

State of Iowa

1956

**Report of the
Iowa Study Committee
of
WATER RIGHTS AND DRAINAGE LAWS**

created by the
56th GENERAL ASSEMBLY OF THE IOWA LEGISLATURE

(1955-created by House Joint Resolution 4)

SUBMITTED TO
HONORABLE LEO A. HOEGH
GOVERNOR OF THE STATE OF IOWA

Published by the
STATE OF IOWA

IOWA STUDY COMMITTEE
ON
WATER RIGHTS AND DRAINAGE LAWS

(CREATED BY HOUSE JOINT RESOLUTION
NO. 4. LAWS OF THE 56TH GENERAL ASSEMBLY)

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December 1, 1956

TO: THE HONORABLE LEO A. HOEGH
Governor of the State of Iowa

Dear Sir:

Pursuant to the provisions of House Joint Resolution 4, Acts of the 56th General Assembly, we are herewith transmitting the report of the Iowa Study Committee on Water Rights and Drainage Laws.

The work of the Committee has been accomplished by the members thereof without the benefit of any staff or regular salaried employees. The Committee members have worked without compensation and have spent considerable time in their effort to discharge the duties assigned them. The Committee did not have the necessary appropriation to make this report as comprehensive as we would like to have made it.

The Committee has helped to alert the people of Iowa to the importance of developing a sound water policy for our state. The Committee has held many public meetings, having held one or more in each of the eight Congressional Districts. The Committee has met with various representatives of different segments of our economy, including Farm Bureau, Manufacturers Association, Utilities, Municipalities, Engineering Societies, Well-Drillers, Vegetable Growers, Irrigation Equipment Companies, Educators, Boards of Supervisors, State Departments, and other interests which are concerned with water rights and drainage. We have also discussed the Iowa water problem with national authorities in the field and have received invaluable assistance from the United States Soil Conservation Service.

We have recommended a water law which we believe to be a sound proposal. We have recommended changes in the drainage laws and we have also covered the highly important need for an expanded basic data program. Bills will be drawn between now and the time the 57th General Assembly meets to carry out recommendations of this committee.

Respectfully submitted,

IOWA STUDY COMMITTEE ON WATER
RIGHTS AND DRAINAGE LAWS

By

Wendell Pendleton

Wendell Pendleton, Chairman

WP:dan

STATE OF IOWA
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WATER STUDY COMMITTEE

H. J. R. 4

A JOINT RESOLUTION creating a special committee to make a study of the underground and surface waters of the state as they relate to water rights, irrigation and drainage, the laws of this state pertaining to such matters, and federal laws granting federal assistance in connection with such matters.

WHEREAS, the laws of Iowa relating to drainage districts should be reviewed together with legislation enacted subsequent thereto which necessarily involve drainage matters and in view of changing conditions, and

WHEREAS, it is apparent that there is a rapidly increasing use of irrigation in farming operations, and

WHEREAS, such matters also present questions relating to water rights, now therefore,

BE IT RESOLVED BY THE GENERAL ASSEMBLY OF THE STATE OF IOWA:

Section 1. A special committee of nine members is hereby created. The membership of the committee shall include the chairman of the Iowa Natural Resources Council, the chairman of the State Conservation Commission, the chairman of the State Soil Conservation Committee, two members of the Senate of the 56th General Assembly to be appointed by the Lieutenant Governor, two members of the House of Representatives of the 56th General Assembly to be appointed by the Speaker, and two citizens of the State of Iowa who shall not be state officials, to be appointed by the Governor within sixty days after the effective date of this Act. The committee shall choose a chairman from its members and shall adopt rules for the conduct of its proceedings.

Sec. 2. It shall be the duty of said committee to make a comprehensive study of drainage problems, drainage laws, underground and surface waters within the borders of the state, the present and prospective use of irrigation in farming operations, water rights, existing legislation and court decisions affecting such matters, and federal laws providing for federal assistance in such matters.

Sec. 3. The committee shall have the co-operation of the various departments of state government whose functions are related to such matters and is authorized to call on any department for appropriate assistance.

Sec. 4. The committee shall generally have all the powers of a legislative committee or of a joint legislative committee and any members of the committee shall have power to administer oaths.

Sec. 5. The committee shall enter into its duties as soon as the membership have been appointed. It shall make a report including drafts of proposed bills, to the Governor on or before November 15, 1956. Proposed bills shall include such corrective measures and new legislation as the committee deems appropriate in the premises and shall include enabling legislation necessary to take full advantage of federal funds made available to the states that are applicable to the subject matter. The Governor shall cause copies of the report to be printed and shall mail copies to the elected members of the 57th General Assembly on or before December 17, 1956.

Sec. 6. The committee is hereby empowered to employ a secretary and such other employees as are necessary for the proper conduct of the business of the committee, and to fix the compensation of such employees. All members of the committee shall be reimbursed for the actual and necessary expenses incurred by them in the discharge of their duties.

Sec. 7. The compensation of employees and expense of committee members and other authorized expenses of the committee incurred in the performance of the duties herein imposed, and the cost of printing the committee report, but not exceeding ten thousand dollars in total amount, shall be paid out of funds not otherwise appropriated.

Approved April 21, 1955.

PREFACE

Next to the air we breathe, water is the most precious commodity available to man. Anyone who has ever been thirsty knows what water means to human life. Man can go nearly two months without food, but can live only three to four days without water. Where there is no water there is no life. Great civilizations in the past went down to destruction because of the waste and ruin of their basic resources—water, land, and people.

If we are to continue to advance agriculturally and industrially we must make the best use of every drop of water which falls on our soil. Great strides have been made in the direction of both water and soil conservation. Good soil conservation practices are the basic requirements of good water conservation. The soil itself is the best storage reservoir for water and the manner in which soil is managed and conserved is the fundamental approach to a wise water policy.

The awareness of Iowans to the future problems connected with water rights and water conservation is demonstrated by the interest which has been manifested in water studies at the State University of Iowa and Iowa State College. The University of Iowa, College of Law, devoted the entire 1956 winter addition of the Iowa Law Review to a symposium presentation on "Water Use and Control." Iowa State College devoted its entire 1955 fall issue of Farm Policy Forum to a presentation of "Water Policy."

In addition to the foregoing, the State University of Iowa, Agricultural Law Center, and the Iowa State College, Division of Agriculture, jointly sponsored a seminar on "Iowa's Water Resources", the material from which has been edited and printed by the Iowa State College Press of Ames, Iowa. These publications have been most helpful to the members of the Study Committee in helping them to approach their assignment intelligently.

It is apparent that the present water law in Iowa is both indefinite and inadequate. We have very few statutes regulating the use of water. The rights of individuals and governmental agencies to use water for some purposes is subject to question and the decisions of our courts do not lay down suitable guideposts for a wise water policy. It is essential to the well-being of the people of Iowa that certain basic definitions be spelled out to identify the limitations of their right to use water. This is further accentuated by examples of competing uses for water which are cropping up with increasing frequency between different interests. Irrigation is increasing in Iowa and the experience of other states in which irrigation has become widespread indicates that wise steps must be taken in the early stages of irrigation growth to protect both the public and private interests.

Recognition must be given to the desirability of encouraging land operators to conserve water where it falls as precipitation on the earth. It is most important that we encourage the construction of water storage facilities such as ponds and reservoirs. The problem of water conservation involves an attempt to conserve the 20 percent of precipitation which shows up as runoff in our surplus water courses and which passes on beyond the boundaries of our state without contributing to the beneficial use of our citizens and which, in many cases, causes great damage to our people and property by causing floods in the process. Balance between the needs of water conservation and the demands of flood control must be achieved because of the close inter-relationship between the facilities designed to implement each.

Modern requirements in the area of drainage often times entail considerable expense to individuals and agencies of government. Increasing costs of construction and demand for better drainage have contributed to the multiplicity of problems in this field. Drainage has been the subject of many statutory enactments by the legislature and has furnished the cause for much litigation in the courts. It is desirable to supplement and clarify our existing drainage laws with the overall objective of better informing and advising the citizenry of Iowa in connection with their drainage problems. The working tools of the boards of supervisors, the drainage trustees and soil conservation commissioners by which they approach the administrative problems of drainage are the laws they have to work with. In many instances these laws are inadequate.

The overall problems of water rights and drainage laws are interspersed with the techniques of artisans working to find solutions. The well-drillers of Iowa have done a creditable job in the past but many members of this occupational group have expressed concern about the future responsibilities of this industry. Weather modification designed to increase precipitation has appeared on the Iowa horizon and is worthy of some attention.

In order to effectively place regulations and controls on the use of basic natural resources, it is obvious that suitable basic data should be available. This material and information cannot be obtained in a short period of time. It must be accumulated and acquired over many years. One of the great investments that the State of Iowa can make to promote the future prosperity and progress of its people is the allocation of sufficient funds to insure a collection of pertinent basic data.

Many states have made the mistake of limiting water control to surface waters. However, it is a known fact that underground water development has attained unbelievable size. It has reached the point where many parts of the nation pump water from the ground faster than nature can replace it. The pumps of our nation transport more daily tonnage than all other transportation systems combined. Underground water is one of the nation's dearest resources. We use approximately 30 billion gallons of it every day. Yet, water is the least conserved and regulated, and the most exploited and wasted, of all our natural resources. Several times more water is contained in underground formations than is held by all the Great Lakes. Underground storage equals ten years rainfall for the entire nation, or 35 years of average stream runoffs. Eighty-five percent of the population of Iowa is dependent upon sustained ground water supplies. One-fifth of the country's water needs comes from underground. Future demands will necessitate unprecedented supplies of more water—for home use, for industry, for agriculture. The recommendations which follow in this report take into account the problem of regulating the waters beneath the surface of the ground as well as surface waters.

This report is not a comprehensive solution of Iowa's needs in water rights and drainage laws. It is rather a start in the direction of stating a wise water policy and the implementation of that policy. The ever-increasing problems of drainage, water use and control will present a challenge for future policy and law makers. We must be vigilant, diligent and responsive for the future needs of our people in water, that most precious commodity, which must ever be available to man if he is to survive.

BASIC DATA GENERAL

Certain information is already available on water and closely allied resources in Iowa, but additional basic data are required if we are to develop, control, and utilize our water resources with maximum effectiveness at the least cost for the greatest common good.

There are a great variety of water problems in the several parts of the State, requiring different basic information for solution. Over wide areas, for example, the chief problem is to conserve water and reduce runoff and soil erosion; in other large areas the problem is to remove excess water, as illustrated by the many land drainage enterprises which have been organized in Iowa. (See figure 1).

There is no single solution to these many water problems. Each must be considered separately, and the required basic information collected and analyzed to reach a solution. However, consideration must also be given to the inter-relationship of specific problems and how the solution of one may affect others. For example, it would be neither sound nor consistent to develop a costly drainage project upstream that would increase downstream flood damage.

An adequate basic data program is the first step toward formulation of intelligent and comprehensive water resources programs and policies. Basic data are needed on meteorological conditions; surface and ground water (quality, quantity, and distribution); sedimentation; topography; geology; soils; land classification, use, and management; fish and wildlife.

An adequate program for basic data requires much more than the collection of raw facts. These facts must be compiled, correlated, interpreted, and the results reproduced in such a way that they can be readily used with understanding by those who need them.

This processed information, then, forms the basis upon which decisions are reached concerning where, when and how much water is available, and how it can be used and controlled. Since this basic information is of vital importance in the planning of programs and projects, it should be collected and prepared for use before the planning stage. The efficiency, economy, and safety of water resources developments are largely dependent upon the adequacy, accuracy and availability of the basic data.

Iowa is not alone in the need for an expanded and accelerated program for basic data in the fields relating to water resources. Many other states have recognized the present value of water and the increasingly important role that it will play in our economy. They have already taken steps to speed up the basic data collection and evaluation programs that are required. At the national level the Hoover Commission Task Force on Water Resources recommends a greatly strengthened basic data collection plan as a first step in our water program. Similarly the Presidential Advisory Committee on Water Resources Policy urges strongly that the Federal Government in cooperation with the states step up and enlarge the nation-wide program for basic data. In fact, all competent groups that have studied the water resources field have recognized that an adequate program for securing and analyzing basic information is one of the present greatest needs.

Fortunately the cost of an adequate basic data program is small when compared with the total amount of money spent on water resources projects in the State.

The aim of this section of the report is to present to the 57th Iowa General Assembly an outline of the elements constituting a basic data program for water resources, the present availability of water resources data, additional

information required, and some recommendations to establish a minimum program which is adequate to acquire the needed data on water resources in Iowa. More detailed and supplemental discussions may be found in a recent publication, "Iowa's Water Resources", available from the Iowa State College Press.

METEOROLOGICAL OBSERVATIONS

The elements involved in a meteorological data collection program are temperature stations, precipitation stations including recording and storage gages, radar centers, evaporation stations, and a communication network sufficient to assure that the critical data be relayed quickly to reporting centers (for flood forecasting, for instance). Information on soils, topography, streamflow and ground water are of importance for interpretive work.

Presently available information on meteorological observations can be found in publications of the U. S. Weather Bureau, Department of Commerce, Des Moines, Iowa. Much of the information was collected in cooperation with the Iowa Department of Agriculture. The present distribution of weather stations in Iowa is shown on figure 2.

The density of observation and measurement stations should be increased. Approximately 100 additional recording stations, mostly precipitation and evaporation, are needed to complete the network. Plans are under way to establish 41 new reporting stations on four watersheds to help in the forecasting of flash floods, but additional precipitation stations are needed for better correlation of rainfall with streamflow, particularly in the small watershed program. If most of the new precipitation stations were equipped with recording gages, the study of rainfall intensities would also be benefited immeasurably. The evaporation stations required are very important, especially in a large farm state like Iowa. Evaporation losses and the use of water by vegetation (crops, grasses, and trees) waste a large percentage of our precipitation, but very little is known about the processes and amounts involved. Thus a systematic study of these factors, which necessarily calls for additional evaporation stations, is highly important if we are ever to realize our goal of retaining the water where it will do the most good.

