United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Illinois Agricultural Experiment Station

Soil Survey of Warren County, Illinois

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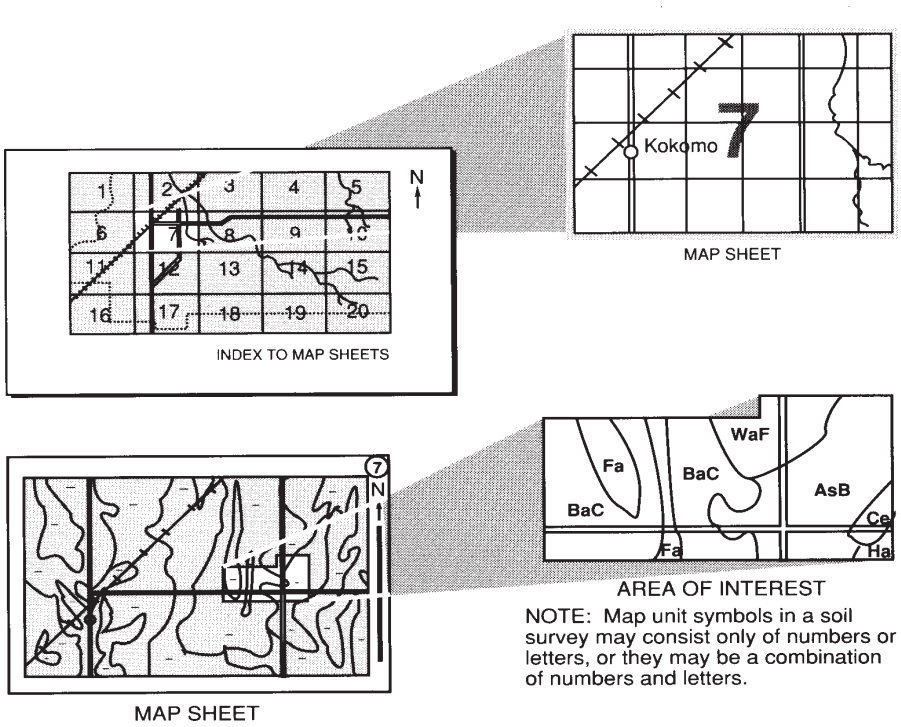
How To Use This Soil Survey

This publication consists of a manuscript and a set of soil maps. The information provided can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet, and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Numerical Index to Map Units**, which lists the map units by symbol and name and shows the page where each map unit is described. The map unit symbols and names also appear as bookmarks, which link directly to the appropriate page in the publication.

The **Contents** shows which table has data on a specific land use for each soil map unit. Also see the **Contents** for other sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2000. Soil names and descriptions were approved in 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2001. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. It is part of the technical assistance furnished to the Warren County Soil and Water Conservation District. Financial assistance was provided by the Warren County Board and the Illinois Department of Agriculture.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

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Cover: An aerial view of the University of Illinois Agricultural Experiment Station, Northwest Research and Demonstration Center, in Monmouth. The dominant soils are Osco, Muscatune, and Sable soils.

Additional information about the Nation's natural resources is available on the Natural Resources Conservation Service homepage on the World Wide Web. The address is http://www.nrcs.usda.gov.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of
Warren County, Illinois

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United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Illinois Agricultural Experiment Station

Warren County is in northwestern Illinois (fig. 1). It has an area of 348,100 acres, or about 542 square miles. It is bounded by Mercer County on the north, Fulton and Knox Counties on the east, Henderson County on the west, and McDonough County on the south.

Warren County was established in 1825. The population of the county was 18,735 in 2000. Monmouth, the county seat, has a population of 9,841 (U.S. Department of Commerce, 2002).

This soil survey updates the survey of Warren County published in 1998 (Elmer, 1998). It provides additional information and has larger maps, which show the soils in greater detail.

Warren County has a well developed system of transportation. U.S. Highway 34 crosses the county from east to west, and U.S. Highway 67 crosses the county from north to south. Several State highways service the county. The main secondary roads are blacktopped. Most rural areas are accessible by all-weather roads.

General Nature of the Survey Area

This section provides some general information about Warren County. It describes farming; relief, physiography, and drainage; and climate.

