for maintenance, each tract is assessed by the county board in the same proportion as for original construction. (323)	No bonds.	Annual removal of obstructions by the landowners and tenants is required. The county board when necessary may levy assessments for maintenance in proportion to the original assessment. (323, 326)	No specific provision. Dissolution would have to come under the general law.
The engineer employed by the supervisors classifies the property according to benefits on a percentage basis, that receiving the highest benefit being classed at 100. The supervisors equalize and confirm the classification after hearing. Appeal is to the district court. (412, 426)	The supervisors levy a tax equal to the entire cost, including bond interest, proportioned to the benefits established by the confirmed classification. The tax may be collected in 20 installments and an annual levy made to pay installments of bonds and interest. (429, 442)	The supervisors, by resolution, issue bonds after a special meeting for that purpose. Bonds are presented to the state auditor for certification that they have been regularly issued and registered.	The supervisors, by resolution, fix the maturity of bonds to coincide with the payment of installments of taxes and, to the extent necessary, taxes are pledged and hypothecated to pay bonds. Taxes are liens on the property assessed. (432, 444)	On their own motion or on majority vote, supervisors may levy annual taxes for maintenance. They may appoint 3 overseers. (463)	There being no outstanding indebtedness, the supervisors, on written request of 15 electors, may call an election on the question of dissolution. If a majority, voting 1 share for each acre owned, favor dissolution, the district stands dissolved. (L. 1933, p. 268)
The directors, after a detailed survey, apportion the benefits on a system of units, the land least benefited being apportioned 1 unit. The final corrected apportionment is the basis of all tax levies. (511, 514)	The directors annually determine the amounts necessary to pay bonds and interest and for other expenses, and they apportion these against the properties according to the units of benefit. Such assessments are a perpetual lien. (524; L. 1933, p. 537)	When a district needs \$5,000 or more, the directors, after notice of intention, may issue bonds to the required amount certified by the engineer. Bonds mature in not more than 20 installments. (517, 521)	Bonds must be examined by the auditor of public accounts as to their legality and registration. Maturing bonds and interest are included in annual assessments and such taxes are liens on the property assessed. (521, 524)	The directors may include in the annual assessment for the expenses of the district the amount needed for maintenance, which is apportioned against each tract benefited according to its units of assessment. (524)	The directors, at the request of 10 electors, call an election on the question of dissolution. On a 3/5 favorable vote recorded in the county clerk's office, there being no debts outstanding, the district stands dissolved. (536)

CENSUS OF DRAINAGE: 1940

GROUP I.—STATES INCLUDED IN CENSUS

STATE	JURISDICTION	PROCEDURE				FINANCING
		Petition	Method of organization	Form of organization	Management	Preliminary expense
NEVADA	The board of county commissioners of the county having the largest area in the proposed district has jurisdiction to establish drainage districts. (2)	A petition must be presented by a majority of the owners of title who control not less than $\frac{1}{3}$ in area, or $\frac{1}{3}$ of the owners who control a major portion of the area. The last equalized assessment roll is evidence of title. (1, 2)	After hearing, the county commissioners establish the boundaries, make a finding of usefulness and public benefit, and issue a proclamation declaring the district established. The order is filed with the recorder of each county. (5-7)	Drainage district. The district, after publication of the proclamation of the county commissioners, becomes a body corporate, and the board of supervisors is the corporate authority. (5-7)	The county commissioners appoint a board of 3 supervisors to manage the district. One supervisor is appointed annually. If the district is inter-county, not more than 2 supervisors may be from 1 county. (5)	The petitioners file a bond in the amount of 2% of the estimated cost, conditioned to pay the cost of the proceedings if they are dismissed. Supervisors may borrow on warrants, limited to \$1.50 per acre, to pay expenses before assessments are collected. (2, 21)
NEW MEXICO	The district court of any county, in which a portion of the lands are situated, may entertain a petition to construct drains or to acquire outlets, for the promotion of agriculture and the drainage of wet lands. (40:101)	The petition must be signed by 25% of the adult owners who own $\frac{1}{4}$ of the land within the proposed district. It sets forth the name, necessity, description, and names of owners, and prays for the organization of a district. (102)	The petition being in due form, the court certifies that fact to the county commissioners of each county. Drainage commissioners are elected by the qualified electors who are landowners. The commissioners view the lands and report on the necessity and public utility, and the court corrects and confirms their report and the district is established. (133, 143)	Drainage district. The district is a body corporate with the usual powers of corporations and with perpetual succession. The elected commissioners constitute the corporate authority. (133, 143, 186)	A board of 3 drainage commissioners, elected every second year, manage the district. Removal of a commissioner from the county or counties vacates his office. (117, 119)	The petitioners are liable for the preliminary expense if the petition is dismissed. After organization, the commissioners may borrow money for preliminary expenses and secure same by notes payable from assessments when collected. (144, 169)
NORTH CAROLINA	The clerk of the superior court of any county has authority to establish drainage districts either wholly or partly located in his county. The venue is in the county in which the petition is first filed. (5313)	A petition must be signed by a majority of the resident landowners or by the owners of $\frac{3}{5}$ of all of the lands affected or assessed. There is a special provision for Rowan, Robeson, and Iredell counties. (5314)	The court clerk appoints a board of viewers to make preliminary report. After hearing, with the approval of the court, the clerk determines the question of public benefit. After further hearing on the final report, the court corrects and confirms it and establishes the district. (5317-5322, 5360)	Drainage district. The statute declares that drainage districts are created for public use and are political subdivisions of the state. They have the power to condemn rights-of-way and outlets. (5322, 5325)	Three drainage commissioners appointed by the court, after first being elected, manage the affairs of the district. The clerk designates their terms of office and thereafter 1 commissioner is elected each year. (5319)	Petitioners give bond for \$50 per mile of the improvement to pay costs if the petition is dismissed. The court clerk, if the petition is not dismissed, estimates the preliminary expense and assesses each acre at a level rate. Such assessment is refunded after organization. (5315, 5319)
NORTH DAKOTA	The county board of drainage commissioners, appointed by the board of county commissioners on their own motion or on petition, have authority to establish county drains. (2462, 2463) (For township drains, see Sections 2495. a.1 to a.6)	Petition must be signed by at least 6 freeholders and presented to the board of county commissioners. Upon preliminary survey, the petition will be dismissed upon further petition of a majority of the freeholders. (2464)	A hearing is had on the preliminary survey and, if benefits exceed costs, the drain commissioners enter an order establishing the drain. Appeal is to the district court. (2464, 2465-Supp.)	The organization is a county drain under control of the county drain commissioners. In intercounty drains, the drainage board of each county establishes the drain in that county. (2478, 2479)	A board of 3 county drainage commissioners appointed by the county board manage and control the drain. They may cooperate with like officials of other states in interstate drains. (2479, 2495. b.1)	The petitioners are jointly and severally liable for the expenses if the proceeding is dismissed. After a drain is established, the county drainage commissioners may pay all expenses from the inception of the drain from assessments or bonds. (2465, 2494)
OHIO	The board of county commissioners of any county have jurisdiction to establish drainage ditches. In intercounty ditches the joint boards have jurisdiction and the petition may be filed with the auditor of any county affected. (6443, 6536)	Any landowners may file a petition with the county auditor of any county in which lands are situated. The petition must show necessity, public benefit, and the names of the landowners where known. (6444)	The commissioners after hearing held on the ground, and having determined public benefit, grant the petition and fix the scope of the works. The county surveyor makes maps and estimates of cost. On final hearing, the commissioners correct and confirm his report and establish the drain. (6447-6462, 6536-6564)	The organization is a county ditch or a joint county ditch. A ditch constructed and used for 7 years becomes a public watercourse, and the public acquires the same rights therein as in natural watercourses. (6500)	The boards of county commissioners control and manage all ditches in their respective counties. When a county commissioner is interested, the county court will appoint a disinterested freeholder to act in his stead. (6501)	Petitioners give bond of \$200 plus \$50 per mile of ditch to pay costs if the petition is denied. After establishment, costs are paid from the general ditch improvement fund. (6446, 6451, 6462, 6493)
OKLAHOMA	The county commissioners of any county have power to cause drains to be constructed when they are conducive to the public welfare and beneficial to agriculture. (282)	A petition must be signed by 5 or more residents of the county, who will be affected and assessed. If there is a question of public benefit, the commissioners require the signatures of either 50% of the owners or the resident owners of 50% of the acreage. (301, 441)	Preliminary report of viewers; order of commissioners confirming the report and establishing the district; appointment of 3 disinterested viewers by the district court; hearing and confirmation of the viewers' report and correction of benefit assessments and damages. (302, 306-311)	Full authority is conferred on the district to condemn private and public lands, under the general statutes, for rights-of-way and outlets necessary for its works. (284)	The county commissioners have control and management of the district. They may appoint a drainage commissioner for the ditch upon endorsement of 20% of the resident landowners. (411)	The petitioners give bond equal to \$50 per mile of ditch to pay costs if the proceeding is dismissed. Commissioners may require bond to pay all costs if the works are not finally constructed, and may issue warrants secured by such bond. (301, 303)