Perhaps the most serious lack at present is in the evaluation of raw data relating to weather and certain other phases of the water resources field. The interpretation of raw data is essential to practical use and should be considered a vital and continuing part of the program with adequate time, personnel, and funds allocated to keep interpretation abreast of the collection of raw data.

SURFACE WATER

Basic data on surface waters include measurement of the amount of flow, height of water (stage), and water quality (sediment, mineral content, and temperature). The relationship of surface water to ground water is also important, because, for example, during periods of no precipitation streamflow consists of discharges from ground-water sources.

Recent agricultural developments and industrial expansion in Iowa emphasize the fact that water courses are of vital importance as a natural resource. The water of the State, in addition to the soil, must be conserved for the most beneficial use. Water is also a destructive agent against which protection is needed during flood times. Adequate information on the quantity of surface water

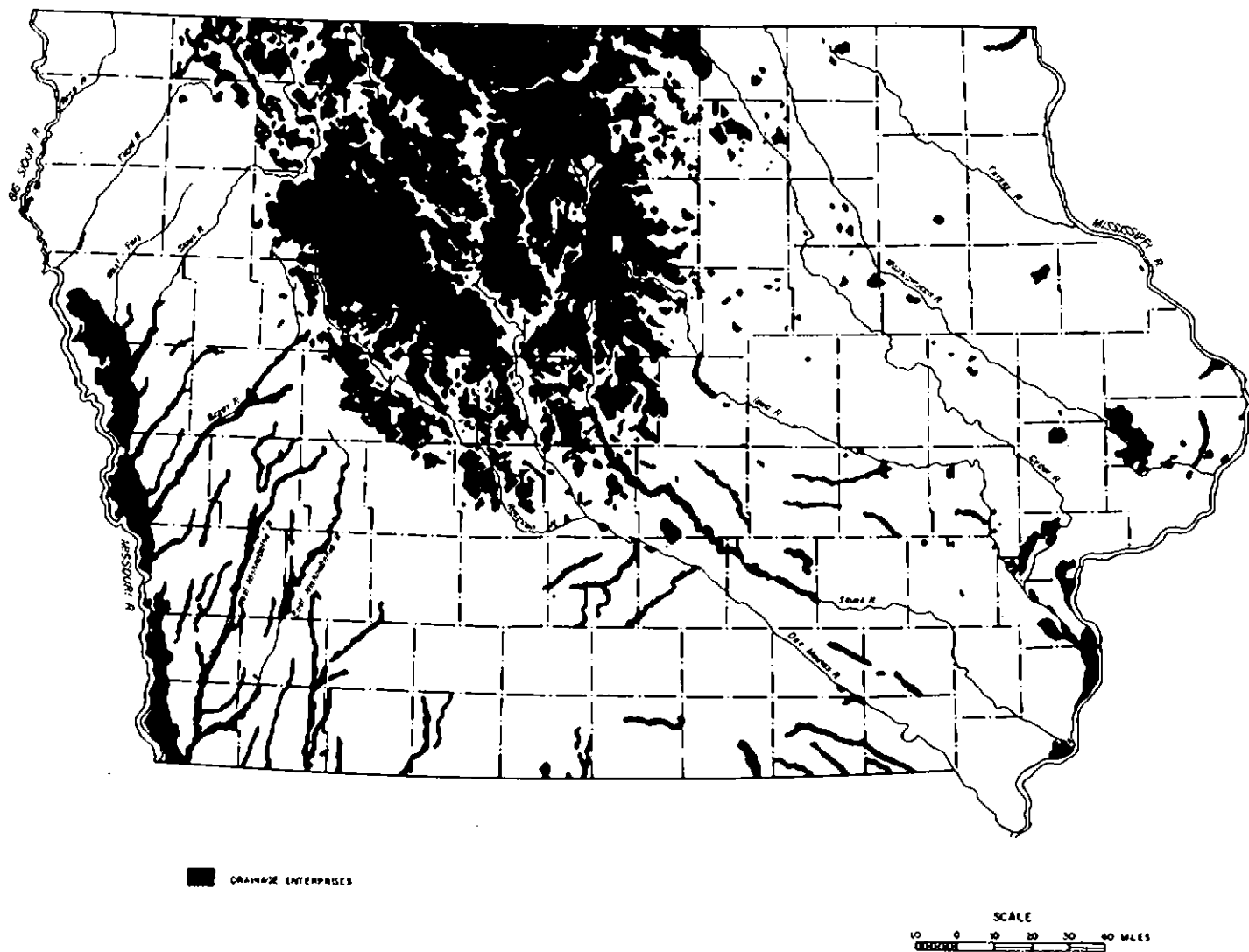


Figure 1. Map showing the distribution of land drainage enterprises in Iowa. These drainage projects are largely on the Mankato glacial drift plain (see fig. 5) and on the flood plains of rivers. (From U. S. Census of Agriculture: 1950).

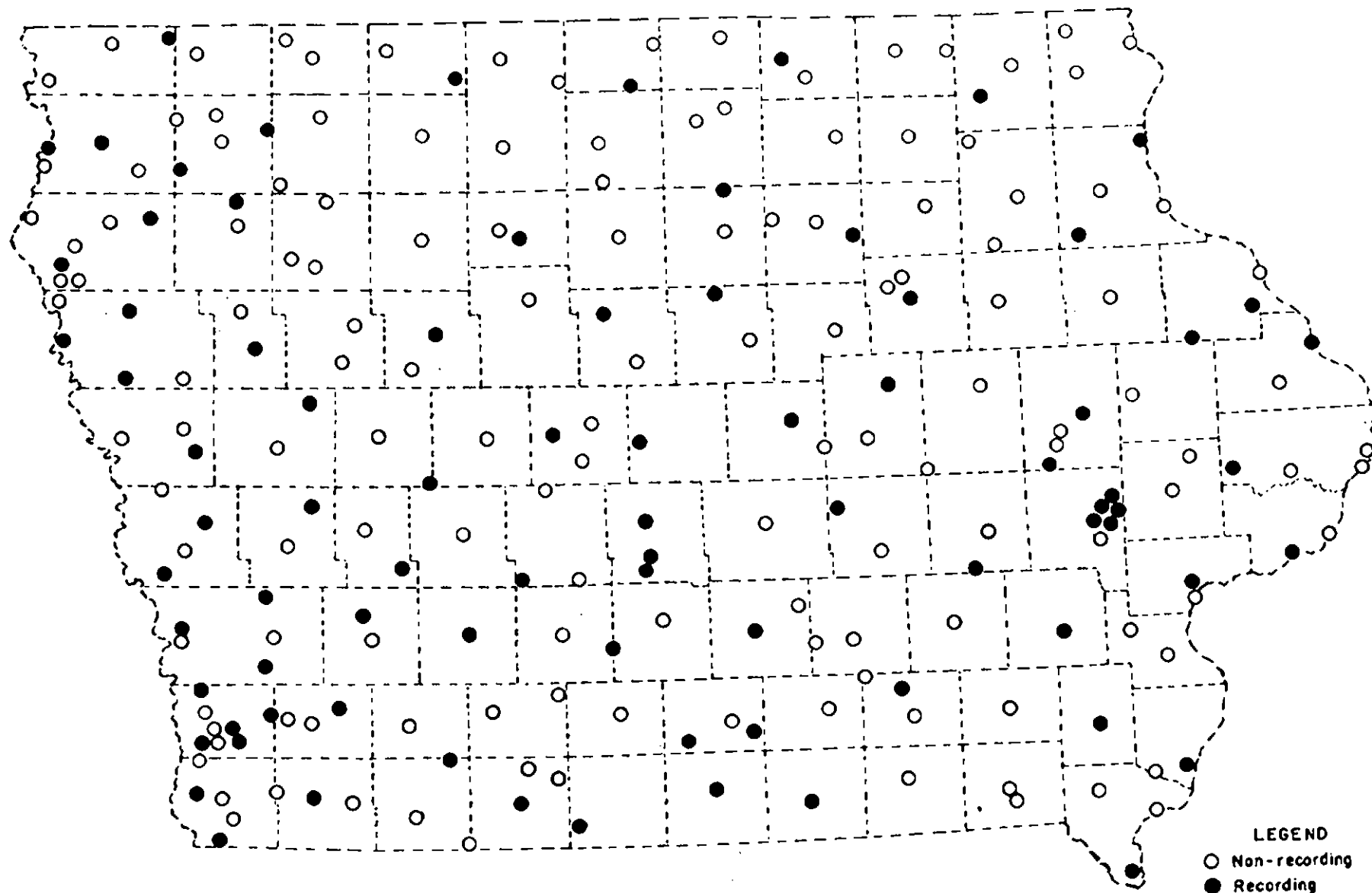


Figure 2. Map showing the present distribution of recording and non-recording weather stations in Iowa.

GROUND WATER

available and the range of stages that can be expected is essential in the construction and operation of hydraulic works of all kinds, including structures for flood protection, navigation developments, municipal supplies, power and industrial plants, irrigation and drainage of lands, pollution control, and conservation of water for various uses. Such data are also necessary for the proper design of bridge and culvert openings, the establishment of highway and railway grade elevations, and the maintenance and operation of all facilities and developments utilizing the water resources of Iowa.

The basic information on surface water in Iowa has been collected largely by the State and Federal Geological Surveys (although other State, Federal and municipal agencies have contributed materially) and the results are published in a series of volumes available from both agencies. The present network of stream gaging stations in Iowa was built up as a result of requests for streamflow data at specific locations, principally on the larger streams in the State. Consequently, the present coverage is adequate only to define the streamflow characteristics of the larger drainage basins, but not the small and intermediate watersheds. At the present time, measurements of streamflow are being made regularly at nearly 100 locations, or gaging stations, in the State of Iowa (fig. 3). Because of the erratic occurrence of floods and droughts, the maintenance of a continuous record over a period of many years is essential to determine adequately the streamflow characteristics at each gaging station. Likewise, the uses of water change from time to time, and it is often necessary to anticipate future uses in order that adequate streamflow information will be available when it is needed to accommodate future developments.

The increased use of surface water together with the effects of the current drought conditions have caused many of the users of surface water to attempt to utilize small streams as a source of water supply. Very little streamflow information is available for the smaller streams in the State having drainage areas of less than 100 square miles. Consequently, in order to fulfill the need for a complete evaluation of the surface water resources of the State, it is recommended that approximately 80 additional stream gaging stations be added to the present program. Particular emphasis should be given the small and intermediate streams as shown on figure 4. It is further recommended that the expanded program be established within a 10-year period and that a concurrent program of analysis and interpretation of data be maintained.

In addition to this, complete hydrologic data including stage record, inflow, outflow, withdrawals, and precipitation data should be collected at all large artificial lakes in the State. With the multiplicity of uses of available storage for flood control, domestic use, ground water recharge, recreation, and possibly irrigation, the function of the artificial lake with respect to each use should be recorded and evaluated.

Quality is also an important factor in agricultural, industrial, and municipal water use; and the program of qualitative analysis, particularly of stream sediment loads, bacterial, and certain chemical determinations should be expanded. There is need for more numerous and statewide data on the trend of bacterial and chemical pollution. During the next ten years 25 stations for the daily sampling of sediment loads of rivers and streams should be established in addition to the ten now in existence. Surveys of sedimented position in large and small reservoirs should be made systematically. The program should include data which will aid in determining source areas, mode of transportation, and the pattern of deposition of eroded materials.

The basic factors governing the occurrence and movement of ground water are complex. In the design and construction of water wells a wide variety of factors must be evaluated, such as the geology of the area, and the quantity, quality (mineralogical and bacteriological), and temperature of available waters. The local topography, precipitation, and streamflow are also of importance in ground-water studies.

Complex glacial deposits, composed of mingled layers of boulder clays, sands, and gravels, contain many valuable water-bearing beds. The search for and delineation of these glacial aquifers demand a thorough understanding of the glacial history of Iowa. Research still being carried on shows that there have been four main stages and several minor substages of glacial deposition (fig. 5). Inasmuch as about 50 percent of the ground water now used in Iowa is derived from glacial deposits, it can be seen that these sources are of prime importance.

Beneath the glacial deposits are the consolidated rocks—limestones, sandstones, shales, coal, gypsum, and other rock deposits—which in turn are underlain by crystalline rocks ("granite"), which extend to great depths. The bedrock formations (fig. 6) are the source of valuable mineral deposits and of large quantities of potable ground water. Vast reserves of ground water are contained in storage in these bedrock aquifers in Iowa. However, the quantity and quality of underground waters are variable; a rock strata in one area may yield a large quantity of usable water, but the same strata in another part of the State may be unproductive or yield highly mineralized water.

Specific knowledge of local geology is necessary, therefore, in ground-water investigations. For example, information on the sequence of rock strata is needed to predict where water-bearing beds may occur in previously undrilled areas. The mineral content of rocks must be known to evaluate the extent of soluble materials which make waters hard or unusable. Rocks are also folded and faulted and these variables must be known for the location of water-bearing beds. The open spaces in rocks (porosity) and their interconnections (permeability) must be known in order to predict whether or not a well will produce sufficient amounts of water.

Information on the quantity of ground water available and its quality is secured primarily from pumping tests and collection of water samples. Pumping tests indicate the amount of water in the underground reservoir and the rate at which it can be safely withdrawn. Samples are taken for mineral analysis to determine hardness and other characteristics which may influence treatment methods or the water use. Mineral and bacteriological analysis of samples is also essential from a public health standpoint.

In addition to these continuous phases of a ground-water basic data program certain specific investigations are desirable. For example, areas with sink holes and areas with flowing wells need investigation and delineation. In those areas where there is a shortage of ground water, the possibility of recharging underground reservoirs should be studied.