Farming

Farming has been a major enterprise in Warren County since the area was settled. In 2000, the county had 710 operating farms (Illinois Agricultural Statistics Service, 2001). The average farm size is about 444 acres. Much of the grain produced on the farms is fed to livestock.

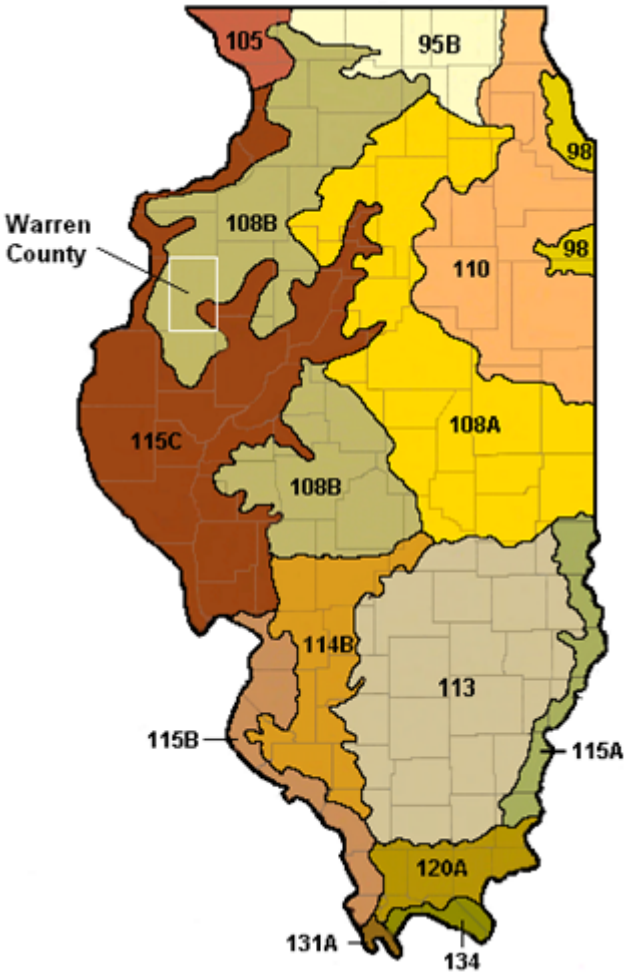
Corn, soybeans, and hay are the main crops. In 2000, the acreage used for corn was 142,000 acres; for soybeans, 113,200 acres; and for hay, 7,200 acres (Illinois Agricultural Statistics Service, 2001).

Hogs and cattle are the main livestock. In 2000, the total number of swine was 49,800 and the total number of cattle was 21,680 (Illinois Agricultural Statistics Service, 2001).

Relief, Physiography, and Drainage

Ken Russell, fisheries biologist, Illinois Department of Conservation, helped prepare this section.

The topography of Warren County consists of upland plains, dissected valley sides, and flood plains (fig. 2). This landscape is the result of the action of continental glaciers in the recent geologic past and of postglacial stream erosion (Willman and Frye, 1970). The gently rolling uplands are the result of glacial



LEGEND

95B—Southern Wisconsin and Northern Illinois Drift Plain

98—Southern Michigan and Northern Indiana Drift Plain

105—Northern Mississippi Valley Loess Hills

108A and 108B—Illinois and Iowa Deep Loess and Drift

110—Northern Illinois and Indiana Heavy Till Plain

113—Central Claypan Area

114B—Southern Illinois and Indiana Thin Loess and Till Plain

115A, 115B, and 115C—Central Mississippi Valley Wooded Slopes

120A—Kentucky and Indiana Sandstone and Shale Hills and Valleys

131A—Southern Mississippi Valley Alluvium

134—Southern Mississippi Valley Silty Uplands

Figure 1.—Location of Warren County and major land resource areas (MLRAs) in Illinois.

deposition, and the dissected valley sides and flood plains are the result of postglacial stream erosion.

The upland plains are remnants of a once-continuous surface of glacial deposits (Leighton and Brophy, 1961). In Warren County, they are at elevations ranging from about 570 feet above sea level in the southeast to 810 feet in the southwest. Although largely of glacial origin, they are covered by 10 feet or more of wind-deposited loess, which reaches a maximum thickness (more than 50 feet) on the summits in the western part of the county. The upland plains function as stream divides separating adjacent stream drainage basins. They are surrounded by innumerable tributary valleys, which drain into the larger streams in the county.