CHART OF DRAINAGE LAWS

OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportioning benefits	Assessments	Bonds	Security for bonds		
<p>The supervisors view each tract of land and assess the benefits thereto. The commissioners sit as a board of equalization and hear all objections and assess each tract according to the equalized benefits, with allowance for damages. (16)</p>	<p>The supervisors annually prepare a statement of funds needed for construction, maintenance, and interest on bonded debt, add 15% for delinquencies, and certify this sum to the assessor, who collects the assessments on the regular roll of the county. (16, 17)</p>	<p>Bonds may be issued only when voted at a special election at which all freeholders owning not less than 5 acres may vote. Bonds may not exceed the aggregate of benefits assessed. (32)</p>	<p>Bonds constitute a lien upon all the land and improvements within the boundaries of the district, and the supervisors must levy a sufficient tax to pay the annual interest charges in addition to creating a sinking fund to ultimately retire the bonds. (33)</p>	<p>Maintenance is provided in the annual certificate of the supervisors to the county commissioners, showing the amount which will be needed for all purposes. (16)</p>	<p>There is no specific provision for dissolution and it would have to be accomplished under the general law of the state.</p>
<p>After the preliminary report of the drainage commissioners is confirmed, they make a complete survey and report showing the benefits assessed against each tract and other property. The court hears objections and corrects and confirms the report, and its action is final. Appeal is to the supreme court. (144-168)</p>	<p>The court, when confirming the assessments, may order them paid in 15 installments, conveniently arranged to meet payments for construction and maturing bonds. Additional assessments may be levied in the same manner as original assessments. All assessments become liens upon the land and other property until paid. (159, 168)</p>	<p>The drainage commissioners may borrow money, not exceeding the amount of the assessments, and issue notes or bonds therefor. Bonds must mature not later than 1 year after the last installment of the assessments is due. (169, 182)</p>	<p>Notes and bonds are liens upon the assessments against which issued. No bond may be adversely affected by any subsequent change in the assessment of benefits. Assessments are liens on the lands and other property. (169, 182)</p>	<p>The drainage commissioners annually report to the court the amount to be assessed for maintenance, and such tax is proportioned on the last confirmed assessment of benefits and collected in the same way. (161, 164)</p>	<p>A majority of the owners owning 1/2 of the area may petition the drainage commissioners to call a special election on the question of dissolution, when all obligations have been paid. A majority vote recorded in each county dissolves the district. (252, 253)</p>
<p>The viewers classify the lands according to benefits into 5 classes and report the total acreage in each class. Lands benefited only in health conditions may be assessed without classification. (5329, 5339)</p>	<p>When the assessment ratio is confirmed, the drainage commissioners ascertain the total cost, add 10% for maintenance for 3 years and certify that sum to the clerk. Annual assessments are levied, apportioned on the classification, to meet maturing bonds and interest. Assessments are a paramount lien on the lands assessed. (5351, 5362, 5372)</p>	<p>When the total cost exceeds 25% per acre, commissioners issue bonds for the aggregate amount less cash payments. Each installment is not less than 5% nor more than 10% of the total issue of bonds. (5351)</p>	<p>Commissioners make annual assessments for both principal and interest of bonds, which assessments are liens on the land. Holders of bonds in default 6 months may compel assessments by mandamus. (5355)</p>	<p>Drainage commissioners may levy assessments for maintenance in the same proportion as for construction. They may issue bonds for maintenance where the cost will be more than \$1.00 per acre. (5373-a, 5373-c)</p>	<p>There is no specific provision in the statute for dissolution. Being political subdivisions of the state, drainage districts might be dissolved under the general law.</p>
<p>The drain commissioners apportion benefits to each parcel of land or other property. They review the assessments of benefits and correct and confirm them. A majority of the landowners may appeal to the state engineer, whose decision is final. (2469-2470)</p>	<p>The drain commissioners ascertain the "cost of construction" and carry out on the assessment list the amount which each tract of land or other property must pay. The list is filed with the county auditor and collected like other taxes. (2471-2474)</p>	<p>The board of county commissioners may issue drainage bonds to pay costs of rights-of-way and construction after notice of determination. Bonds are payable in stated amounts and intervals for not to exceed 15 years. (2494)</p>	<p>Separate sinking funds are provided for each drain and the county commissioners annually levy a tax upon assessed benefits, which is applicable exclusively to the payment of maturing bonds. (2494-2495)</p>	<p>All county drains are under the county commissioners and the cost of maintenance is assessed in the same manner as construction costs. Intercounty drains are maintained by the commissioners of each county. (2486)</p>	<p>There is no specific provision for dissolution. When construction has been discontinued for 2 years, the drain commissioners may levy an assessment to pay outstanding warrants in the same manner as for construction. (2487; L. 1933, Ch. 93)</p>
<p>The county surveyor, in his final report, includes a schedule of lands benefited and the amounts to be assessed against each tract or other property. After full hearing, the commissioners equalize and confirm the report and levy assessments in accordance with the benefits received. (6454-6456)</p>	<p>Confirmed assessments are levied in proportion to the benefits assessed. They are placed on the duplicate tax rolls by the auditor, collected as other taxes, and become liens on the date of the approval of construction. Appeal is to the court of common pleas. (6460-6467, 6484)</p>	<p>When the commissioners make assessments payable in installments, they may issue bonds for construction. (6460-63)</p>	<p>Bonds are backed by the full faith and credit of the county. Each county establishes a general ditch improvement fund, which is a sinking fund for all bonds. All drainage taxes go into this fund, and in case of deficiency the county board may transfer general revenue funds thereto. (6492, 6493)</p>	<p>Maintenance is apportioned to the landowners according to benefits; and when the owners of 2/3 in amount of the apportioned work so request, contract is let for the work and payment is made from the ditch fund. (6506)</p>	<p>The commissioners, upon the same proceedings as for organization, after a ditch has ceased to be a public benefit, may vacate and abandon it. Private rights may not be interfered with. (6506)</p>
<p>Appraisers, appointed by the district court upon petition of the county commissioners, apportion and assess benefits; and the commissioners, after hearing, correct and confirm them. (331)</p>	<p>Assessments are in proportion to benefits and the confirmed assessments are liens, from the date of confirmation, upon the land and crops produced thereon. Assessments are collected like state and county taxes on real estate and personal property. (338)</p>	<p>If bonds are to be issued they must be requested in the petition. The treasurer reports the total assessments not paid in cash and the board issues bonds payable in 10 annual installments, beginning not more than 4 years after the current fiscal year, and not to exceed the unpaid assessments. (301, 371, 380)</p>	<p>No annual installment of bonds may exceed the corresponding installment of assessments. Bonds, though issued by the county, recite that they are payable from the taxes of the district only. Bonds are registered by the county clerk. (371-401)</p>	<p>The county commissioners appoint a drainage commissioner, who keeps drains in repair. On petition, after hearing, the cost of maintenance is apportioned ratably to original benefits and levied as for original construction. (413, 414)</p>	<p>When the purposes of the district have been accomplished, any person affected may bring suit in the county court to dissolve it. The district judge, after establishing that all outstanding obligations have been paid, will decree dissolution. (446, 447)</p>