Information on the rise and decline of water levels in wells is useful for many purposes. For example, water levels indicate the availability of near-surface supplies; they provide warning in periods of drought that certain supplies are in jeopardy and that future stream flow may be low. In consequence, 125 observation wells are maintained over the State (fig. 7). When it is realized that Iowa is one of the foremost users of ground water in the nation, with 85 percent of the Iowa population and almost all farmers dependent upon sustained ground-water supplies, it is clear that this observation well program is in-

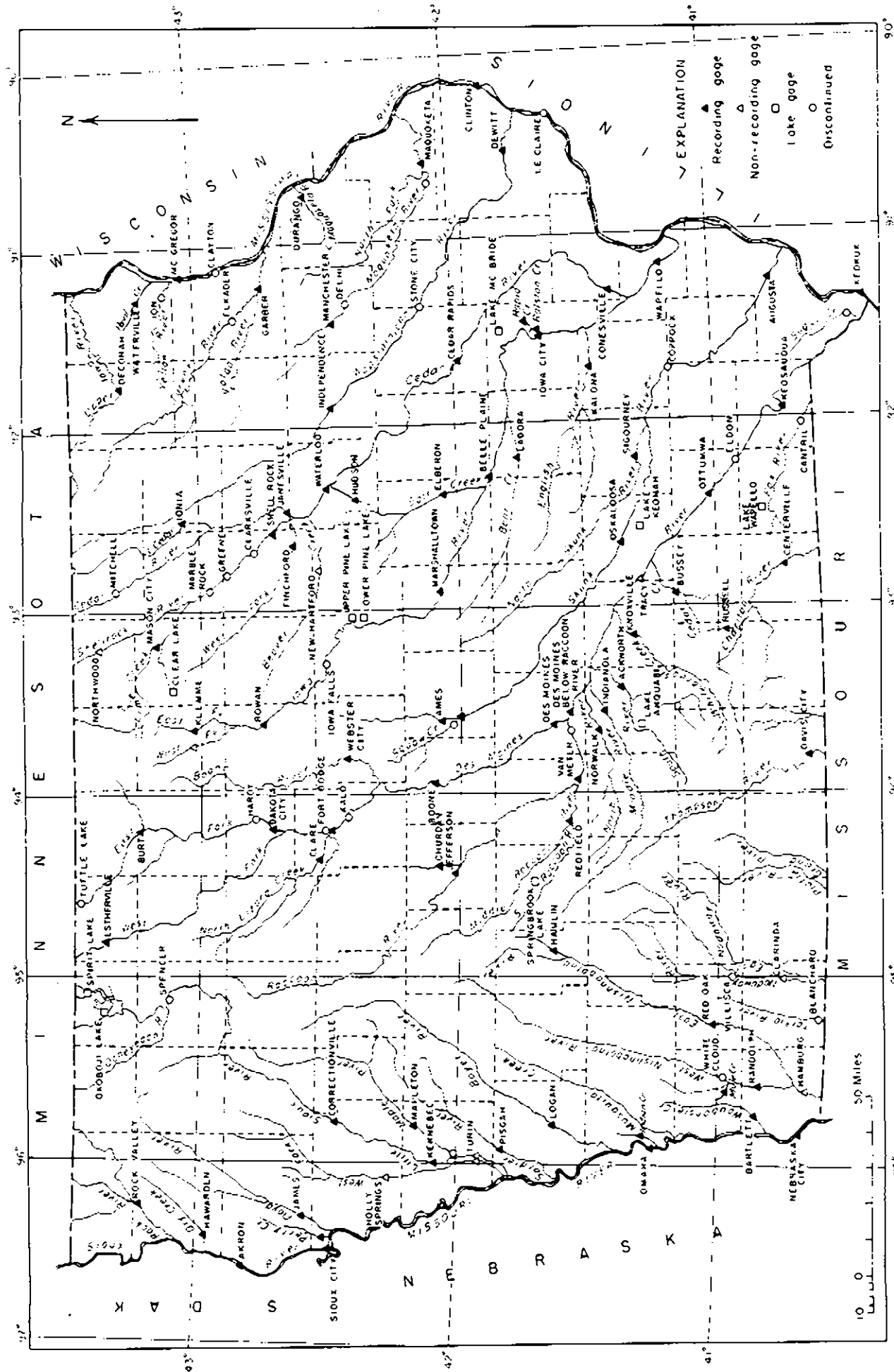


Figure 3. Map showing surface water gaging stations in Iowa at the present time. Most of these stations are on major streams.

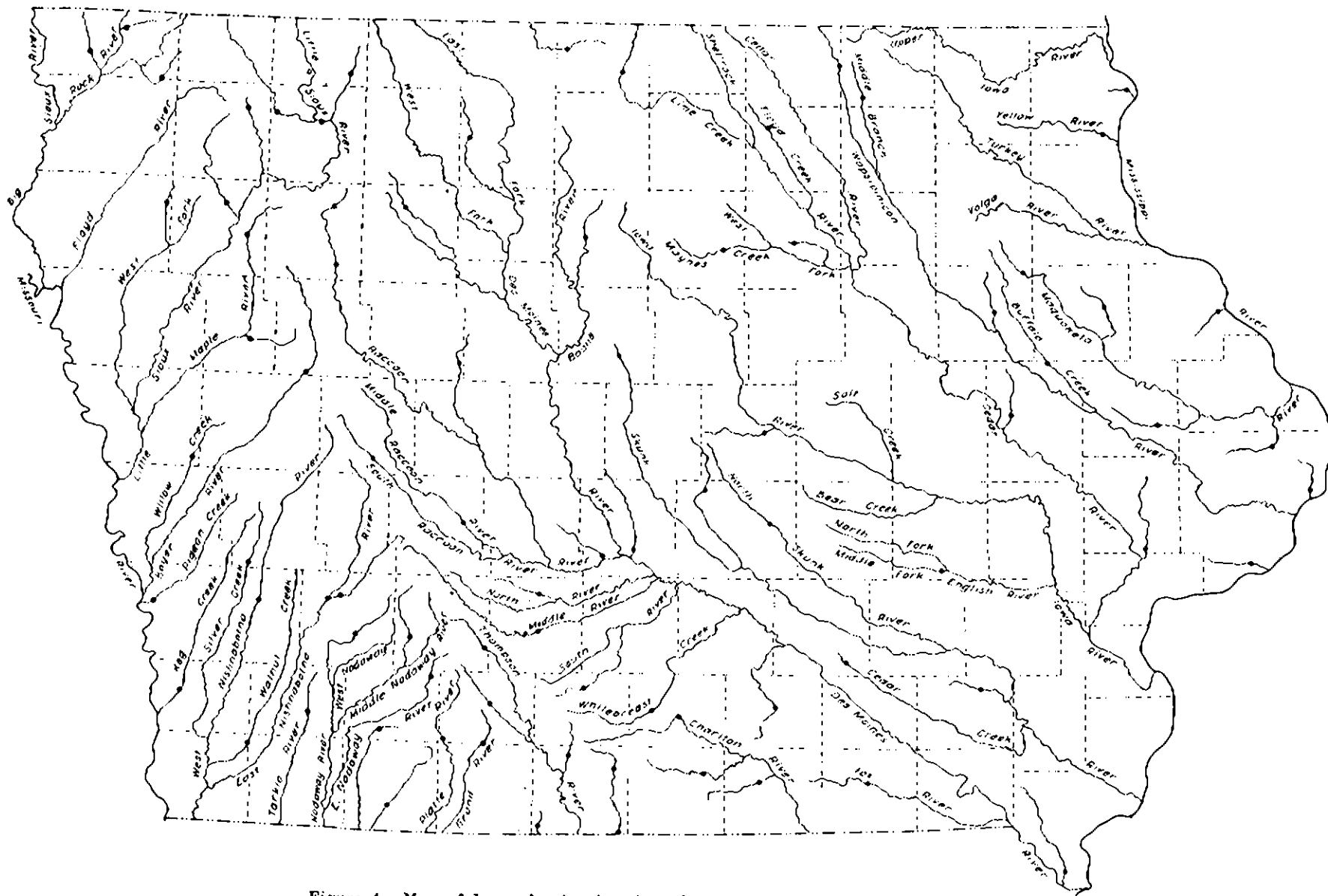


Figure 4. Map of Iowa showing location of recommended additional stream gaging stations. Most of the recommended stations are on small or intermediate streams to give information on the increasingly important small watersheds.

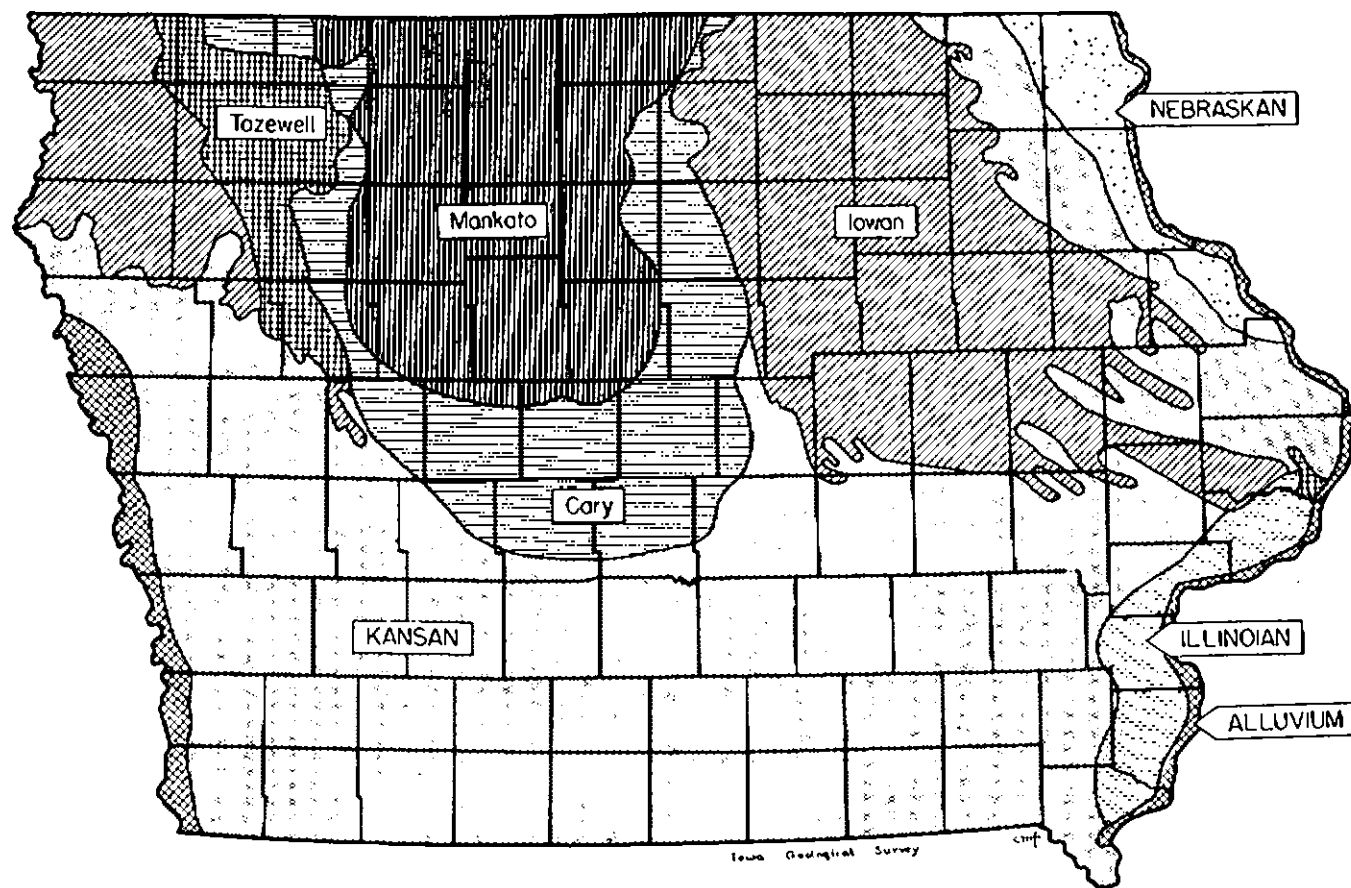


Figure 5. Generalized map showing glacial deposits of Iowa. Thick layers of mingled clays, sand, gravel, and boulders were laid down by the great ice sheets or glaciers that moved across Iowa. These, along with less extensive beds of clay, silt, sand, and gravel, laid down by the wind and water, underlie the land surface of Iowa. The repeated growth and retreats of the vast ice sheets made many changes in the land surface of Iowa and fashioned it approximately as we see it today.

The Pleistocene, or Ice Age, in Iowa can be divided into four stages representing periods of principal ice accumulation. These have been named the Nebraskan, Kansan, Illinoian, and Wisconsin. The most recent, the Wisconsin, is in turn divided into four substages called the Iowan, Tazewell, Cary, and Mankato. Drift deposited by the first ice sheet, the Nebraskan, locally underlies younger drifts. The Kansan drift covered all but the northeast corner of Iowa. The Illinoian ice sheet covered only the southeast part of Iowa, but

contemporaneous deposits of loess, a silt dominantly deposited by wind, are distributed widely within the State. The ice sheets of the Wisconsin stage and the drifts deposited by them covered north and north central Iowa.

The drift sheets and fine amounts of sediment and weathered material, accumulated locally during interglacial intervals, constitute the glacial section in Iowa. Erosion and weather have modified these materials, with the changes being greatest for the older deposits and successively less for the younger period. Iowa soils have been derived almost entirely from glacial drifts and loess, and these deposits are therefore the most important geological formation to agriculture in the State. It is largely to these drift and loess derived soils that Iowa owes its high place in agriculture, and it is from sand and gravels within the drifts that more than 50 percent of the wells in the State derive their water.