A major watershed divide occurs in the county. The streams in the northern and western areas flow to the Mississippi River, and those in the east and southeast drain into the Illinois River. The streams that flow west towards the Mississippi River include Henderson, Cedar, Ellison, and Honey Creeks. Cedar Fork, Negro Creek, and Swan Creek flow eastward toward the Illinois River. In the northern and extreme southern parts of the county are remnants of a few distinct ridges that are not directly related to stream erosion.

Much of the northwestern and southeastern parts of Warren County are so strongly dissected with small drainageways that little of the original nearly level plain remains. Surface drainage is fairly rapid in these areas, and artificial drainage plays a minor role in the removal of excess water. In the central part of the county and particularly in the southwestern part are many areas of nearly level land. Artificial drainage is needed if these areas are to be used for agricultural purposes. The lowest land point in Warren County, 570 feet above sea level, is in an area of bottom land along

Cedar Fork at the Knox County border. The highest elevation, 810 feet, is in the southwest corner of the county, near the McDonough County line.

Climate

Warren County is cold in winter. In summer, it generally is hot but has occasional cool spells. Precipitation falls as snow during frequent snowstorms in winter and chiefly as rain showers, which often are heavy, during the warmer periods, when warm moist air moves in from the south. The amount of annual rainfall usually is adequate for corn, soybeans, and small grain.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Monmouth during the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 27 degrees F and the average daily minimum temperature is 18 degrees. The lowest temperature on record, which occurred at Monmouth on February 13, 1905, is -27 degrees. In summer, the average temperature is 77 degrees and the average daily maximum temperature is 85 degrees. The highest recorded temperature, which occurred at Monmouth on July 15, 1936, is 110 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

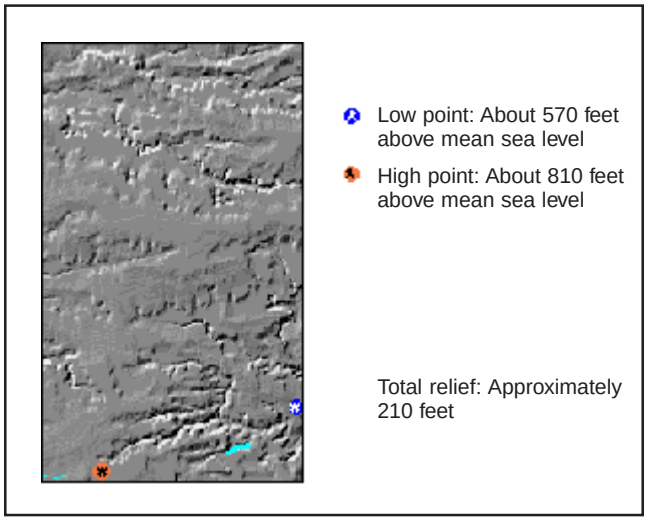


Figure 2.—A shaded relief map of Warren County.

Total annual precipitation is 38.31 inches. Of this total, 24.08 inches, or about 63 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 12.70 inches. The heaviest 1-day rainfall on record is 6.53 inches on July 15, 1929. Thunderstorms occur on about 50 days each year.

The average seasonal snowfall is 28.5 inches. The greatest snow depth on record at any one time is 25 inches on January 16, 1979. On average, 49 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

Tornadoes and severe thunderstorms strike occasionally. They are of local extent and of short duration and cause only sparse damage in narrow belts. Hailstorms sometimes occur during the warmer periods. The hail falls in scattered small areas.

How This Survey Was Made

This survey was made to provide updated information about the soils and miscellaneous areas in Warren County, which is a subset of Major Land Resource Areas 108B and 115C (fig. 1). Major land resource areas (MLRAs) are geographically associated land resource units that share a common land use, elevation, topography, climate, water, soils, and vegetation (USDA, 1981). Map unit design and the soil descriptions are based on the occurrence of each soil throughout the MLRA. In some cases a soil may be referred to that was not mapped in the Warren County subset but that is representative of the MLRA.