CENSUS OF DRAINAGE: 1940

GROUP I.—STATES INCLUDED IN CENSUS

STATE	JURISDICTION	PROCEDURE				FINANCING
		Petition	Method of organization	Form of organization	Management	Preliminary expense
OREGON.....	The county court of the county having the largest acreage to be included has jurisdiction to establish drainage districts to protect lands for agricultural purposes or when conducive to the public welfare. (123:101)	The owners of record of 50% of the acreage in any contiguous body of wet or overflowed land must sign a petition, stating the name of the district, the necessity, that it will be a public benefit, and the names of the landowners. (101)	If, after hearing, the court is of opinion that the petition is in due form and should be granted, it will enter an order declaring the district organized. (102, 103)	Drainage district. The district has the power to condemn rights-of-way and easements necessary to its works. It also has the right to condemn a property already devoted to a lesser public use. (139)	The district is managed by a board of 3 elected supervisors, who must be landowners. Each elector may cast 1 vote for each acre owned. Thereafter 1 supervisor is elected annually for a 3-year term. (108-112)	If the petition is dismissed, the cost is apportioned to the petitioners in proportion to acreage owned. When supervisors are elected, they levy a uniform tax of not more than \$1.00 per acre to pay preliminary expenses. (103, 115)
SOUTH CAROLINA	The court of common pleas of the county having the larger acreage may receive a petition to establish a drainage district, but the district will not be established until a majority of the freeholders owning a majority of the lands vote favorably thereon. (6157)	The petition must be signed by the Sinking Fund Commission or by a majority either in number or acreage of the owners of contiguous wet lands needing drainage. (6157)	After notice, the court hears objections in a summary manner, and being of opinion that the district will be beneficial to the lands and to the public welfare, decrees that the district be organized. (6158, 6159)	Drainage district. The district is a public corporation of the state for the period mentioned in the petition. The corporate existence may be extended upon petition after majority vote of the landowners. (6159)	A board of 3 elected supervisors, who must be landowners, manage the district. A majority in acreage is necessary to a quorum for holding an election. When there is no quorum, the Sinking Fund Commission appoints the supervisors. (6160)	If the petition is dismissed, petitioners must pay the costs in proportion to the acreage of each. After organization, the supervisors levy a uniform acreage tax, not exceeding 50¢, to pay preliminary expenses. (6159, 6166)
SOUTH DAKOTA	The board of county commissioners, upon petition, at any regular or special session, may establish drainage works in aid of agriculture or when conducive to the public welfare. (61:1001-1002)	Petition must be signed by a majority of the owners of the agricultural lands likely to be affected, and set forth the necessity, a description of the works, and a general description of the territory affected. (1002)	The county commissioners, after survey, file a copy thereof with the state engineer for approval. After hearing on petition and survey, the commissioners establish the drain as set forth in the report, or as modified. (1003-1006)	Power is conferred on the district to regulate any drain and alter any watercourse, and to acquire real or other property necessary to its purposes. (1025, 1036)	All drains are under the charge of the board of county commissioners. In inter-county drains, the respective boards have charge of the portion in their counties. (1029, 1036)	Petitioners must file bond to pay costs if the petition is dismissed. The expenses are paid from the general fund of the county and reimbursed from the assessments after organization. (1002)
TENNESSEE.....	The county court of any county may establish drainage districts. This is the county court presided over by the county judge or chairman and not the quarterly county court. (4216)	A majority of the landowners and also a majority of the owners of a majority of the number of acres liable to be assessed must sign the petition. It must be sworn to by one or more petitioners. (4218-a, 4219)	Hearing on the petition; appointment of an engineer to make survey and viewers to assess damages; hearing on the viewers' report; and judgment of record locating and establishing the district. Appeal is to the circuit court. (4234-4263)	Drainage district. In intercounty districts application is made to the county court of each county interested. The county court of the county having the largest area appoints an engineer and two viewers and the other counties appoint one viewer each. (4345)	The court appoints 2 directors, who must be landowners and 1 a petitioner; and they, with the judge of the county court, constitute the board of directors with general control and management. (4306-4309)	The petitioners ask that provision be made for expenses up to the stage where benefits are confirmed. Deeming it expedient, the court will make assessments on an acreage basis. After establishment, the court pays all costs by assessment. (4219-4222, 4240)
TEXAS.....	The commissioners court of any county may establish drainage districts. Such districts may include municipal corporations or any part thereof, but no land may be included in more than one district at the same time. (8097)	The petition must be signed by 25 of the freeholding resident taxpayers of the proposed district, or, if there are less than 75, then by 1/3 of those whose lands will be affected. (8098)	A 2/3 vote of the resident freeholders is necessary to establish a district. Only resident taxpayers who are qualified voters are eligible. On favorable vote the court declares the district established. (8111-8117)	Drainage district. The district is a body corporate, with power to condemn lands and other property for rights-of-way and outlets except through municipalities, where consent of the authorities is required. (8151)	Upon petition of a majority of the taxpayers, the court will order an election to choose 3 drainage commissioners to manage the district. Otherwise the court appoints 3 commissioners, who must be freeholders and residents of the county or adjoining county. (8118-8124)	Petition must be accompanied by \$200 in cash to pay expenses if the proceeding is dismissed. After organization, this money is returned to petitioners and preliminary expenses are paid from the proceeds of bonds. (8099, 8138)
UTAH.....	The county commissioners of the county wherein the greater portion of the lands are situated have authority to establish drainage districts upon proper petition therefor. (24A:o.2)	Petition must be signed by a majority of the owners of title who control not less than 1/3 of the area, or the owners of title to a major portion of the lands benefited. (o.1)	The commissioners hold a hearing, determine the sufficiency of the petition, determine benefits and public utility, appoint supervisors to construct the works, and issue a proclamation establishing the district. (o.3-o.6)	Drainage district. Upon recording the commissioners' proclamation, the district becomes a body politic and corporate with perpetual succession, and the supervisors constitute the corporate authority. (o.5-o.7)	A board of 3 supervisors appointed by the county commissioners manage the affairs of the district. Upon petition of a majority of owners and acres, the commissioners must remove any supervisor. (o.40)	Bond for 2% of the estimated cost must accompany petition, conditioned to pay the preliminary expense if the proceeding is dismissed. After organization, supervisors pay by warrant not to exceed \$1.50 average per acre. (o.2, o.36)
VIRGINIA.....	The circuit court of any county has jurisdiction to establish drainage. The statute declares drainage districts to be public improvements and to be construed as revenue producing investments of the county. (1737)	The petition may be filed in any county where lands are located and must be signed by 51% of the landowners, irrespective of area owned by each. (1738)	Court appoints 3 viewers who report on practicability of project. After hearing on viewers' report, court may decree preliminary establishment. Viewers then procure survey and plan estimate cost and damages, and classify land according to benefits; and after hearing thereon, court finally establishes district if benefits will exceed cost. (1738-1756)	The district is a body corporate and politic with the usual powers of corporations. The right of eminent domain is conferred for the acquisition of rights-of-way and outlets. (1747, 1759)	Court appoints county board of drainage commissioners, of 3 members, when first drainage district in county has been finally established. This board administers the affairs of all drainage districts in the county. The county treasurer is treasurer of the board of drainage commissioners. (1759)	Bond with the petition, in the amount of the product of \$70 multiplied by the square root of the estimated acres, to pay costs if the proceedings are dismissed. After organization, costs are paid by the treasurer upon certificate of the circuit judge. (1738)