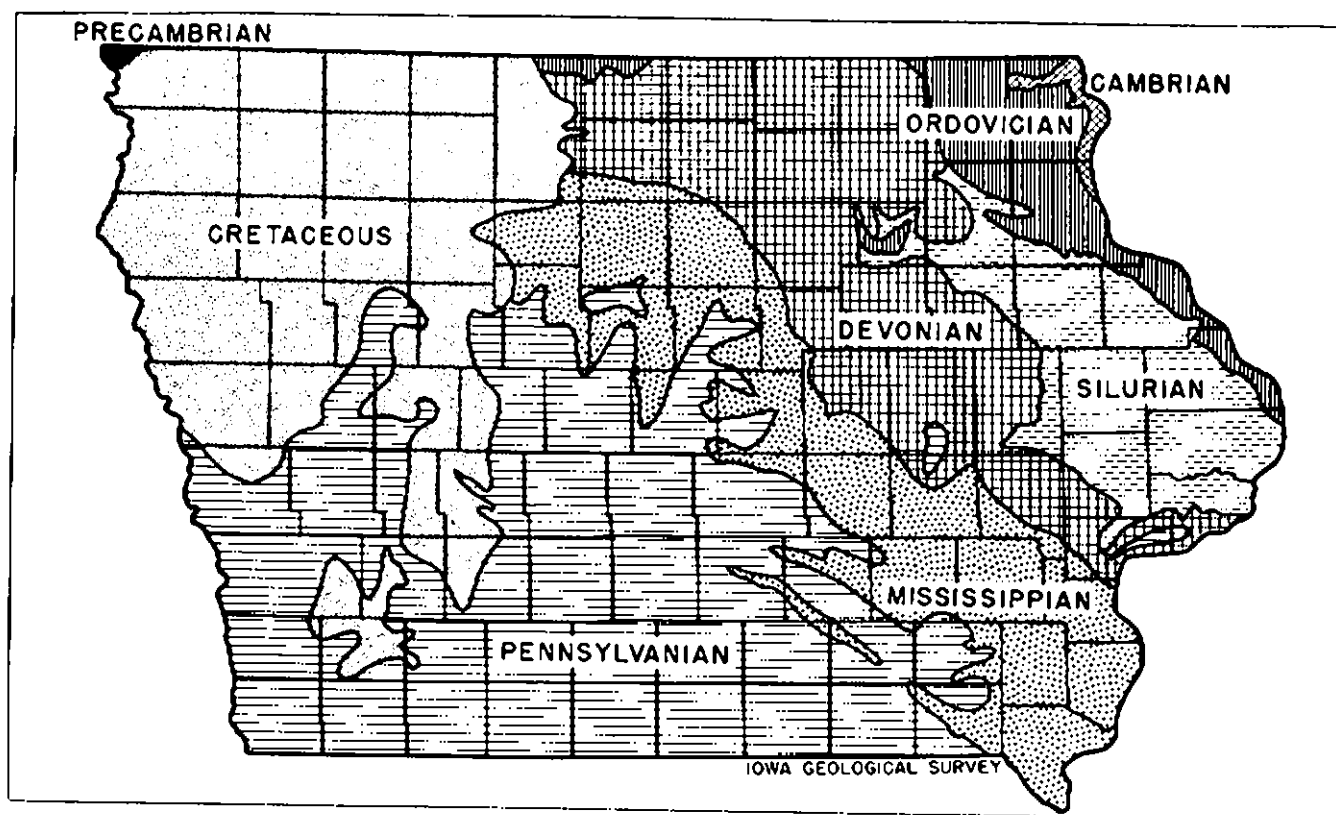


Figure 6. Generalized map showing bedrock geology of Iowa.

This map shows how the bedrock surface would appear if all of the glacial deposits were removed. These consolidated sedimentary rocks—the limestones, sandstones, shales, coal, gypsum—are at the surface at many places such as the Driftless Area in northeastern Iowa and along the stream valleys, particularly in the eastern part of the State, where streams have cut downward through the glacial deposits.

These layered rocks, which are underlain by "granite", are more than 5,000 feet thick in the southwestern corner of Iowa and thin to about 750 feet in the northeastern corner. The tilting of these once flat-lying rocks has formed a gentle trough from northeast to southwest. The magnitude of the tilting is exemplified by the depth to the Jordan sandstone, Iowa's most productive bedrock water-bearing bed. It is at the surface in the northeast corner of the State, 1,210 feet deep at Charles City, 2,400 feet deep at Nevada, 3,390 feet deep at Greenfield, and 4,339 feet deep in the vicinity of Clarinda.

The consolidated formations are also the source of large quantities of potable ground water used by farms, villages, cities, and industries. In some places ground water is the only source of water available; in other places it is preferred because of such desirable properties as uniformly low temperatures and freedom from sediment and certain contaminating substances found in surface waters. The principal bedrock aquifers in Iowa are the Devonian and Silurian limestones and sandy dolomites in eastern and north central Iowa, the Cretaceous (Dakota) sandstone in western and northwestern Iowa, and the Ordovician and Cambrian sandstones beneath most of the State. The Ordovician and Cambrian rocks, principally the Prairie du Chien dolomite and Jordan sandstone, yield hundreds of gallons of water a minute to many large capacity wells in most parts of the State. Vast reserves of ground water are contained in storage in these bedrock aquifers.

adequate. A greater number and wider distribution of observation wells are urgently needed.

Basic information on ground water has been published by the State and Federal Geological Surveys and a large quantity of unpublished data are available at these offices in Iowa City. There are on file 8,000 sets of rock-cutting samples from wells, 10,000 mineral analyses of well water, and 25,000 well logs, largely received from cooperative well drillers in the State.

Most of this information has been collected as it became available, and as a result data for some areas are complete and detailed, while in other areas practically no authentic information is at hand. In order to correct this deficiency it is recommended that the State begin a systematic drilling program over wide areas to obtain information where it is lacking and badly needed. The State of Missouri has instituted such a program in its northern tiers of counties, which is already "paying large dividends." A similar program in Iowa could take advantage of the Missouri findings as a starting point. This would result in a saving of time and money. Such a program is justifiable in that it would indicate the availability of new reserves and determine areas where ground water is lacking in sufficient quantity and acceptable quality, and thus where it is required that surface waters be developed as the most economical source of supply. It would be of great economic value to Iowa farmers in reducing the risk of dry holes in expensive well drilling operations.

The availability and use of our ground waters is not adequately known in all areas or on a state-wide basis. It is proposed that an inventory of ground water availability and ground water use be started during the 1957-59 biennium. Such an inventory should answer the questions (1) when and how much water is available and how it is distributed and (2) what quantities of water are now being used in Iowa for various purposes. Much of the information needed has been collected but is available only as raw data requiring study and correlation. Some new data are needed.

TOPOGRAPHY

Topographic maps show the configuration of the land surface, including its relief, and the position of streams and river valleys, lakes, marshes, roads, cities, towns, houses, quarries, mines, forests, and other important surface features. They are invaluable in water resources planning and development, such as for dam sites, and to indicate the area of alluvial sources of ground water. They have many uses in other fields, particularly in all phases of planning and construction by federal, state, and local governments, and in all segments of agriculture, business, and industry.

The maps available (fig. 8) for different parts of the State are highly variable in utility. The eastern part of the State was surveyed between 1889 and 1903. During the intervening years new methods and advanced techniques have been developed which result in so much greater accuracy that none of these old maps are now adequate. In some cases the map scales alone make them useless for many purposes. In the central part of the State many of the maps must be revised and brought up to date to be of first-rate utility. Mapping along the western border of Iowa was done more recently and is considered to be adequate in quality.

At the present time Iowa and the U. S. Geological Survey are each contributing toward the cooperative topographic mapping program, but at the present rate approximately 100 years would elapse before the entire State is mapped. The City of Des Moines and Polk County are collaborating on a project for mapping a part of the city and contiguous county areas in cooperation with the U. S. Geological Survey. The work is now in progress.

The Federal Government is preparing some maps in the State financed entirely with Federal funds. The completed maps are available from the Iowa Geological Survey office in Iowa City and from the U. S. Geological Survey.

Topographic maps of the proper scale and contour interval are required for a large variety of uses. Soil conservation projects, watershed improvement, and planning and construction of dams, bridges, roads, airports, pipelines, and railroads are a few of the more important. When the maps are made for an individual, they are costly and in many instances are suitable for only one use. In comparison, when prepared over large areas under state or local sponsorship, they are relatively inexpensive and are suitable and available to all for a wide variety of uses.

It is recommended that the topographic mapping program be expanded to a scope consistent with other phases of the overall basic data program.

WATERSHED MANAGEMENT EFFECTS

The effects of expanding watershed management and development programs on surface and ground-water hydrology and sediment are important. Investigations of these effects should be expanded, not only in the small watersheds but in the larger watercourses and river basins as well.

Erosion and floods cause great damage to Iowa agriculture. Information regarding the effectiveness of such conservation practices as contouring, terracing, better tillage methods, water impounding structures on the soil, and water losses from watersheds is badly needed. The Federal Government and private farmers are spending large amounts of money for erosion control and flood reduction programs with little information as to the effectiveness of these programs and the most economical design of the individual projects. Research information on the effects of all conservation practices is essential for the optimum expenditure of public and private funds and in the planning, design, construction, and maintenance of watershed management projects and programs.

Control of moisture so as to provide adequate but not excessive quantities for optimum crop growth is another of agriculture's most pressing needs in connection with water resources. Iowa farmers have invested vast sums of money in drainage systems in areas where there is an excessively high water table much of the time. Information is needed regarding the means of removing excess water by surface and subsurface drainage systems. Recently, too, there has been considerable interest in irrigation. The farmer needs basic information to help him decide whether he should or should not irrigate. Particularly, he needs to know if adequate supplies of water are available without endangering higher priority needs and if the crop yield response under these conditions will justify the cost of developing irrigation facilities. Furthermore, data are needed regarding crop requirements, infiltration, and tillage methods that will increase infiltration where plant requirements are not being satisfied.

POLLUTION AND HEALTH

The disposal of sewage and industrial wastes presents several problems in connection with water rights and drainage law. For example, a city or industry may now be disposing of wastes into a stream without seriously impairing the quality of the water. However, if water is removed from the stream for some other purpose (by prior right or decree) sufficient water may then not remain to assimilate the wastes satisfactorily. Basic data required includes information on existing sewage and industrial waste discharges and present water use—some of which has already been obtained by the State Department of Health, Division of Public Health Engineering.

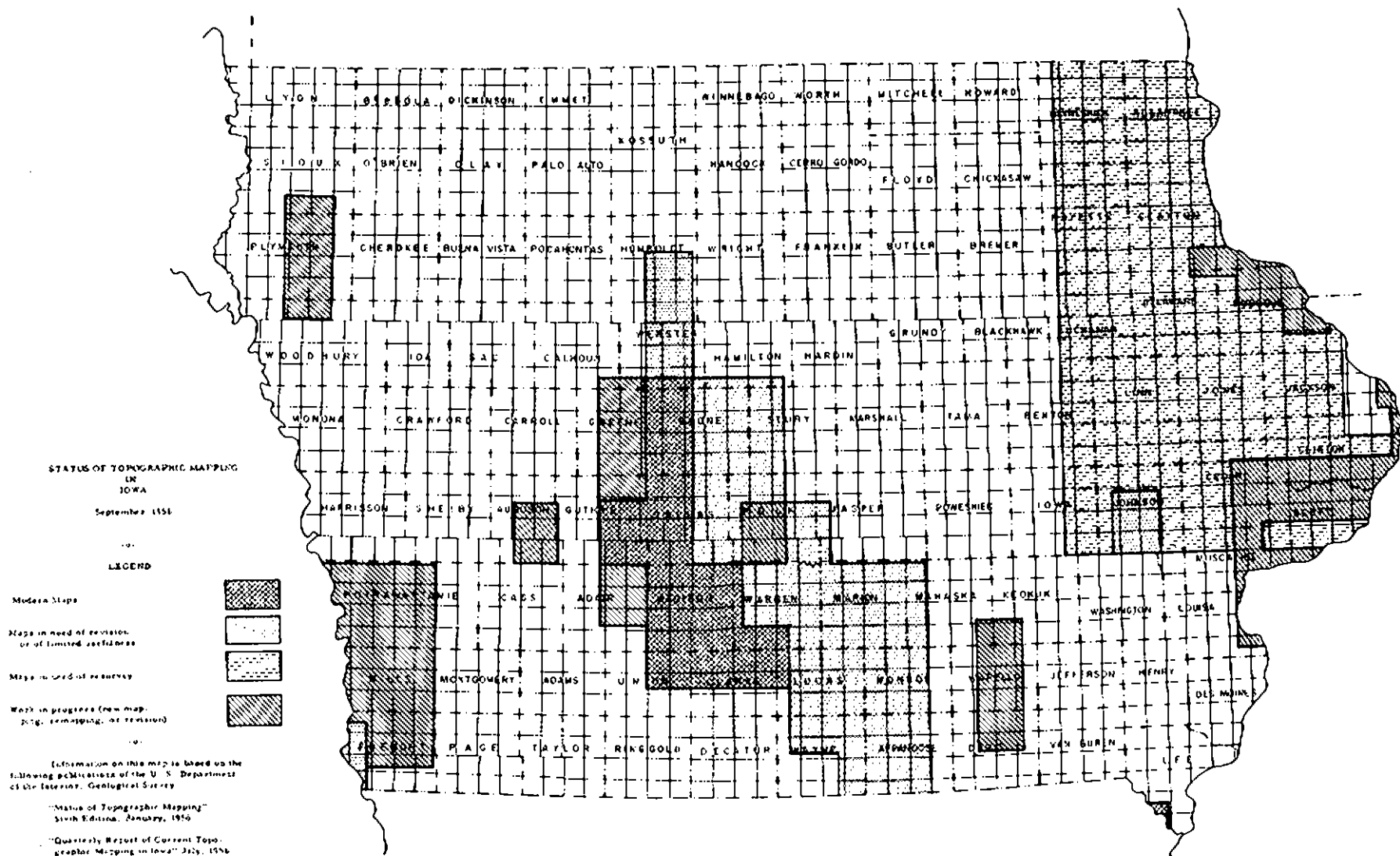


Figure 8. Map of Iowa showing the status of topographic mapping within the state.

Disposal of industrial wastes, land drainage, air conditioning, and cooling waters into wells may result in bacterial, chemical, or physical contamination of underground water reserves. A survey of this entire field is required.