The information includes a description of the soils and miscellaneous areas and their location and a discussion of their properties and the subsequent effects on suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and

miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, soil reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Interpretations are modified as necessary to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a seasonal high water table within certain depths in most years, but they cannot predict that the water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area may not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Formation and Classification of the Soils

This section relates the soils in the survey area to the major factors of soil formation and describes the system of soil classification.

Factors of Soil Formation

Soil-forming processes act on deposited or accumulated geologic material. The characteristics of the soil at any given point are determined by the parent material, the living organisms on and in the soil, the climate, the topography, and the length of time that the forces of soil formation have acted on the soil material (Jenny, 1941).

Climate and living organisms are active factors of soil formation. They act on the parent material that has accumulated through the weathering of rocks and that may have been relocated by water, glaciers, or wind and slowly change the material into a natural body that has genetically related horizons. The effects of climate and living organisms are conditioned by topography. The parent material affects the kind of soil profile that forms. Finally, time is needed for the parent material to change into a soil. Usually, a long time is needed for the formation of distinct horizons.

The importance of each soil-forming factor differs from place to place, and each factor modifies the effect of the others. In some areas one factor dominates the formation of a soil. Human activities, such as clearing forests, cultivating, and applying fertilizer, also affect soil formation.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. It determines the chemical and mineralogical composition of the soil. Wind, glaciers, or meltwater from glaciers deposited some of the parent material in Warren County (Leighton and Brophy, 1961). In some areas the parent material was reworked and redeposited by subsequent actions of water and wind. Although all of the parent material in the county is of common glacial origin, its properties vary greatly, sometimes within small areas, depending on how the material was deposited. The soils in the county formed dominantly in loess, glacial till, alluvium, and bedrock residuum.

Peoria loess is the major parent material in the county. The Mississippi River Valley was the main source of the loess. Wind picked up silt from the valley floor and redeposited it in the uplands. The loess is about 30 feet thick in nearly level areas on uplands. Osco soils formed in loess. These soils typically are moderately fine textured and have strongly expressed structure.

Glacial till is material laid down directly by glaciers with a minimum of water action. It consists of particles of different sizes that are mixed together. The small pebbles in glacial till have sharp corners, indicating that they have not been worn by washing water. All of the till in the county is of Illinoian age. In some areas it retains a Sangamon paleosol. Atlas and other modern soils formed in these areas. In many areas the paleosol has been removed by erosion. Hickory and Elco soils formed in these areas.

The alluvium in the county was recently deposited by floodwater from streams. The texture of the alluvium varies, depending on the speed of the water from which it was deposited. Examples of alluvial soils are Radford and Sawmill soils.

Shale and limestone bedrock is predominantly buried by loess, glacial till, outwash, and alluvium in Warren County. Along side slopes on dissected uplands, however, the material weathered from bedrock is the parent material of some soils. Examples are Dunbarton and Marseilles soils.

Living Organisms

Plants are the principal living organisms affecting the soils in Warren County. Bacteria, fungi, and earthworms, however, also have influenced soil formation. The chief contribution of plant and animal life is the addition of organic matter and nitrogen to the soil. The kind of organic material on and in the soil depends on the kind of plants that grew on the soil. The remains of these plants accumulate in the surface

layer, decay, and eventually become organic matter. The roots of the plants provide channels for the downward movement of water through the soil and add organic matter as they decay. Bacteria in the soil help to break down the organic matter and thus help to provide plant nutrients.

The native vegetation in the county was trees and prairie grasses. The sloping soils formed mainly under forests of oak, hickory, and similar trees. The nearly level soils formed under prairie grasses. They have a darker and thicker surface layer than that of the soils that formed under forest vegetation. Also, they have a higher content of organic matter. Fayette soils are examples of soils that formed under forest vegetation. Muscatune soils formed under prairie vegetation.

Climate

Climate is an important factor in the formation of soils. It influences the kind of plant and animal life on and in the soil. Precipitation affects the weathering of minerals and the transporting of soil material. Temperature determines the rate of chemical reaction that occurs in the soil. The general climate has had an important overall influence on the characteristics of the soils, but it does not cause major differences among soils in a relatively small area, such as a county.