CHART OF DRAINAGE LAWS

OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportioning benefits	Assessments	Bonds	Security for bonds		
Appointed commissioners and the chief engineer view the premises and assess benefits to each parcel of land and other property. After hearing on the commissioners' report, the court, having determined that the benefits will exceed the costs, amends and confirms the report. (118, 121)	A certified copy of the decree is recorded in each county. The supervisors annually compute the amount to be raised and certify it to the assessors of each county. Assessments are a lien on the lands and the crops raised thereon. (121-127, 131)	Bonds may be issued in the discretion of the supervisors, maturing at annual intervals for not more than 40 years, commencing after not more than 5 years. They may be called after 5 years at 3% premium. (143, 144)	The treasurer must keep a bond fund into which is paid sufficient money from assessments to meet the necessary installment of bonds. (143, 144) (For alternative method of issuing bonds, see L. 1933, Ch. 247, Secs. 305-313.)	The supervisors provide for maintenance in the annual assessments. Taxes for maintenance are collected separately by the tax collectors and kept in a separate "maintenance fund" against which warrants are drawn. (122)	A drainage district within an irrigation district, there being no indebtedness of the drainage district, may be dissolved by the county court upon verified petition of a majority of the landowners representing 70% of the acres in the drainage district and after hearing. (145; L. 1933, Ch. 247)
The court appoints 3 disinterested appraisers to assess benefits and damages and report in tabular form with the names of the owners and the amounts assessed. After summary hearing, the court equalizes and confirms the report. (6169-6171)	The supervisors levy the assessments of the confirmed appraisers' report in sufficient amount to complete the improvement plus 10% for emergencies, and additional for interest if bonds are to be issued. Assessments are collected like county taxes. (6173-6178)	After an election on the question of issuing bonds at which a majority of the freeholders owning a majority of the acreage vote favorably, the supervisors may issue bonds not to exceed 90% of taxes levied. (6157, 6196; L. 1932, p. 1253)	In the annual tax levy the supervisors make provision for the payment of bonds, and a special fund is set aside for that exclusive purpose. No levy may be made which impairs the security of bonds or the bond fund. (6196)	The supervisors levy an annual maintenance tax apportioned upon the basis of the net assessments of benefits, and not exceeding 10% thereof in any one year. Maintenance taxes are collected like other taxes. (6197)	The corporate existence is limited to the time stated in the petition but may be extended after majority vote. If at the hearing on the commissioners' report the court finds the cost excessive, it will dissolve the incorporation. (6191)
The county commissioners fix the proportion of benefits and, after notice, hold a hearing for the equalization thereof at which hearing they are finally fixed. Appeal is to the circuit court. (1008)	The commissioners assess each tract according to the equalized benefits and file the assessments with the county treasurer. The tax is then due and becomes a perpetual lien. Separate assessment certificates against each tract may be issued. (1008, 1011)	If the cost is too great to be paid in 1 year, the commissioners fix by resolution the amount of installments to be paid each year and may issue bonds not to exceed the unpaid assessments. (1024)	Bonds state that they are charges upon the land and payable out of the assessments. Should there be a deficiency, a new apportionment of assessments may be made to pay bonds. (1008, 1021-1024)	Assessments in the same proportion as for construction may be made for maintenance upon petition of a majority of the landowners, provided the cost does not exceed 20% of original cost. (1014)	No specific provision. Abandoned proceedings may be revived by the commissioners and the value of the work done on the abandoned drain will become a charge against the new drain after hearing and equalization of such value. (1041)
The court appoints 3 disinterested commissioners, 1 an engineer, to classify the lands on a graduated scale and assess the benefits. After confirming the corrected benefits, the court levies a tax in proportion to the graduated scale. (4280-4288)	When the court confirms the benefits, it assesses them, and the clerk enters the taxes in the drainage assessment book and they are collected like other taxes. (4280-4288, 4244-4244.5)	When the cost is greater than should be born in one year, the court will fix the amount to be collected each year and issue drainage bonds of the county to pay construction costs. Bonds mature in 20 years and are expressly to be paid out of assessments. (4335-4341)	Bonds are recorded in the drainage record with a description of the lands on which assessments have not been paid. Holders of bonds delinquent for 2 years may have a receiver appointed to collect assessments.	On petition of the directors, the court will make a special assessment for maintenance, but limited to 10% per acre in any one year. Assessments are based on the apportionment of benefits.	No specific provision for dissolution.
Benefits are not apportioned. The court acts as a board of equalization for each district, or appoints a special board for any district upon petition and election. (8140, 8145)	Costs of drainage are levied upon all property in district—real, personal, and other. Drainage taxes are collected like general county taxes, by county tax collector or special collector appointed for the district. (8136, 8140-8146)	After confirming the engineer's report, the commissioners' court orders bonds to be issued sufficient to pay for the improvement and incidental expenses. Bonds may not exceed ¼ of the assessed value of real property in the district. (8127-8139)	The state attorney general certifies to the legality of the bonds and they are registered by the state controller. Thereafter, no defense may be offered against their validity except forgery and fraud. (8130-8136-a)	The commissioners annually report an estimate of maintenance cost and the court levies taxes for maintenance at the same time as taxes levied for bonded indebtedness. Not over ½% of assessed value of all property may be levied. (8137, 8138)	On petition of 50 freeholders, or ¼ if less than 100, after election and a ¾ affirmative majority, the district may be dissolved. Assessments to pay all debts and bonds continue to be made by annual levy. The county treasurer becomes trustee. (8177-8193)
The supervisors view and assess each tract. Notice of a meeting of the supervisors as a board of equalization is mailed to each owner. After hearing, the supervisors finally determine the benefits and taxes to be assessed. (0-21)	The supervisors make an annual statement of the money required for all purposes, and that amount plus 15% for delinquencies is levied in proportion to the equalized benefits and collected like general taxes. (0-22)	The supervisors may issue bonds when deemed expedient and to run not less than 5 nor more than 40 years. The proceeds thereof must be used for construction purposes only. (0-46)	Bonds are a lien on all the lands and the improvements thereon to the extent of the equalized benefits. Supervisors must levy a tax to pay interest and provide a sinking fund to retire bonds. (0-47)	Maintenance taxes are provided in the annual estimate of the supervisors of the amount to be collected for the expenses of the district for the ensuing year. (0-22)	Any district may be dissolved by the district court of the county in which it is situated, on verified petition of ¾ of the adult landowners who own ½ of the area after all indebtedness has been paid or provided for. Permanent improvements remain for the common use of landowners. (0-59)
The viewers appointed by the court classify the lands on the ratio of benefit in 7 classes from A to G. Damages are assessed separately. The viewers report the number of acres in each class belonging to each landowner. (1752)	When contract for construction is let, the drainage commissioners determine the total cost, including maintenance for 3 years, and certify the result to the court for record. They then prepare tax rolls for the county treasurer, who collects the taxes. (1771)	The commissioners, after notice of intent, issue bonds for the total cost plus interest for 3 years. (1772-1777a) (See Act of '38, Sec. 2734-b, relative to assistance from the county.)	Commencing with the maturity of the first installment of bonds, the annual levy is 110% of the maturing principal and interest. Assessments have the force of a judgment and are liens second only to general taxes. (1772-1777a)	Maintenance for the first 3 years is provided in the estimate of total cost for which the property is assessed. Drainage commissioners may levy maintenance taxes in the same proportion as the original assessment. (1771)	There is no specific provision for dissolution.