The quality of water being used for human consumption in cities and towns is reasonably well known as to bacterial and certain chemical characteristics. Relatively little is known about similar and other important characteristics of the private supplies being used for human consumption and food processing which has public health significance. A survey should be instituted to determine the major aspects of this situation.

FISH AND WILDLIFE

The U. S. Department of the Interior has recently announced that its Fish and Wildlife Service program will be expanded. This expansion will undoubtedly affect the states but to what extent is not now known. In Iowa fish and game management is under the jurisdiction of the State Conservation Commission with offices in Des Moines.

The aesthetic value of our lakes and streams has not yet been satisfactorily reduced to dollars and cents, but few will deny that these values have substantial worth and should be seriously considered.

Data on quantity, quality, and temperature of surface waters are required for adequate fish and wildlife management. We must know the required minimum flow necessary to carry off sewage safely, including organic materials, detergents, acids, alkalies and other toxic or deleterious substances from cities, towns, and industries, as well as nitrogenous materials from farm fertilizers.

Similarly involved in minimum low flow studies is the potential conflicting uses of water for irrigation in which fish and wildlife needs are often forgotten.

Essential data relating to fish and wildlife, such as biochemical analysis of the major streams, would require five to ten years for assembly. Such information, however, is needed for a complete data program.

STATE-WIDE PLANNING AND POLICIES

If adequate financing were provided, mechanisms exist in the various State and Federal agencies for collecting and analyzing the required basic data. However, it is beyond the scope of these agencies to develop comprehensive state plans and policies for water resources programs. The Iowa Natural Resources Council was created in 1949 primarily for these purposes of establishing comprehensive state-wide programs for flood control and for the conservation, development, and use of the State's water resources.

The Resources Council has undertaken a basin-by-basin inventory of available data and interpretive material and has published the results of these studies in report form for the Des Moines, Nishnabotna, Iowa-Cedar, and Floyd-Big Sioux River Basins. Additional studies are in progress and should be accelerated to assure early completion. Water problems and the key elements of comprehensive basin water plans are delineated, and recommendations for future actions are made. Many of the basic data program deficiencies outlined in this section of the report have been reviewed in those studies. It is apparent that a sound and consistent state water plan cannot be firmly established until an adequate basic data program is initiated in Iowa.

DRAFT OF PROPOSED WATER LAW PRELIMINARY STATEMENT

Chapter 455A, Code of Iowa 1954, also referred to as the "Organic Act of 1949, relating to flood control and the conservation, development, and use of the water resources of Iowa" has been the law of the State of Iowa since 1949. That Chapter sets forth provisions relating chiefly to flood control but does provide in general terms for the conservation, development, and use of water resources.

It is the considered opinion of the members of the Iowa Water Rights and Drainage Law Study Committee that the Iowa Natural Resources Council is the proper agency of government to administer the use of water in the State of Iowa. For this reason, Chapter 455A of the Code of Iowa, 1954, is used as the starting point and the basis for the recommended legislative enactment.

The purpose sought to be accomplished in the recommendations of this committee are to make possible the greatest utilization of the water resources of the State of Iowa for beneficial use but at the same time to protect the public interest in certain areas where competing uses are involved.

The use of water for municipal, industrial, agricultural, recreational, and all other beneficial purposes is now a matter of great public interest and affects the public welfare; the proper use and management of surface waters facilities makes practicable the conservation of ground water and land in many areas; the sustained yield of water, services and products of kinds dependent upon water from related soils, watersheds, and ground-water basins is essential to the attainment and maintenance of a permanent, stable and fruitful economy in the State of Iowa and, the needs of the State of Iowa, with reference to the availability and use of water of good quality are such that the public interest and welfare require that our (limited) water supplies be put to the highest beneficial use in due regard to the needs of the land; to assure proper development, wise use, conservation and protection of water, as well as land, including the sustained yield of water from soils, watersheds and ground-water basins making up water problem areas, the public interest and welfare are served.

This proposed water code will supply needed definitions in the area of water rights. Certain uses of water will be classified as regulated uses and will be regulated and controlled by means of a permit system. The proposal includes a plan of administration.

A proposed re-draft of Chapter 455A, Code of Iowa, 1954, follows. All sections of the existing law which are changed will be indicated by the addition of the word "amended" and all new sections will be so designated.

PROPOSED LEGISLATION

455A.1 (Amended) Definitions. As used in this chapter, the following words and phrases shall, for the purpose of this chapter, have the meanings respectively ascribed to them.

"Council" means "Iowa natural resources council."

"Flood plains" means the area adjoining the river or stream which has or may be hereafter covered by flood water.

"Floodway" means the channel of a river or stream and those portions of the flood plains adjoining the channel, which are reasonably required to carry and discharge the flood water or flood flow of any river or stream.

"Council floodway" means a floodway designated and established by order of the council, fixing its length and landside limits.

"Person" means any natural person, firm, partnership, association, corporation, state of Iowa, any agency of the state, municipal corporation, political subdivision of the state of Iowa, legal entity, drainage district, levee district, public body, or other district or units maintained or to be constructed by assessments, or the petitioners of a proceeding, pending in any court of the state affecting the subject matter of this chapter.

"Due notice" means a notice of not less than thirty days by one publication in an official newspaper published in each county in which the property affected is located.

"Surface water" means the water occurring on the surface of the ground.

"Ground water" means that water occurring beneath the surface of the ground.

"Diffused waters" means waters arising by precipitation and snow-melt, and not yet part of any watercourse or basin and shall include capillary soil water.

"Depleting use" means the storage, diversion, conveyance, or use of any supply of water which impairs rights of lower or surrounding users.

"Beneficial use" means the application of water to a useful purpose that inures to the benefit of the water user and subject to his dominion and control but does not include the waste or pollution of water.

"Non-regulated use" means the use of water for ordinary household purposes, use of water for poultry and domestic animals, any beneficial use of surface flow water from rivers bordering the state of Iowa, existing beneficial uses of water within the territorial boundaries of municipal corporations on the effective date of this act and any other beneficial use of water by any person of less than 2,500 gallons per day.

"Regulated use" means any depleting use except a use specifically designated as a non-regulated use. For the purpose of administering this act, any municipal corporation, which increases the capacity of its water supply system to provide for increased use in excess of 100,000 gallons per day more than its highest per day beneficial use prior to the effective date of this act, shall first secure a permit; and, any person using in excess of 2,500 gallons of water per day, diverted or withdrawn from any source of supply except a municipal water system or any other source specifically exempted under the provisions of this Act shall secure a permit; and, any person who diverts water or any material from the surface directly into any underground watercourse or basin shall first secure a permit.

"Permit" means the written authorization issued by the water commissioner or council to a permittee which shall be limited as to quantity, time, place and rate of diversion or withdrawal in accordance with the declared policies and principles of beneficial use set forth in this chapter.

"Permittee" means the person who obtains a permit from the council authorizing such person to take possession by diversion or otherwise and to use and apply an allotted quantity of water for a designated beneficial use, and who makes actual use of the water for such purpose.

"Waste" means (a) permitting ground water or surface water to flow, taking it or using it in any manner so that it is not put to its full beneficial use, (b) transporting ground water from its source to its place of use, in such a manner that there is an excessive loss in transit, (c) permitting or causing the pollution of a fresh water

strata through any act which will cause salt water, highly mineralized water or otherwise contaminated water to enter it.

"Watercourse" means any lake, river, creek, ditch or other body of fresh water or channel having definite banks and bed with visible evidence of the flow or occurrence of water, except such lakes or ponds without outlet to which only one landowner is riparian.

"Basin" means a specific subsurface water-bearing reservoir having reasonably ascertainable boundaries.

"Established average minimum flow" means when reasonably required for the purpose of this act, the council shall determine and establish the average minimum flow for a given watercourse at a given point thereon. The "average minimum flow" for a given watercourse as used in this act shall be determined by the following factors: (a) Average of minimum daily flows occurring during each of the five (5) lowest years in the period of the preceding twenty (20) consecutive years chosen by the council as more nearly representative of changing conditions and needs of a given drainage area at a particular time; (b) minimum daily flows shown by experience to be the limit at which further withdrawals would be harmful to the public interest in any particular drainage area; and (c) those minimum daily flows shown by established discharge records and experiences to be definitely harmful to the public interest. Such determinations shall be based upon available flow data, supplemented, when available data is incomplete, by whatever evidence is available.

455A.2 (Amended) Declaration of policy. It is hereby recognized that the protection of life and property from floods, the prevention of damage to lands therefrom and the orderly development, wise use, conservation and protection of the water resources of the state by the considered and proper use thereof, is of paramount importance to the welfare and prosperity of the people of the state, and, to realize these objectives it is hereby declared to be the policy of the state to correlate and vest the powers of the state in a single agency, the Iowa natural resources council, with the duty and authority to establish and enforce an appropriate comprehensive statewide program for the control, utilization, and protection of the surface and ground water resources of the state. It is hereby declared that the general welfare of the people of the state of Iowa requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use, or unreasonable methods of use, of water be prevented, and that the conservation of such water be exercised with the view to the reasonable and beneficial use thereof in the interest of the people, and that the public and private funds for the promotion and expansion of the beneficial use of water resources shall be invested to the end that the best interests and welfare of the people is served.

Water occurring in any basin or in any watercourse, or other natural water body of the state, is hereby declared to be public waters and public wealth of the people of the state of Iowa and subject to appropriation in accordance with the provisions of this act, and the control and development and use of water for all beneficial purposes shall be in the state, which, in the exercise of its police powers, shall take such measures as shall effectuate full utilization and protection of the water resources of the state of Iowa.

455A.3 Creation. There is hereby created and established an Iowa natural resources council. The council is established as an agency of the state government to promote the policies set forth in this chapter and shall represent the state of Iowa in all matters within the scope of this chapter.

455A.4 (Amended) Appointment. The council shall consist of nine (9) members who shall be electors of the state of Iowa and shall be selected from the state at large solely with regard to their qualifications and fitness to discharge the duties of office without regard to their political affiliation. The members of the council shall be appointed by the governor with the approval of two-thirds of the members of the senate in executive session and shall be appointed for overlapping terms of six years. Three members shall be appointed on July 1 of each odd numbered year. Short term appointments shall be made in the case of the two new members authorized by this act for lesser periods than six years in order to provide for the transition period.

455A.5 Vacancies. Vacancies occurring while the general assembly is in session shall be filled for the unexpired portion of the term as full-term appointments are filled. Vacancies occurring while the general assembly is not in session shall be filled by the governor but such appointments shall terminate at the end of thirty days after the convening of the next general assembly.

455A.6 Removal. The governor may, with the approval of the senate, during a session of the general assembly, remove any members of the council for malfeasance in office or for any cause that renders him ineligible for membership or incapable or unfit to discharge the duties of his office and his removal when so made shall be final.

455A.7 (Amended) Compensation and expenses. Each member of the council not otherwise in the full-time employment of any public body, shall receive the sum of twenty-five dollars for each day actually and necessarily employed in the discharge of official duties provided such compensation shall not exceed two thousand dollars for any fiscal year. In addition to the compensation hereinbefore described, each member of the council shall be entitled to receive the amount of his traveling and other necessary expenses actually incurred while engaged in the performance of any official duties, when so authorized by the council. No member of the council shall have any direct financial interest in, or profit by any of the operations of the council.

455A.8 Organization, meetings and rules. The council shall organize by the election of a chairman and shall meet at the seat of government on the first Monday in the months of January, April, July and October, and at such other times and places as it may deem necessary. The chairman shall be elected annually at the meeting of the council in July. Meetings may be called by the chairman and shall be called by the chairman on the request of four members of the council. The majority of the council in any matter within their duties shall be required for its determination. The council shall adopt such rules and regulations as it may deem necessary to transact its business and for the administration and exercise of its powers and duties.

455A.9 Director. The council shall choose a director who shall not be a member of the council and shall fix the compensation of such director, which shall be payable out of the funds appropriated to the council. The director shall be qualified by training and experience. The term of office of the director shall be during the pleasure of the council. The director shall serve as the executive officer of the council and shall have charge of the work of the council subject to its orders and directions.

455A.9(1) (New Section) Water Commissioner. The council shall choose a water commissioner who shall not be a member of the council or a member of the staff and shall fix the compensation of such commissioner, which shall be payable out of the funds appropriated to the council. The water commissioner shall be qualified by training and experience. The term of office of the water commissioner shall be during the pleasure of the council.

The water commissioner shall serve in a quasi-judicial capacity as the trier of fact questions in the processing of all applications for appropriation permits. He shall conduct hearings on any applications for permits as provided by law and the rules and regulations of the council, and he shall perform such other duties as the council may prescribe.

455A.9(2) (New Section) Deputy Water Commissioner(s). The council may choose one or more deputy water commissioner(s) who shall not be members of the council or members of the staff and shall fix the compensation of such deputy commissioner(s), which shall be payable out of the funds appropriated to the council. The deputy commissioner(s) shall be qualified by training and experience. The term of office of the deputy commissioner(s) shall be during the pleasure of the council. The deputy commissioner(s) shall have all of the duties, responsibilities, and powers of the water commissioner when acting in his stead, and said deputy commissioner(s) shall be assigned hearings on applications for permits by the water commissioner.

455A.10 Employees. The director, with the approval of the council is empowered to employ, discharge and fix the salaries of such technical, clerical, stenographic and such other employees and assistants as may be required. All of such employees shall be paid from funds appropriated to the council.

455A.11 Bonds. The council shall provide for the execution of surety bonds for all members and employees who shall be entrusted with funds and property and the premiums on all such surety bonds shall be paid from the funds appropriated to the council.

455A.12 Warrants. The comptroller is directed to draw warrants on the treasurer of the state for all disbursements authorized by this chapter upon duly itemized and verified vouchers bearing the approval of the director of the council.

455A.13 Reports, accounting and recommendations. The council shall make a report to the governor of its activities for the preceding biennial period, including therein an itemized statement of all receipts and disbursements and such other information pertaining to its work as may be of value.

The council in its biennial report shall make such recommendations for amendments to this chapter, or for other legislation as it deems appropriate.