The climate in Warren County is temperate and humid. It is probably similar to the climate under which the soils formed.

Topography

Topography, or relief, has a marked influence on the soils through its effect on natural drainage, erosion, plant cover, and soil temperature. In Warren County, the slopes dominantly range from 0 to 60 percent. Natural soil drainage ranges from excessively drained on sandy ridgetops to very poorly drained in depressions.

Topography influences the formation of soils by affecting runoff and drainage. Drainage in turn, through its effect on aeration of the soils, determines the color of the soil. Runoff is most rapid on the steeper slopes, but in low areas, water is temporarily ponded. Water and air move freely through well drained soils but slowly through poorly drained soils. In well aerated soils, the iron compounds that give most soils their color are brightly colored. In poorly aerated soils, the colors are gleyed and mottled. Fayette soils are examples of well drained, well aerated soils. Sable soils are examples of poorly drained, poorly aerated soils.

Time

The length of time needed for the formation of a soil depends on the other factors of soil formation. Differences in the length of time that the parent materials have been in place are commonly reflected in the degree of profile development. Soils form more rapidly and are more acid if the parent material is low in the content of calcium. The more rapidly permeable soils form more readily than slowly permeable soils because calcium and other soluble minerals are leached more quickly. Soils form more quickly under forest vegetation than under prairie vegetation because grasses are more efficient in recycling calcium and other bases from the subsoil to the surface layer. Soils generally form more quickly in a humid climate than in a dry climate.

The soils in Warren County range from young to mature. Most of the soils on uplands are moderately developed. The soils in the northern part of the county and on terraces are weakly developed.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 4 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol.* An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquoll (*Aqu,* meaning water, plus *oll,* from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix

that indicates a property of the soil. An example is Endoaquolls (*Endo,* meaning within, plus *aquoll,* the suborder of the Mollisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective Typic identifies the subgroup that typifies the great group. An example is Typic Endoaquolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, cation-exchange capacity, temperature regime, thickness of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Endoaquolls.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series. The Sable series is an example of a soil series in this survey area.

Soil Series and Detailed Soil Map Units

In this section, arranged in alphabetical order, each soil series recognized in the survey area is described. Each series description is followed by detailed descriptions of the associated soil map units.

Characteristics of the soil and the material in which it formed are identified for each soil series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units on the soil maps in this survey represent the soils or miscellaneous areas in the survey area. These soils or miscellaneous areas are listed as individual components in the map unit description. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the headings "Use and Management of the Soils" and "Soil Properties."

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives some of the soil properties and qualities that may affect planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is

divided into *soil phases*. Most of the areas shown on the soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Hickory silt loam, 10 to 18 percent slopes, eroded, is a phase of the Hickory series.

A map unit is named for the component or components that make up a dominant percentage of the map unit. Many map units consist of one dominant component. These map units are consociations. Sable silty clay loam, 0 to 2 percent slopes, is an example.

Some map units are made up of two or more dominant components. These map units are complexes. A *complex* consists of two or more components in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. Attempting to delineate the individual components of a complex would result in excessive clutter that could make the map illegible. The pattern and proportion of the components in a complex are somewhat similar in all areas. Fayette-Hickory silt loams, 35 to 60 percent slopes, is an example.

This survey includes miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. The map unit Pits, quarries, is an example.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables (see Contents) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Assumption Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Taxadjunct features: The Assumption soils in this survey area have a thinner dark surface layer than is defined as the range for the series.

Typical Pedon (Official Series Description)

Assumption silt loam, 2 to 5 percent slopes, at an elevation of 720 feet; 100 feet north and 300 feet east of the southwest corner of sec. 29, T. 15 N., R. 2 E.; in Henry County, Illinois; USGS Andover topographic quadrangle; lat. 41 degrees 15 minutes 00 seconds N. and long. 90 degrees 17 minutes 57 seconds W., NAD 27:

Ap—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; many fine roots throughout; neutral; abrupt smooth boundary.

A—6 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; many fine roots throughout; slightly acid; clear smooth boundary.