CENSUS OF DRAINAGE: 1940

GROUP I.—STATES INCLUDED IN CENSUS

STATE	JURISDICTION	PROCEDURE				FINANCING	
		Petition	Method of organization	Form of organization	Management	Preliminary expense	
WASHINGTON. Drainage Improvement Districts.	The county commissioners of any county have authority to establish improvements to drain any contiguous body of land situated in the same county. (4405)	Four or more persons whose lands will be benefited may file a petition with the county commissioners, setting forth the necessity, location, and route of the improvement. For an intercounty district, the petition is filed in each county. (4407, 4446)	After the board has determined benefit to the lands and public, an election is held on the question of organization. Each elector votes once for each 10 acres owned. (4299, 4408, 4424)	Drainage district. When located in 2 or more counties, it is designated as a "joint district" with the names of the counties. (4446)	Two electors of the county who are landowners in the district are elected supervisors, and with the county engineer constitute the board of supervisors who manage the district. (4425)	Bond for \$200 is filed with the petition to pay costs if the same is dismissed. After organization, the commissioners levy an annual tax to defray expenses up to that time. (4421)	
WISCONSIN.	Farm Drainage.	The county court of the county in which are situated the lands, or the greater portion of them, upon proper petition, if public welfare will be promoted and the benefits will exceed the cost. (88:04, 07, 21)	Petition for establishment may be signed by a majority of the owners of the lands to be benefited, or by owners of a majority of the lands, or by a majority of the county board or of the town boards of supervisors of the county or towns in which the lands are situated. (05)	The petition is referred by the court to the drainage board, which examines the land and reports on the necessity, costs, works, etc., of the "drainage." The court holds hearing on the board's report, and establishes the drainage or denies the petition. Appeals are to the circuit court of the county having jurisdiction. (05-07, 25)	A county "drainage."	The county farm drainage board, appointed by the county court when the first petition is filed under this law, consists of 3 suitable persons who become a body corporate and have charge of all drains in the county constructed under the Farm Drainage Law. (04)	If the petition for establishment is denied, the cost of the proceeding is assessed against the petitioners. (07)
	Drainage Districts.	The circuit court of any county in which any part of the lands are situated may form a drainage district when the public welfare will be promoted and benefits will exceed the damages and costs. Public Service Commission must approve when navigable waters affected. (89:19, 27)	The petition must be signed by a majority of the owners representing 1/3 of the area, or the owners of more than 1/2 of the lands, provided that no owner can be counted for more than 320 acres. (19)	After hearing, the court appoints 3 drainage commissioners, who make preliminary report, which must be approved by the state engineer and other state officers named. The commissioners then assess benefits, which, after further hearing, are corrected and confirmed. (20-26)	Drainage district. Upon filing of confirmation of the drainage commissioners' report with the circuit court, the district becomes fully organized as a body corporate. (27)	Three drainage commissioners, appointed by the court, manage the affairs of the district. Landowners may be commissioners. Removal from the state or from within 50 miles of the district vacates the commissioner's office. (23, 24)	The court will authorize the district commissioners to borrow money on the notes of the district, running not more than 2 years, for the purpose of carrying on the proceeding. (47)
WYOMING.....	The district court of any county has jurisdiction to establish drainage districts upon petition of the landowners. State lands may be included on notice to the controlling authority of such lands. (122:801)	The petition must be signed by a majority of the adult owners who represent 1/3 in area of the land, or the adult owners of more than 1/2 of the land. (801)	After hearing, if the petition is found sufficient, the court appoints 3 commissioners for the district. Commissioners may be elected upon petition of 1/3 of the owners. After full hearing, the court corrects and confirms the commissioners' report and declares the district organized. (804, 835)	Drainage district. The district is a body corporate with perpetual succession, and the commissioners are the corporate authority. (804)	Three district commissioners, appointed by the court or elected by 1/3 of the owners, have control of the district. Commissioners are at all times under the control and direction of the court. (816-824)	If the petition is dismissed at any stage, judgment for costs is entered against petitioners, proportioned to acreage owned. After organization, preliminary costs are paid from assessments. (843, 859)	

CHART OF DRAINAGE LAWS

OF DRAINAGE, 1940--Continued.