The council shall report to the governor at any time required, the results accomplished since its last report, pending plans and the status of any work in progress.

455A.14 Departmental co-operation. The council may request and receive from any department, division, board, bureau, commission, public body, or agency of the state, or of any political subdivision thereof, or from any organization incorporated or unincorporated, which has for its object the control or use of any of the water resources of the state, such assistance and data as will enable the council to properly carry out its activities and effectuate its purposes hereunder. The council shall reimburse such agencies for special expense resulting from expenditures not normally a part of the operating expenses of any such agency.

The council, its agents and other employees may enter upon any lands or waters in the state for the purpose of making any investigation, examination, or survey contemplated by this chapter.

455A.15 Eminent domain. The council shall have the right to exercise the power of eminent domain. All the provisions of law relating to condemnation of lands for public state purposes shall apply to the provisions hereof in and so far as applicable. The executive council shall institute and maintain such proceedings.

The council may accept gifts, contributions, donations and grants, and use the same for any purpose within the scope of this chapter.

455A.16 Title to lands or other property. The title to all land, easements, or other interests therein, or other property or rights acquired by the council shall be approved by the attorney general and taken in the name of the state of Iowa.

455A.17 (Amended) Functions and duties. The council shall establish a comprehensive state-wide program of flood control; and a comprehensive state-wide program for the conservation, development and use of the water resources of the state. The council shall administer said program.

455A.18 (Amended) Jurisdiction—diversion of water.

(1) The council shall have jurisdiction over the public and private waters in the state and the lands adjacent thereto necessary for the purposes of carrying out the provisions of this chapter. The council shall make a comprehensive study and investigation of all pertinent conditions of the areas in the state affected by floods; determine the best method and manner of establishing flood control; adopt and establish a comprehensive plan for flood control for all the areas of the state subject to floods; and determine the best and most practical method and manner of establishing and constructing the necessary flood control works. The council may construct flood control works or any part thereof. The council is authorized to perform such duties in co-operation with other states or any agency thereof, or with the United States or any agency of the United States, or with any person as defined in this chapter.

(2) The council shall procure and obtain flood control works from and through or by co-operation with the United States, or any agency of the United States, by co-operation with and action of the cities, towns and other subdivisions of the state, under the laws of the state relating to flood control and water use, and by co-operation with and action of landowners in areas affected thereby.

(3) The council shall make surveys and investigations of the water resources of the state and of the problems of agriculture, industry, conservation, health, stream pollution and allied matters as they relate to flood control and water resources, and shall make and formulate plans and recommendations for the further development, protection, utilization, and preservation of the water resources of the state.

(4) Upon application by any person for permission to divert, pump, or otherwise take waters from any watercourse, underground basin or watercourse, drainage ditch or settling basin within the state of Iowa for any purpose other than a non-regulated use, the council shall cause to be made an investigation of the effect of such use upon the natural flow of such watercourse and also the effect of any such use upon the owners of any land which might be affected by such use and shall hold a hearing thereon.

(5) The procedure for securing a permit to divert or withdraw waters shall be as follows:

(a) The application for a permit shall be made in writing to the council and shall set forth the designated beneficial use for which permit is sought, the specific limits as to quantity, time, place, and rate of diversion or withdrawal of waters.

(b) Upon receipt of an application for a permit to appropriate, the water commissioner shall set a time and place for hearing. The hearing shall be in the county where the permit to appropriate is sought, but may be held at any other place in the state unless objection is raised by the applicant. The hearing shall be to the water commissioner.

(c) The water commissioner shall cause notice of the hearing to be published in a newspaper of general circulation in the county in which the permit is sought, said notice shall be published once each week for two consecutive weeks, with the date of last publication not less than ten nor more than thirty days prior to the date of hearing and said notice shall be on a form provided by the council which shall specify the date, time and place of hearing and shall include a concise statement of the designated beneficial purpose for which the diversion is sought, the specific limits as to quantity, time, place, and rate of diversion or withdrawal of waters, the name of the applicant and the description of the land upon which waters are to be diverted or withdrawn. In addition to the foregoing, the water commissioner shall cause a copy of the notice to be sent to the Director of the Conservation Commission, Commissioner of Public Health, the Secretary of the Soil Conservation Committee, Secretary of Agriculture, Director of the Iowa Geological Survey, the Director of the Iowa Development Commission, and to any other person, who has filed a written request for a notification of any hearings affecting a designated area, by ordinary mail, prior to the date of last publication.

(d) Any interested person may appear and present evidence at the hearing, and may be represented by counsel, who shall have the right to question others who present evidence.

(e) The applicant for a permit shall pay a fee to the council in the amount of \$10.00 at the time of filing his application which fee shall include the cost of publishing notice and which publication shall then be paid for by the council.

(f) The council shall prescribe the rules of procedure for the conduct of the hearings.

(g) The determination of the water commissioner on any application before him shall be in writing, filed with the council and shall set forth his findings. A copy of the determination shall be mailed to the applicant and to any person appearing who in writing requests a copy of the determination.

(h) Any party aggrieved by the determination of the water commissioner, may within thirty days from the date such determination is filed, appeal therefrom to the council setting forth in general terms the determination appealed from and the grounds of the appeal. The director shall set a time and place for hearing before the council and shall then send a notice by ordinary mail to all persons who appeared at the hearing before the water commissioner.

(i) The council shall adopt rules and regulations for the conduct of the hearing on appeal and shall file a determination in writing, setting forth findings. A copy of the determination shall be mailed to the applicant or to any person appearing who in writing requests a copy of the determination.

(j) The water commissioner or the council at any hearing or other proceeding authorized by this act, shall have the power to administer oaths; take testimony; issue subpoenas and compel the attendance of witnesses, the subpoenas shall be served in the same manner as subpoenas issued by the courts of the state; and to order the taking of depositions in the same manner as depositions are taken under the Iowa Rules of Civil Procedure.

(6) If the water commissioner at the first hearing or the council at the hearing on appeal shall determine after due investigation that such diversion or withdrawal will not be detrimental to the public interests, including drainage and levee districts, or to the interests of property owners with prior or superior rights who might be affected, the water commissioner following the first hearing, or the council following the hearing on appeal shall grant a permit for such diversion or withdrawal. Any

person or public body aggrieved by the granting of such permit may appeal as provided by section 455A.23. Permits may be granted for any period of time, but not to exceed ten (10) years. Permits may be granted which provide for less diversion or withdrawal of waters than set forth in the application. Permits may be extended by the water commissioner beyond the period for which granted without hearing if no objection is raised, but if objection is raised by any person a hearing shall be held thereon. Any permit granted shall remain as an appurtenance of the land described in the application unless otherwise disposed of.

(7) In the consideration of application for permits, priority will be given to persons in the order applications are received. Persons who have made diversion or withdrawal of water for a beneficial use prior to the effective date of this act will be accorded priority according to actual date of said diversion or withdrawal. The water commissioner or the council on appeal shall exercise their judgment on the quantity of water for which a permit may be granted. Non-regulated uses shall have priority over regulated uses. Nothing in this chapter shall impair the vested right of any person.

(8) The water commissioner and the council shall have the authority to issue a permit for beneficial use of water in a watercourse but not in excess of the established average minimum flow.

(9) No use of water shall be authorized that will impair the effect of pollution control laws of this state.

(10) No permit shall be issued or continued that will impair the navigability of any navigable watercourse.

(11) No person shall take water from any natural watercourse, underground basin or watercourse, drainage ditch, or settling basin within the state of Iowa for any purpose other than a non-regulated use except upon compliance with the provisions of this act.

(12) Nothing in this act shall operate to deprive any person of the right to use diffused waters or to construct an impoundment on said person's own property or across a stream that originates on said person's property so long as provision is made for safe construction and for continued established average minimum flow, if and when such flow is required to protect the rights of water users below.

(13) Every permit issued hereunder shall be irrevocable for the term therefor, and for any extension of such term except as follows:

(a) A permit may be modified or cancelled by the water commissioner, with the consent of the permittee, upon such conditions as the water commissioner deems necessary for protection of the public interests.

(b) Subject to appeal in the manner provided by section 455A.18 (5), (h); a permit may be modified or cancelled by the water commissioner in case of any breach of the terms or conditions thereof or in case of any violation of the law pertaining thereto by the permittee, his agents or servants, in case of non-use as provided hereinafter, or in case the water commissioner finds such modification or cancellation necessary to protect the public health and safety or to protect the public interests in lands or waters, or to prevent substantial injury to persons or property in any manner, upon at least thirty (30) days' written notice mailed to permittee at his last known address, stating the grounds of the proposed modification or cancellation and giving the permittee an opportunity to be heard thereon.

(c) By written order to the permittee, the water commissioner may forthwith suspend operations under a permit if he finds it necessary in an emergency to protect the public health or safety or to protect the public interests in lands or waters against imminent danger of substantial injury in any manner or to any extent not

expressly authorized by the permit, or to protect persons or property against such danger, may require the permittee to take any measures necessary to prevent or remedy such injury; provided, that no such order shall be in effect for more than thirty (30) days from the date thereof, without giving the permittee at least ten (10) days' written notice of such order and an opportunity to be heard thereon.

(14) The right of the permittee and his successors to the use of water shall terminate when he ceases for three (3) consecutive years to use it for the specific beneficial purpose authorized in his permit; provided, however, that upon his written application prior to the expiration of said three (3) year period for extension of said permit, the council may grant such extension without loss of priority.

(15) An permittee may sell, transfer, or assign his permit by conveying, leasing, or otherwise transferring the ownership of the land described in the permit, but such permit shall not constitute ownership or absolute rights of use of such waters, but such waters shall remain subject to the principle of beneficial use and the orders of the council.

(16) The state of Iowa, any sub-division thereof, municipal corporation, or the state conservation commission, for the purpose of carrying out any permission granted, as hereinbefore provided, shall have and exercise the power of eminent domain.

455A.19 (Amended) Unlawful acts—powers of council. It shall be unlawful to suffer or permit any structure, dam, obstruction, deposit or excavation to be erected, used, or maintained in or on any floodway, which will adversely affect the efficiency of or unduly restrict the capacity of the floodway, and the same are declared to be and to constitute public nuisances, provided, however, that this provision shall not apply to dams constructed and operated under the authority of chapter 469 as amended.

The council shall have the power to commence, maintain and prosecute any appropriate action to enjoin or abate a nuisance, including any of the foregoing nuisances and any other nuisance which adversely affects flood control.

In the event any person desires to erect or make, or to suffer or permit, a structure, dam, obstruction, deposit or excavation, other than a dam, constructed and operated under the authority of chapter 469 as amended, to be erected or made, used or maintained in or on any floodway, such person shall file a verified written application with the council, setting forth the material facts, and the council on hearing shall enter an order, determining the fact and permitting or prohibiting the same.

The council shall have the authority to maintain an action in equity to enjoin any such person from erecting or making or suffering or permitting to be made any structure, dam, obstruction, deposit, or excavation other than a dam constructed and operated under the authority of chapter 469, for which a permit has not been granted.

The council shall have the power to remove or eliminate any structure, dam, obstruction, deposit, or excavation in any floodway which adversely affects the efficiency of or unduly restricts the capacity of the floodway, by an action in condemnation, and in assessing the damages of such proceeding, the appraisers and the court shall take into consideration whether the structure, dam, obstruction, deposit, or excavation is lawfully in or on the floodway.

455A.20 (Amended) Additional powers—licensing of dams. After April 17, 1949, the term "council" as used in chapter 469, shall be construed to refer to the Iowa natural resources council unless specifically otherwise provided.

455A.21 Council floodway. The council may by order establish a floodway as a council floodway and alter, change, or revoke and terminate the same. In the order establishing the council floodway, the council shall fix the length thereof at any practical distance, and fix the width or the landside limits thereof, so as to include portions of the flood plains adjoining the channel, which with the channel, are reasonably required to efficiently carry and discharge the flood waters or flood flow of such river or stream. No order establishing a council floodway shall be issued until due notice of the proposed establishment of such floodway shall have been given and public hearings afforded, and opportunity given for the presentation of all protests against the establishment of such floodway. In establishing any council floodway the council shall avoid to the greatest possible degree the evacuation of persons residing in the area of any floodway and the removal of any residential structures occupied by such persons in the area of any floodway. All of the area within a council floodway shall be the floodway for all purposes of this chapter.

455A.22 Flood control works co-ordinated. All works of any nature for flood control in the state, which are hereafter established and constructed, shall be coordinated in design, construction, and operation, according to sound and accepted engineering practices so as to effect the best flood control obtainable throughout the state. No person shall construct or install any works of any nature for flood control unless and until the proposed works and the plans and specifications therefor are approved by the council. The interested persons shall file a verified written application with the council therefor, and the council on hearing shall consider all the pertinent facts relating to the proposed works which will affect flood control in the state and shall determine whether the proposed works in the plans and specifications will be in aid of and acceptable as part of, or will adversely affect and interfere with flood control in the state, and shall enter an order approving or disapproving the application, plans and specifications. In the event of disapproval, the order shall set forth the objectionable features so that the proposed works and the plans and specifications therefor may be corrected or adjusted to obtain the approval of the council.

The provisions of this section shall apply to all drainage districts, soil conservation districts, projects undertaken by the state conservation commission, all public agencies including counties, cities, towns and all political subdivisions of the state and to all privately undertaken projects relating to or affecting flood control.

455A.23 (Amended) Appeal. Any person aggrieved by any of the acts or orders of the council shall have the right to appeal therefrom to the district court at the seat of government or to the district court of any county in which the property affected is located, by filing with the council a notice of such appeal within thirty days from the date of such action or order. The notice of appeal shall state the grounds of appeal. When an appeal is taken, the council shall forthwith cause to be made a certified transcript of all proceedings had and all orders made and shall file the same with the clerk of the district court where the appeal is pending.

Upon such appeal being perfected, it shall be brought on for trial at any time by either party upon ten days notice to the other, and shall be tried by the court de novo. If the court shall determine that the order appealed from is reasonable and necessary, it shall be affirmed. If the court finds that the order appealed from is unjust, unreasonable or not supported by the evidence it shall make such order to take place of the order appealed from as is justified by the record before it.

Any person aggrieved may appeal to the supreme court from the judgment of the district court made therein as in a civil action.

The pendency of any such appeal shall not stay the operation of the order of the council but the district court or the supreme court in their discretion may suspend the operation of the council order pending determination of the appeal, provided, the appellant shall file an appropriate bond approved by the court.

455A.24 Executive prerogatives. The council shall have no executive prerogatives outside of its own duties and functions as set out by this chapter and shall not disturb the work, functions or authority of any of the several state or local agencies and institutions, provided the powers conferred upon the council by this chapter shall not be exercised by any other of the agencies or institutions.

455A.25 (Repealed).

455A.25 (New Section) Unauthorized depleting uses. In the event that any person shall file a complaint with the council that any other person is making a depleting use of water not expressly exempted as a non-regulated use under the provisions of this chapter and without a permit

to do so, the council shall cause an investigation to be made and if the facts stated in the complaint are verified the council shall order the discontinuance of the use.

455A.26 (Amended) Penalties. Whoever is convicted of erecting, causing or continuing a common or public nuisance, as provided in this chapter, or whoever diverts or withdraws water in violation of the provisions of this chapter, upon conviction, shall be fined not exceeding one hundred dollars or be imprisoned in the county jail not exceeding thirty days.

455A.27 (New Section) Saving clause. If any provision of this Act or the application of such provision to any person or circumstance shall be held invalid, the remainder of this Act or the application of such provision to persons or circumstances other than those to which it is held invalid, shall not be affected thereby.

455A.28 (New Section) Publication clause. This Act being deemed of immediate importance shall be in full force and effect upon its publication in the

, a newspaper published at
, Iowa, and in the
published at , Iowa.

INTER-RELATIONSHIP OF CONSERVATION AND DRAINAGE

It has been said that improper land use, and abuse of soil and ability to produce are major causes of depleted water supplies. The causes appear in various forms—indiscriminate elimination of timber, clearing and cropping of land not suited for the purpose, overcropping, disdain of soil-building methods, continuous depletion of the soil without planned replenishment of its productive ingredients and without thought of the inevitable breakdown of its absorptive abilities. These and similar causes invite erosion, a fast runoff of rainfall and distressing loss of both soil and sorely needed storable water. Since 1936 the Federal government, through the Soil Conservation program, has made major contributions to the elimination of the above causes and has offered solutions by way of encouraging and assisting farm owners and operators in establishing and carrying out essential conservation practices which would otherwise not have been done in the volume or to the extent needed. The United States government has worked with individuals under cost sharing provisions under Federal acts through what is known as the Agricultural Conservation Program. This nationwide program which is generally referred to as A.C.P., is administered on the state level by the Iowa Agricultural Stabilization and Conservation or A.S.C. committee and on the county and township levels by the farmer-elected county and community A.S.C. committeemen. The A.S.C. works closely with the Soil Conservation Service, which furnishes all required technical services. In addition, the A.S.C. works with the Forest Service, Extension Service, Farmers Home Administration, agencies and groups concerned with soil and water conservation.

About one-half of the costs of approved, completed conservation practices may be reimbursed from A.C.P. funds appropriated by Congress and apportioned in turn among the states and counties. For certain enduring and permanent-type work in Iowa, as much as 60 percent of the costs may be reimbursed under the 1956 current program. Any problem of conservation on the individual farm should be investigated in the light of possible cost-sharing benefits by the A.C.P. program to the local owner or operator. Assistance is available for tilling programs, surface drains, water detention structures, erosion control and in some counties, for well-drilling and construction.

In addition to the foregoing, the United States government has co-operated in many local watershed projects. Some of these are called pilot watersheds and include the larger projects. One of these is known as the Honey Creek Project in the Lucas County Conservation District of about 9,000 acres, and one referred to as the Mule Creek Project in Mills County of about 8,000 acres; another watershed project is under construction in the Little Sioux in northwest Iowa. The local people provide about 50 percent of the total cost of structures, terraces and all of the practices needed in a pilot watershed project. In the Little Sioux project, the government has installed most of the structural works of improvement, the farmer is doing the land treatment, the terracing, waterways, tree planting, and other necessary things, and the government has shared in the cost of building structures.

We are presently operating under public law 566 which was passed by Congress two years ago. Under this law, local people pay their proportionate share of the costs of improvement, based upon benefits. The Federal Government also shares in the cost. The 56th General Assembly adopted a law which makes possible sub-districts within a small watershed with authority to levy up to four mills

of tax on property valuations to raise funds to maintain the structures that are installed with the participation on the part of the Federal government and the local people. It provided a method of financing maintenance.

The long-range objective of our drainage laws should be to combine drainage and water conservation on a watershed basis. As water conservation practices evolve, surplus water from drainage outlets might be conserved. The possibility of drainage wells should be considered. Control of drainage should be complete rather than partial. In Iowa we have what is known as the Conservancy District Law, the provisions of which are set forth in Chapter 467C of the Code of Iowa, 1954. Such districts were designed to have the power of combining in their functions, activities affecting soil conservation, flood control and drainage, or any of these objects, singly or in combination with another. The purpose was laudable but it has not worked out as a matter of practicality as is evidenced by the fact that only two districts have been organized under this law and these two districts were both accomplished by a voluntary sign-up on the part of the affected land owners. It is obvious that resort to this section has been limited because of the involvement of different agencies of government, each having some function to perform. The planning details have been handled by the agencies of the Federal government. Delays have been experienced by those who have attempted to establish such a district in obtaining preliminary report data and specifications required to comply with the Federal program.

Some doubt has been expressed by legal authorities that the provisions of Chapter 467C are not applicable to the establishment of a new district but have limited application to districts already in existence. This should be clarified so that any doubts are removed from the law and a legislative proposal to accomplish this will be prepared. An effort should also be made to encourage the Soil Conservation Service to shorten the period of time required by their technicians and engineers in preparing complete plans. It has been suggested that what is needed is an entire new enabling act relating to the organization and establishment of drainage, levee or watershed conservancy districts for the purpose of cooperating with Federal agencies in the original establishment of such districts where the Federal government is to undertake all or part of the original construction.

The members of this committee have requested that the Soil Conservation Service prepare a proposal which will make the Conservancy District Law more workable.

In connection with the sub-district law adopted by the 56th General Assembly, it is suggested that no provision was made to pay organizational expense in setting up such sub-districts. This problem could be remedied by inserting the word "organization", after the word "for" on line 79 of Chapter 225 Laws of the 56th General Assembly.

We recommend that close co-operation be maintained by the Iowa Highway Commission and County Boards of Supervisors with soil, water and drainage districts in order that maximum efficiency in conservation may be achieved.

The watershed approach to drainage, soil and water conservation will be beneficial to both rural and urban populations and will make possible larger measures of flood control by reducing peak flows on upstream watersheds which will be of great value to everyone.

PROPOSED CHANGES OF DRAINAGE LAWS PRELIMINARY STATEMENT

The State of Iowa has a rather complete and also complicated set of statutes relative to drainage. Through the years many drainage districts have been established and many land owners have availed themselves of the benefits derived from such districts. Because of the increasing interest in drainage, higher costs of drainage, and the increased application of the drainage statutes, it has become apparent that our present drainage statutes are in need of some revision and clarification. Many proposals for revision and clarification of the present drainage statutes have been submitted to this committee, and the following recommendations are offered in regard to such revision and clarification of the present drainage laws. Many of the suggested changes are of a technical nature. An explanation follows each of the suggested changes.

PROPOSED LEGISLATION

1. Classification prior to establishment of district.

Section 455.9 should be amended by adding thereto as follows: "Subsection 5. In the event the petitioners request a classification before the establishment of the district, the petition shall include a request that the district be classified as provided in Section 455.45 to 455.51 inclusive after the Board has approved the report of the engineer as a tentative plan but before the district is finally established."

Section 455.9a (New Section) Classification requested by others. "In the event two or more land owners included in the proposed district other than the petitioners request a classification prior to the establishment of said district, they shall file in writing their request and execute a bond as required in Section 455.10 and Section 455.11 to cover the expense of such classification if the district is not established. Such written request and the bond shall be filed before the Board establishes a district."

The reason for this change is to afford the petitioners for a drainage district an opportunity to know approximately what each individual land owner will have to pay toward the expense of establishing the district and constructing the improvements in said proposed district. Under the present drainage statute the individual land owner has no way of knowing what his individual cost will be toward a drainage district until after the district is established and after his right to object to the establishment of the district is lost. Many land owners would like to know their approximate individual cost in a drainage district before they decide whether or not they are in favor of said district. The reason for requiring the petitioners to request this in the petition and the reason for making such request optional to the petitioners is that the petitioners are liable for the preliminary costs, incurred if the drainage district is not established. There will be many petitioners who will not want to incur the cost of classification as a preliminary expense. The procedure provided by the proposed change gives the petitioner the option.

The reason for adding new section 455.9a is to permit land owners other than the petitioners to have the right to request a classification prior to the district being established if they so desire and if the petitioners do not request such classification. The reason for requiring a bond to be filed with the request for a classification by other landowners is to guarantee payment of the costs of classification in the event the district is not established. In the event the petitioners request a classification prior

to establishment, then the cost of classification would be considered as part of the preliminary costs which is covered by the petitioners bond. However, if the petitioners do not request a classification prior to establishment, then those land owners, who do request such a classification, should be liable for the cost of such classification prior to establishment if the proposed district is not established.

2. Procedure for classification prior to establishment.

Section 455.19 should be amended by adding thereto the following: "If the petition or other land owners requested a classification of the district prior to establishment, the Board shall order a classification as provided by Section 455.45 to Section 455.51 inclusive after they have approved the report of the engineer as a tentative plan. The notice of hearing provided by Section 455.20 shall also include the requirements of the notice of hearing provided in Section 455.52 as to this classification, and the hearing on the petition provided in Section 455.27 shall also include the matters to be heard as provided in Section 455.53. If the Board establishes the district as provided in Section 455.28, the classification which is finally approved at said hearing by the Board shall remain the basis of all future assessments for the purposes of said district as provided in Section 455.56. The land owners shall have the same right of appeal from this classification as they would have if the petition had not requested a classification prior to establishment and the classification had been made after establishment."

This amendment is to clarify the procedure to be followed by the Board in the event classification is requested prior to the establishment of the district.

3. Classification of laterals.

Section 455.48 should be amended by adding the following thereto: "When there has been a repair or improvement to a lateral ditch or a drain as provided in Section 455.135 and said lateral ditch or drain has not been classified as provided in this section, then the Board may order a classification of said lateral ditch or drain and the commissioner shall ascertain and fix the percentage of benefits and apportionment of costs to the lands benefited by such lateral ditches or drains on the same basis and in the same manner as if said lateral was with its sub-laterals being constructed as a sub-district as provided in this chapter. Once this procedure has been followed for the classification of any lateral ditch or drain in a given district, the Board shall follow the same procedure for all other lateral ditches or drains in the same district."

The reason for this change is that many districts were established and laterals and drains were a part of said districts before this section of the Code was enacted. Therefore, these laterals and branches were never classified separately. Since said laterals and branches never had a separate classification, when it was necessary to incur expense in repairing and improving said laterals, the expense of said improvement or repair had to be borne by the entire district since that was the only classification the district or the laterals had. We have found that in many instances the board has gone ahead and classified a branch as is now proposed in this amendment, but without this specific amendment there is a serious question as to the constitutionality of such classification. The reason for using the word *may* is to make this classification discretionary with the Board. The reason for using the word *shall* in the last sentence of this amendment is to make it mandatory upon the Board to follow this procedure for all other laterals in the district once one of the laterals in said district has been classified

according to this procedure. The basic purpose of this amendment is to place the cost of such repair and improvement upon the persons actually benefited by that improvement or repair.

4. Adjustment of assessment for land taken for right-of-way.

Section 455.56 should be amended by this insertion following the first sentence of said section: "Where lands in the district have been subsequently taken for right-of-way for highways and railroads, the board shall remove that portion of land so taken for right-of-way from the assessment rolls and shall order a re-classification of said land taken for right-of-way as provided in Section 455.72. If any lands which had previously been taken for right-of-way for railroads or highways shall be abandoned for the right-of-way purpose, then the board shall order said abandoned right-of-way land reclassified as the respective tracts to which it reverts just as though said right-of-way land was being annexed as provided in Section 455.128." The last sentence of said section would remain the same.

The reason for this amendment is to provide a specific method for the Board to correct and adjust the classification and assessment on the additional land taken for right-of-way for highways and railroads. It also provides a method whereby the Board can adjust the classification and assessments on land abandoned as right-of-way by highways and railroads. This amendment has more application to the taking of land for highway right-of-way than for railroads at the present time because of the great increase of highway development in this state. This amendment is also dependent upon the amendment which we are recommending for Section 455.72. This amendment provides a method which is much less expensive than a general re-classification of the entire district to adjust this classification. The other land owners in the district would not be adversely affected by a separate classification of highways and railroads because under the lowa cases interpreting a classification of highways and railroads it has been stated many times that there is no way of comparing the assessment against a highway and against a tract of land used for agricultural purposes. The cases say that at best the commissioners can only make an approximation of the benefit derived from a drainage district by a highway.

5. Increase in interest rate.

Section 455.57 should be amended to provide that the rate of interest which the drainage taxes shall bear be increased either to five percent or six percent per annum.

The reason this amendment has been suggested is that in many cases the drainage warrants or drainage certificates which are issued and only bear interest at four percent are not very negotiable. Many contractors are required to hold a large amount of these warrants or to discount said warrants considerably in order to cash the same. In order for the contractors to be able to discount their warrants and cash the same, they also have to increase their bid accordingly. If the drainage taxes bear a higher interest rate and the warrants and certificates also bear a higher interest rate, we hope to make the warrants and certificates more negotiable. This will eventually encourage more contractors to bid on drainage projects and result in savings to the district.