FINANCING--Continued				MAINTENANCE	DISSOLUTION
Apportioning benefits	Assessments	Bonds	Security for bonds		
<p>When completed, the supervisors file an itemized statement of cost. The county commissioners then appoint a board of appraisers to apportion the total cost to the property in the district according to benefits. (4430)</p>	<p>The appraisers file a schedule of assessment; the county commissioners hold a hearing thereon, sitting as a board of equalization; and when the assessments are finally confirmed, they are levied against the property described. (4433, 4435.1)</p>	<p>The county commissioners determine when bonds shall be issued to pay the costs of the improvement, and they also determine the number of installments of assessments to pay bonds, and may include interest on bonds for 4 years. (4422, 4428)</p>	<p>The commissioners levy an annual assessment sufficient to pay bonds and interest. Such assessment is a lien on all property assessed. If refunding bonds are issued, all assessments bear the same rate of interest as the bonds. (4421.2, 4428, 4459.1)</p>	<p>The commissioners annually estimate the maintenance cost and certify the amount to the county auditor for levy as other assessments are levied. (4435.2)</p>	<p>Upon petition by one or more landowners and like proceedings as for organization, the commissioners may declare the improvement, or any part thereof, abandoned. Such action does not affect assessments previously made. (4443)</p>
<p>The drainage board with assistance of an engineer lays out the drain and assesses the benefits to each parcel of land and corporation. The board also assesses the damages to all farms and corporations. The court holds hearing on the board's report, and confirms it after amendment according to the facts. (08, 09)</p>	<p>Costs are levied in proportion to benefits confirmed and not in excess thereof. The assessments are collected by clerks of the towns or other municipalities, and transmitted to the county treasurer. Lands may be sold for non-payment of drainage taxes. (10, 13)</p>	<p>Subject to approval by the court, the drainage board may issue bonds of the "drainage" for money borrowed, at not exceeding 6% interest. (12)</p>	<p>Bonds are a lien on all assessments theretofore confirmed by the court for construction, repair, or other work. (12)</p>	<p>The drainage board makes annually an estimate of the funds needed for the ensuing year for all purposes, proportioned upon the confirmed benefits, and the assessments are levied after hearing and confirmation by the court. (19)</p>	<p>No specific provision.</p>
<p>The commissioners assess benefits to the lands and corporations in the district, and award damages for lands to be taken or injured. Remonstrances will be heard by the court, and the assessments and awards modified as deemed equitable. (28-33)</p>	<p>The court clerk certifies to the register of deeds in each county a description of the land and the amount assessed against it. The assessments are then a first lien, superior to all but general taxes. Aggregate assessments may not exceed the benefits. (34-37)</p>	<p>Upon order of the court, the commissioners may borrow money, not exceeding the assessments unpaid at the date of borrowing, and issue bonds or notes running not longer than 1 year after the last installment of the assessments is due. (47)</p>	<p>Bonds are a lien on the assessments, which in turn are first liens on the lands, superior to all other liens except general taxes. Bonds running more than 1 year (except refunding bonds) must have approval of commissioners of banking and of agriculture, and of state engineer and attorney general. (47)</p>	<p>Commissioners annually report the amount necessary for repairs and maintenance, and after notice and hearing the court fixes the amount to be assessed, which is known as the "assessment for repairs."</p>	<p>Owners of more than 1/2 of the land assessed for benefits may petition the court for dissolution. All debts must have been paid or the lands assessed to the full amount of the confirmed benefits and all delinquent lands sold. Finding such facts, the court will dissolve the district. (665)</p>
<p>After the preliminary report is confirmed, the commissioners make a final report, assessing benefits to each tract and estimating total cost. Upon hearing on this report, the court corrects and confirms the assessment of benefits. (842-846)</p>	<p>The commissioners prepare an assessment roll showing the aggregate benefits confirmed against each parcel. It is certified to the assessor, extended on the tax rolls, and collected by him. (862-865)</p>	<p>Commissioners may borrow money, not exceeding the total assessments, and secure same by notes or bonds. Upon petition, the court may order refunding bonds of longer maturity to be issued and may levy assessments, to pay them. (877, 884)</p>	<p>Bonds are liens on the assessments of benefits, which in turn are perpetual liens, not exceeding the confirmed benefits, on the property assessed. Provision must be made in the annual budget for the payment of bonds. (877, 884)</p>	<p>An estimate of the amount needed for maintenance and repair is annually filed by the commissioners with the court, and, after hearing and correction, the amount is added to the district budget for that year. (900)</p>	<p>Districts are corporations, with perpetual succession. No specific provision is made for dissolution except in cases of invalid proceedings for organization, in which cases the court will dissolve the incorporation.</p>