6. Increase in interest rate.

Section 455.64, subsection land and subsection 2, should be amended to provide an increase in the interest rate on assessments paid in installments to correspond with the increase in interest rates as provided in Section 455.57 as recommended by this committee.

7. Reclassification.

Section 455.72 should be repealed and re-enacted as follows:

"Section 455.72 Reclassification. When, after a drainage or levee district has been established and the improvements thereof constructed and put in operation, a repair, improvement or extension has become necessary, the board may consider whether the existing assessments are equitable as a basis for payment of the expense thereof. If they find the same to be inequitable in any particular, they shall by resolution express such finding, appoint three commissioners possessing the qualifications prescribed in Section 455.45 and order a reclassification as follows:

- (1) If they find the assessments to be generally inequitable they shall order a reclassification of all lands, highways and railroads in said district.
- (2) If the inequity ascertained by the board is limited to the proportion paid by highways or railroads, a general reclassification of all lands shall not be necessary but the commissioners may evaluate and determine the fair proportion to be paid by such highways and/or railroads as provided in sections 455.49 and 455.50.
- (2) Any benefits of a character for which levee or drainage districts may be established and which are attributable to or enhanced by the improvement or by the repair, improvement or extension thereof, shall be a proper subject of consideration in a reclassification notwithstanding the district may have been originally established for a limited purpose.

Such reclassification when finally adopted shall remain the basis for all future assessments unless revised as provided in this chapter."

The reason for this change in the statute is to provide a more efficient method of reclassification of lands taken for highway right-of-way and railroad right-of-way. This change is also necessary to effectuate the amendment recommended for Section 455.56. Due to the increased development of highways, an easier and more specific method of classifying said highways for drainage benefits should be provided without having to go through a general reclassification so as to adjust the assessments on said lands. In many districts the benefits derived by a highway from the improvement in a drainage district is considerably greater than in prior years. In many instances, and with particular reference to the approach to bridges, great sums of money are spent by the districts to protect highway right-of-way.

8. Clarification of bid requirement.

Section 455.73 should be repealed and re-enacted to read as follows: "455.73 Bids required. In case the board shall finally determine that any such change as provided in Section 455.69 shall be made involving an expenditure of five thousand dollars, or more, said work shall be let by bids in the same manner as provided for in the original construction of such improvements. In case the board shall finally determine that any repair or improvement shall be made as provided in section 455.135 involving the expenditure of five thousand dollars, or more, said work shall be let by bids in the same manner as is provided for the original construction of such improvements."

The purpose of this amendment is to specify clearly that this statute as it now exists refers directly to section 455.69 and the changes or modifications of the plan as provided therein. It is also the thought of this committee that the Board when ordering a repair or improvement as provided in section 455.135 should also be enabled to spend up to five thousand dollars for such a repair or improvement without the necessity of letting the contract by bids. This, of course, places more authority with the Board but also saves considerable time and expense for the district for minor repairs and improvements.

9. Increase in interest rate.

Section 455.79 should be amended to provide a higher rate of interest which these certificates shall bear, and such rate of interest should correspond with the increased rate of interest as recommended by this committee in section 455.57.

The purpose of this increased interest is to make these certificates and warrants more negotiable and save the district considerable money.

10. Increase in interest rate.

Section 455.83 should be amended so that the interest rate would correspond with the increased interest rate recommended by this committee for section 455.57.

11. Clarification of annexation of additional lands.

Section 455.128 should be repealed and re-enacted as follows:

"Section 455.128 Annexation of additional lands. After the establishment of a levee or drainage district, if the board becomes convinced that additional lands are benefited by the improvement or that the same are then receiving benefit or will be benefited by a repair or improvement to said district as contemplated in section 455.135, it may adopt, with or without a petition from owners of the proposed annexed lands, a resolution of necessity for the annexation of such additional land and appoint an engineer with the qualifications provided in this chapter to examine such additional lands, to make a survey and plat thereof showing their relation, elevation and condition of drainage with reference to such established district, and to make and file with the Auditor a report as in this chapter provided for the original establishment of such district—said report to specify the character of the benefits received."

The reason for this change is that in many cases when a district is improved or repaired as provided in Section 455.135, additional land is benefited by such improvement or repair. Under the present statute it would seem that in order to complete this annexation of additional land the district would have to show that said land should have been included in the district as originally established and to show that the additional land was benefited by the original improvement. The scope of the repairs and improvements provided in section 455.135 is now such that in many instances such repairs or improvements give benefit to additional lands, which lands had no benefit by virtue of the original establishment of the district. An example of this would be in the case of an extension of a drainage ditch or tile which has become necessary to give a proper outlet to an established district. It is obvious that the land adjacent to this extension would be benefited by the extension, but that said land before the extension was constructed would have no benefit from the original district.

12. Basis for assessment after annexation.

Section 455.130 should be repealed and reenacted as follows:

"Section 455.130 Petition for annexation. After such annexation is made the Board shall levy upon the annexed lands an assessment sufficient to equal the assessments for benefit originally paid by the lands of equal classification if the finding by the Board as provided by section 455.128 was that said lands should have been included in district when originally established, plus their proportionate share of the costs of any enlargement or extension of drains required to serve the annexed lands. If the finding of the board as provided in section 455.128 was based on the fact that additional lands are now benefited by virtue of the repair or improvement made to said district and were not benefited by the district as originally established, then the Board shall levy upon said annexed lands an assessment sufficient to pay their proportionate share of the costs of said repair or improvement which was the basis for the lands being annexed."

The reason for this amendment is to clarify the amount of assessment which the Board should levy in the event that lands are annexed to the district. Even though the present statute provides that the Board shall levy upon the annexed lands an assessment sufficient to equal the assessment for benefit originally paid by the lands of equal classification, as a practical matter the Boards have never done this. They have merely levied an assessment on the additional lands so that the added lands pay their proportionate share of the repair or improvement currently made in the district. This statute as now amended would permit the board to charge the additional lands their fair share of the original costs of the district if they could show that the additional lands should have been included in said district when established and have been benefited all of the time since the existence of the district. This amendment will also permit the board to charge the additional lands only for their share of the cost of any repair or improvement when their finding as the basis for annexation is that the added lands are now benefited by virtue of the repair or improvement.

13. Easement for meander.

The last paragraph of section 455.135 should be repealed and re-enacted as follows: "The governing body of the district may, by contract or conveyance, acquire, within or without the district, the necessary lands or easements for making repairs or improvements under this section, including easements for borrow and easements for meander, and in addition thereto, the same may be obtained in the same manner provided in the original establishment of the district, or by exercise of the power of eminent domain as provided for in chapter 472."

The purpose of this amendment is to broaden the power of the governing body of the district to provide for acquisition of land or easements for meander, in cases where purchase would be more economical than attempted containment of a stream.

In addition to the foregoing, it is suggested that a new section be added to follow Section 455.135 as follows:

"Districts hereafter established for the straightening, widening, deepening or changing of a natural watercourse shall acquire therefor an easement for right-of-way of sufficient width to accommodate reasonably anticipated erosion and meander of such stream. In existing districts where the stream has by erosion appropriated lands beyond its original right-of-way and it is more economical and feasible to acquire an easement for such erosion and meander than to undertake containment of the stream in its existing right-of-way, the board may, in the discharge of the duties enjoined upon it by section 455.135, effect such acquisition as to the whole or part of the course. Right-of-way so taken shall be classed an improvement for the purpose of procedure under said section."

The purpose of this amendment is to permit those districts, organized for the purpose of straightening or changing a natural watercourse, to acquire the land taken by the meandering of said watercourse. It also compels such districts to acquire sufficient easements to accommodate the reasonably anticipated appropriations of the stream. Many of the existing districts organized for this purpose were constructed with only sufficient right-of-way to accommodate a pilot channel and the waste banks. These channels have by natural processes assumed an approximate width of two to four times the original right-of-way in some instances.

14. Remonstrance in case of improvement.

Section 455.135 should be supplemented by adding the following new section:

"In the event that the estimated cost of the improvement as contemplated in section 455.135 should exceed the original cost of the district plus the cost of subsequent improvements in the district, a majority of the landowners,

owning in the aggregate more than seventy percent of the total land in said district, may file a written remonstrance against said improvement, at or before the time fixed for hearing on said improvement, with the county auditor, or auditors, in case the district extends into more than one county. If such remonstrance is filed, the Board shall discontinue and dismiss all further proceedings on said improvement and charge the costs incurred to date for said proposed improvement to the district. This right of remonstrance shall not apply to repairs as defined in this section."

The purpose of this amendment is to afford a majority of the landowners in the district, owning in the aggregate seventy percent of the land, the right to stop a given improvement if they so desire. The estimated cost of the improvement must exceed the original cost of the district plus the cost of subsequent improvements in order for such a remonstrance to apply. The purpose of this proposal is to prevent the supervisors or a small minority of landowners in the district from incurring a large expense for the entire district, when to do so would be against the majority will. This would make these very costly improvements subject to the same provisions as those set forth for new districts in section 455.34.

15. Credit for other facilities.

Section 455.143 should be amended by adding thereto the following: "In the event that one of the districts to be assessed under this statute shall have any improvement which reduces the quality of flow or sediment, such commission shall give consideration to the existence of such an improvement when they determine the percentage of benefits and the sum total to be assessed to each district for the improvement."

The purpose of this amendment is to give proper credit to a district having a settling basin because of the fact that the existence of said settling basin reduces considerably the amount of silt or debris which is carried into a lower district which eventually causes expensive cleanouts in the lower districts.

16. Change in election procedure.

Section 462.12 should be amended by inserting after the word "benefits" in line six thereof, the following: "or by owners of a majority of the land within said district assessed for benefits."

The reason for the amendment to this section is to permit the landowners, owning a majority of the land in said district, to petition the trustees for a change in method of election allowed by this section. The situation arises under the present statute where the district includes all, or part of a city, and because of a city having the majority of the landowners but only a small percentage of the total land in the district, the city is able to control the method of election. This present inequity prevents the effective and intended operation of this statute.

17. Limitation of liability of trustees.

Section 462.27 should be amended by adding thereto the following: "No person serving as a member of a board of trustees of a levee or drainage district shall be personally liable to one injured in consequence of any act performed within the scope of official authority, or for an omission, in the line of official duty."

The reason for this amendment is to remove the liability of a trustee of a levee or drainage district to pay damages

for injuries occurring in consequence of the performance of said trustee's duties. Trustees receive very little pay for their labors and it is difficult to get competent trustees to act when they are exposed to the possibility of a lawsuit.

WELL DRILLING

The drilling, boring, coring, digging, construction, alteration or repair of any well is a matter of public interest. The techniques employed in the development of a well are highly important in the overall conservation of water resources. The general quality of well drilling in Iowa has been good, and the well drillers of the state have been cooperative in working with the Iowa Geological Survey, however, because of the public interest in the wise use of water, it seems logical that consideration should be given by the legislature to a matter of adoption of a well drillers regulatory law. This has been done in the state of Maryland. In 1941 House File 348 was introduced into the Iowa legislature. This was a bill which would set up licensing provisions and some regulations on well drillers. No attempt is made herein to draft a regulatory bill for the well drilling industry but it is imperative that this highly important area of activity be considered in connection with any program designed to provide for the orderly development, wise use, conservation and protection of the water resources of the state.

WEATHER MODIFICATION

During the year 1956, many areas in Iowa have organized corporations for the purpose of promoting weather modification. These corporations have entered into contracts with weather modification agencies with the objective of inducing additional precipitation.

According to Dr. Robert Shaw, climatologist at Iowa State College, weather modification is in an experimental stage in this area. He says in substance that it will take some time to evaluate results but that it is an experiment which is worth a chance. The people of Iowa have been fairly advised on the subject of weather modification and the projects which have been commenced were based on contracts which gave no guarantee of any increase in precipitation.

The weather modification projects have been carried out under the supervision of technicians employed by private interests which have entered into contracts with local corporations. There should be some regulation of these weather modification agencies who undertake to do business in the State of Iowa. The Department of Agriculture has charge of the record in connection with rainfall. The weather modification agencies should be required to furnish data to the Secretary of Agriculture setting forth statistics in connection with their operations. This information should include: The quantity and kinds of materials used to induce precipitation, type of equipment employed and the number and location of generating units in operation, the days and hours of such operations, the charges made for the services rendered, the amount of precipitation in the area involved, the boundaries of the operation zone, and such other information as would be necessary for present classification of data and for an evaluation of this program in the years ahead.

SUMMARY

Recommendations contained in this report are made with full recognition of the desirability of maintaining governmental controls at a minimum. The problems connected with water and drainage legislation are closely related with the rights of individuals in the free use and enjoyment of their property. We recognize that constitutional questions are involved and that any regulations or control must be based upon a necessary exercise of the police powers of a government to protect the health, safety and welfare of its people. This authority must be used sparingly. We have attempted to make our recommendations reasonable and practicable.

In approaching the problem of recommending a water code, we have attempted to avoid inflexibility. We have sought to lay the groundwork for maximum beneficial use of water within the limits of competing individual rights. We have attempted to make possible a framework of administration which would permit greater use of water by means of storage, diversion and detention during periods of flood and surplus for later use during periods of drought and shortage. This can be accomplished under the provisions of the water law recommended by this committee.

It is important that the implementation of a wise water policy be commenced at the earliest possible date. The supply of basic data in Iowa is inadequate but by no means so incomplete that an intelligent approach to administration cannot be made. Complete basic data for the administration of a comprehensive water use regulatory law will probably never be available. We are not deluded in respect to the administrative difficulties which will be experienced in the inauguration of water use controls. We believe that we have enough facts to proceed at this time for the contemplated water law.

In connection with drainage, we have attempted to clarify the law and to extend additional safeguards to individuals. We have emphasized the need for drainage on a watershed basis because we feel that it is the only sound approach to a long range solution of the over-all problems of drainage and water conservation.

We recommend that the administrative departments of government in Iowa be continually cognizant of, and alert for necessary enabling legislation for the state of Iowa in order that our people might fully utilize all available Federal benefits, grants and assistance in furthering our conservation program.