CENSUS OF DRAINAGE: 1940

GROUP II.—STATES NOT INCLUDED

STATE	JURISDICTION	PROCEDURE				FINANCING
		Petition	Method of organization	Form of organization	Management	Preliminary expense
CONNECTICUT (Gen. Stats. of Conn., 1930; Ch. 226, Secs. 4310-4316; p. 1377.)	The superior court of the county in which any of the lands are situated has jurisdiction to establish a drain.	Owners of land who desire to drain across intervening lands, and are unable to agree with the intervening owner as to right of way or damages, may petition the superior court of the county in which the lands are situated to establish such drain.	The court appoints 3 disinterested freeholders of the town to determine the best method of drainage and the damages that will accrue. After hearing all objections to their report, the court amends or adopts it. Upon motion of any party, the court appoints 3 other freeholders to assess damages.	Private ditch.	The ditch is controlled by the party seeking to have it established. If the drain is obstructed on adjacent land, the owner may call 2 of the selectmen to view the premises, and they will order such obstruction removed at the cost of such party as they may determine.	The preliminary expenses are paid by the petitioner.
MAINE (Rev. Stats. Maine, 1932; Ch. 25, Secs. 1-35; p. 491.)	The county commissioners of the county in which the lands are situated have jurisdiction to establish drainage.	Any person or corporation owning land that can not be drained without crossing a highway or the land of others, may file a petition to establish a drain.	After notice and hearing on the petition, the commissioners appoint a court of review consisting of 3 or 5 disinterested freeholders who meet on the premises, lay out the drain, assess damages, and report. After hearing, the commissioners confirm the report as presented or as amended by them.	The party paying for the drain causes the final report and the adjudication of the commissioners to be recorded in the office of the register of deeds of the county.	The owner or owners of the drain so established may improve, deepen, or repair it from time to time in order to keep it effective.	Bond must accompany the petition, conditioned to pay all costs and damages arising from the establishment of the drain.
MASSACHUSETTS (Gen. Laws of Mass., 1932; Vol. II, Ch. 252, Sec. 1-23, p. 3025)	State Reclamation Board, appointed by departments of health and agriculture (one employee of each and the third appointed jointly), with the approval of the governor and council.	A majority of the proprietors, either in interest or value, may petition the board, setting forth the necessity or desirability of the improvement, the objectives to be accomplished, and a general description of the lands.	The Reclamation Board, being convinced of the utility, issues a certificate appointing 3, 5, or 7 commissioners for the district and authorizes them to form a reclamation district. At a hearing on the petition, a majority in area or value is necessary for a quorum.	Reclamation district. Upon receipt of funds for construction, the Reclamation Board gives the district a name, under which name the improvement is constructed.	Control is in a board of 3, 5, or 7 commissioners appointed by the Reclamation Board. A prudential committee of 3 is elected at the initial meeting, at which a majority in value or area is necessary for a quorum.	Districts may borrow money for preliminary and current expenses and issue notes therefor, payable in not more than 2 years. The proceeds are paid out on warrants signed by a majority of the prudential committee.
NEW HAMPSHIRE (Pub. Laws, N.H., 1936; Ch. 520.)	The selectmen of the town in which the lands are situated have jurisdiction to establish drainage.	The procedure is the same as that for laying out a highway.	The selectmen, upon petition, may cause any low or swampy land within their town to be drained, and may lay out the drain and take such land as may be necessary for rights of way.	There is no organization. The completed work is a drainage ditch under the control of the town selectmen.	The town selectmen have complete control and management of the ditch.	The preliminary expenses are paid by the selectmen from assessments made by them on the lands benefited.
NEW JERSEY (Rev. Stats. N.J., 1937; Secs. 15-5-1; 40:30-5.)	The board of managers of the Geological Survey make a survey, adopts a system of drainage, and reports to the State supreme court, which court has jurisdiction.	Five owners of separate lots included in a tract of low, boggy, or wet land may petition for a drain. On written remonstrance of a majority in area, the court will refuse to appoint commissioners to construct a system of drainage.	The supreme court appoints 3 disinterested commissioners with power to construct the drainage system according to the survey. They execute the work and report the cost to the court, with a description of the lands that should contribute to the expense.	When established, the works become a system of drainage.	Control and management rest in a board of 3 commissioners appointed by the supreme court.	The commissioners may borrow money for preliminary expense and give their bonds as commissioners therefor, and such bonds are paid from assessments on the lands benefited.
NEW YORK (Cahill's Consol. Laws, N.Y., 1930; Ch. 10, Secs. 450-455; Ch. 11, Secs. 260-272, p. 520.)	The water power and control commission of the State, of its own motion or upon petition of the landowners to be affected, has jurisdiction to establish drainage improvement districts.	Petition for formation: Any person owning low or wet lands, or any person or public corporation in the vicinity of such lands. Petition for construction: A majority of the owners of the property to be benefited, who represent 1/2 of the assessed valuation of the entire property.	After investigation, the conservation commission reports on boundaries, cost, and benefits, and files a survey showing each parcel of land affected. After final hearing thereon, the commission establishes the district. Further similar proceeding is required for construction.	Drainage improvement district. It is a body corporate, with perpetual existence, and with the usual powers of corporations including the right of eminent domain.	The care, operation, and maintenance of any district is under supervision of the conservation commission. A drainage association, organized within the district, presents all drainage matters to the commission for approval.	The commission may issue certificates of indebtedness for the necessary preliminary expenses, to mature in not exceeding 5 years from their date, and they may be once renewed for a like period. Such certificates are paid from a uniform acreage tax.
PENNSYLVANIA (Purdon's Penna. Stats; Title 3, Secs. 721-725; 731-736; 741-744.)	The nearest court of quarter sessions has jurisdiction to establish, upon petition therefor.	A majority of owners of land forming a continuous swamp or marsh must sign the petition for the establishment of drainage.	The court appoints 3 commissioners to view the lands, make survey, estimate cost, and lay out the works. They fix the proportion of the cost to be paid by each of the parties.	The drainage is a corporation, composed of the landowners and the supervisors of the township.	The first meeting is fixed by the court, and thereafter an annual meeting is held, and a majority, by vote, have power to open and repair drains and make assessments in the proportion fixed by the commissioners.	The preliminary expenses of the improvement are paid by the petitioners, and may be refunded out of assessments after organization.

CHART OF DRAINAGE LAWS

IN CENSUS OF DRAINAGE, 1940

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportionment of benefits	Assessments	Bonds	Security for bonds		
The court appoints 3 disinterested freeholders of the town to assess damages, and their report is conclusive, unless set aside for irregularity after exceptions are taken. In that event, a further board will be appointed by the court to reassess damages.	Except as in the case of reassessment by a board appointed for the purpose, the costs are taxed at the discretion of the court.	No provision is made for the issuance of bonds.	No bonds.	There is no specific provision regarding maintenance, but it would be accomplished by the party petitioning for the drain, under the direction of the selectmen.	There is no provision for dissolution.
None. The necessity of the drain is established by the court of review, and the total benefit is to the landowners presenting the petition.	All damage to any person caused by the drain, including the value of the royalty or stumpage and of the material removed or used, may be recovered against the petitioners.	No provision is made for the issuance of bonds.	No bonds.	The owner or owners of a drain so established must pay all costs of maintenance and repair.	There is no provision for dissolution.
The commissioners prepare a detailed survey showing the boundaries of the district and the character of the improvement. They estimate the total expense, and determine the percentage to be borne by each landowner. They report to the State Reclamation Board, and that board, after hearing all objections, corrects and confirms the report.	The commissioners record with the register of deeds of every county affected a copy of the plan, description of the land, and total amount assessed against each parcel. By agreement among the members, the total sum required may be raised by voluntary contributions deposited with the State treasurer for the use of the district.	The district may make temporary loans to pay construction costs in anticipation of the assessments. They may issue bonds with the approval of the reclamation board, all maturing within 25 years and the first within 5 years. On majority vote and with the county commissioners' approval, the county may advance the cost and issue county bonds.	The district clerk certifies to the county assessor all sums payable annually on account of bonds, and the amount to be paid by each proprietor. These amounts are added to the annual tax bills and collected in the same manner as town taxes. Such assessments are liens on the land assessed.	The district commissioners may levy assessments for maintenance in the same manner as for original construction. The prudential committee has charge of all expenditures on account of maintenance.	No reclamation district may dissolve without specific authorization by the general court, which may not be given until provision is made for the payment of all obligations.
The town selectmen apportion the benefits and award damages, and benefits are used by way of set-off against damages.	The town selectmen assess upon persons whose lands receive special benefits a just share of all expenses. Such assessments have the same effect and are collected in the same way as assessments for sidewalks and sewers.	There is no provision for the issuance of bonds.	No bonds.	Maintenance and repair are under the control of the town selectmen.	There is no provision for dissolution.
The supreme court holds a summary hearing on the commissioners' report, determines objections, and directs the commissioners to distribute and assess the total expense against the lands in proportion to the benefits to be derived by each parcel.	After notice and hearing upon the assessment roll, the commissioners correct it and file it with the court. The court equalizes and confirms the roll after a hearing, and it is delivered to the committees of the several townships, who require the assessments to be paid in 10 annual installments. Such assessment roll is a lien upon the land.	Bonds of the commissioners, as such, on which they are not personally liable, may be issued to raise money for construction and other expenses. The bonds are paid from the assessments.	The commissioners pledge the assessments to be collected by them for the repayment of principal and interest of bonds.	Upon the application of any interested party, the supreme court will appoint 3 commissioners to make repairs to the system of drainage. The proceeding is the same as for original construction, and the expense is paid in the same proportion.	There is no provision for dissolution.
The conservation commission divides the work into such parts as may be necessary, and apportions the cost of each part to the parcels served in proportion to the benefit to be received. The total cost to each parcel in the district is the sum of its portions for the several parts of the work.	Annually, the commission prepares a statement of the amount required for the ensuing year to retire maturing indebtedness, bonds, and interest, and for maintenance, and mails copy to the supervisors of each county affected. The amount is levied against the parcels in proportion to the total cost assessed, and collected like general taxes.	The commission may issue bonds on behalf of the district for the amount of the estimated cost plus 10 percent. Bonds are in serial form, payable in not over 50 years, and are exempt from taxation. The proceeds are deposited in the general "drainage improvement district" fund to the credit of the particular improvement.	Bonds are paid from the taxes levied upon the land and property in the district. The comptroller is authorized to pay same as they mature, upon order of the commission. They are a legal investment for savings banks and trust companies.	The annual statement of the commission on which taxes are levied includes the amount required for maintenance. The drainage association makes annual recommendations to the commission in regard to maintenance and operation costs.	No specific provision.
The commissioners, in fixing the proportion of the cost to be borne by each owner, base their estimate on the amount of land made useless by such swamp or marsh, and the benefit that will be received from the improvement.	When organized, the corporation has power to lay and collect assessments, which are liens on the land and the personal property that may be on it. When authorized by the corporation, its president collects the assessments in the same manner as county levies.	There is no provision for the issuance of bonds.	No bonds.	The corporation has power to maintain and repair the drains at the common expense, in proportion to the assessments made by the commissioners.	No specific provision.

CENSUS OF DRAINAGE: 1940

GROUP II—STATES NOT INCLUDED IN

STATE	JURISDICTION	PROCEDURE				FINANCING
		Petition	Method of organization	Form of organization	Management	Preliminary expense
RHODE ISLAND..... (Gen. Laws, R. I., 1936; Ch. 350, p. 729.)	The town council of any town has jurisdiction to establish drainage.	Landowners desiring to drain through adjacent lands, and being unable to agree on the method and damages, may petition the town council, setting forth the general course of the drain and the parties affected.	If the town council, after hearing deems advisable, it appoints 3 disinterested persons to locate the drain and apportion the damages and benefits between the parties in interest. They report in writing, and after further hearing the council makes such order as it deems to be right. Appeal is to the superior court.	Private ditch.	The parties petitioning for and whose lands are affected by the ditch control and manage same.	The petition must be accompanied by bond to pay costs if the drain is deemed to be inexpedient. If the drain is established, the preliminary costs are taxed in the discretion of the town council.
VERMONT..... (Pub. Laws, Vermont, 1933; Secs. 4858-4863; 3823-3837.)	The town selectmen of any town have jurisdiction to establish drainage.	When there is a dispute as to drainage through the lands of others, either party may ask an investigation by the town selectmen, and give 10 days' notice to the other parties of the time and place of the hearing.	At the hearing, the selectmen apportion the work among the parties, having regard to the interests of each in the opening of the drain. Appeal is to the county court. The court may appoint a commission to report, after which it renders judgment, which is recorded in the office of the town clerk.	The decision of the selectmen is reduced to writing, signed by a majority, and filed in the town clerk's office. On appeal, the judgment of the court after report of a commission, is likewise recorded.	The ditches are controlled by the parties opening them, under the supervision of the town selectmen.	The preliminary expenses are paid by the parties benefited.
WEST VIRGINIA..... (West Va. Code, 1937; Ch. 2153-2193; p. 744.)	The Circuit Court of any county in which any of the lands are situated has jurisdiction to establish drainage districts.	Three or more owners of real property within a proposed district may petition the Circuit Court to establish drainage.	The Court appoints an engineer to make survey and report. After notice and hearing on the engineer's report, the court, finding that drainage will be of public benefit and of benefit to the lands, will establish the district.	Drainage District, with the usual powers of public corporations.	The district is controlled by a board of 3 supervisors elected by the landowners.	A bond, fixed by the court, must be filed with the petition, conditioned to pay expenses if petition is denied. After organization a uniform tax of 50¢ per acre is levied for this purpose.

CHART OF DRAINAGE LAWS

CENSUS OF DRAINAGE, 1940—Continued

FINANCING—Continued				MAINTENANCE	DISSOLUTION
Apportionment of benefits	Assessments	Bonds	Security for bonds		
<p>Three disinterested persons, appointed by the town council, apportion the damages and benefits between the parties in interest.</p>	<p>The costs of the petition and preliminary proceedings are taxed in the discretion of the town council.</p>	<p>There is no provision for the issuance of bonds.</p>	<p>No bonds.</p>	<p>There is no specific provision for maintenance, but undoubtedly it would be in the discretion of the town council and at the expense of the parties benefited.</p>	<p>There is no provision for dissolution.</p>
<p>The town selectmen, or the county court on appeal, apportion the work among the interested parties according to the benefit received by each.</p>	<p>There is no assessment, as such, but the work is apportioned among the interested parties according to benefits.</p>	<p>There is no provision for the issuance of bonds.</p>	<p>No bonds.</p>	<p>Ditches must be kept free for the passage of water, and if an interested party fails to perform his share of cleaning or repairing, proceedings may be had as for the original opening.</p>	<p>Ditches may be discontinued by the same proceeding as that for opening them.</p>
<p>A board of 3 appraisers, appointed by the circuit court on petition of the board of supervisors, views the land and other property and assesses benefits and damages.</p>	<p>After notice and hearing on the appraisers' report, the court amends and confirms it and the supervisors levy the necessary tax in proportion to the benefits. The tax is collected by the sheriff like general taxes.</p>	<p>The supervisors may issue serial bonds not to exceed 90% of the taxes levied, to mature at annual intervals for 15 years beginning not later than 5 years after their date.</p>	<p>The bonds are a lien on the lands and other property assessed, and the supervisors must annually collect a tax sufficient to pay maturing bonds and interest. Collection may be enforced by mandamus.</p>	<p>The supervisors have general power to levy an annual tax sufficient to maintain and repair the works of the district.</p>	<p>There is no specific provision for dissolution.</p>