AB—13 to 16 inches; very dark grayish brown (10YR 3/2) silt loam mixed with some brown (10YR 4/3) in the lower 2 inches, grayish brown (10YR 5/2) and brown (10YR 5/3) dry; weak medium subangular blocky structure; friable; many fine roots throughout; neutral; clear wavy boundary.

Bt1—16 to 26 inches; brown (10YR 4/3) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; firm; common fine roots between peds; many faint brown (10YR 5/3) clay films on faces of peds; slightly acid; clear wavy boundary.

Bt2—26 to 35 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots between peds; many faint brown (10YR 4/3) clay films on faces of peds; many medium distinct brownish yellow (10YR 6/6) masses that have accumulated iron and are in the matrix; common faint grayish brown (2.5Y 5/2) iron depletions in the matrix; slightly acid; abrupt wavy boundary.

2Bt3—35 to 51 inches; yellowish brown (10YR 5/4) clay loam; weak medium subangular blocky structure; firm; common fine roots between peds; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; many coarse prominent yellowish brown (10YR 5/8) masses in which iron has accumulated; common medium prominent light olive gray (5Y 6/2) iron depletions; slightly acid; clear wavy boundary.

2Bt4—51 to 60 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots between peds; many faint brown (10YR 4/3) clay films on faces of peds; many medium distinct brownish yellow (10YR 6/6) masses in which iron has accumulated; slightly acid; clear wavy boundary.

2C—60 to 80 inches; brown (10YR 5/3) clay loam; massive; firm; common coarse faint grayish brown (2.5Y 5/2) iron depletions and common coarse faint brown (7.5YR 4/4) masses that have accumulated iron and are in the matrix; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the loess: 20 to 40 inches

Thickness of the solum: 48 to more than 70 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or silty clay loam
Reaction—moderately acid to neutral

Bt horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—2 to 6
Texture—silty clay loam or silt loam
Reaction—strongly acid to neutral

2Btg or 2Bt horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 to 6
Texture—clay loam, silty clay loam, loam, clay, or silty clay
Reaction—strongly acid to neutral

2C or 2Cg horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 to 6
Texture—clay loam, silty clay loam, loam, clay, or silty clay
Reaction—slightly acid to moderately alkaline

259C2—Assumption silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Assumption and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface layer or that have more clay in the surface layer
- Soils that formed entirely in loess or loamy glacial till
- Soils in which the loess is less than 20 inches thick

Dissimilar soils:
- The somewhat poorly drained Radford soils in drainageways

Properties and Qualities of the Assumption Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.6 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 2 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

259D2—Assumption silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Assumption and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that have a lighter colored surface layer or that have more clay in the surface layer
- Soils that formed entirely in loess or loamy glacial till
- Soils in which the loess is less than 20 inches thick

Dissimilar soils:
- The somewhat poorly drained Radford soils in drainageways

Properties and Qualities of the Assumption Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.3 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 2 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Atlas Series

Taxonomic classification: Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Map units in which this series occurs: 957D2, 957D3

Typical Pedon

Atlas silt loam, 5 to 10 percent slopes, eroded, at an elevation of 665 feet; 1,200 feet west and 50 feet south of the northeast corner of sec. 7, T. 1 N., R. 6 W.; in Warren County, Illinois; USGS Coatsburg topographic quadrangle; lat. 40 degrees 05 minutes 40 seconds N. and long. 91 degrees 07 minutes 52 seconds W., NAD 27:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common very fine and fine roots; common medium prominent strong brown (7.5YR 5/8) and few fine prominent yellowish brown (10YR 5/6) masses of iron throughout; few fine distinct black (2.5Y 2.5/1) masses of iron and manganese throughout; slightly acid; clear smooth boundary.

BE—7 to 13 inches; brown (10YR 5/3) silty clay loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; friable; common fine roots; few fine distinct light brownish gray (10YR 6/2) clay depletions throughout; few fine distinct yellowish brown (10YR 5/6) masses of iron throughout; slightly acid; clear wavy boundary.

2Btg1—13 to 26 inches; dark gray (10YR 4/1) silty clay loam; moderate thick platy structure parting to weak fine subangular blocky; firm; common fine and few medium roots; common faint very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; few fine prominent yellowish brown (10YR 5/6) masses of iron and few fine prominent white (10YR 8/1) masses of barite throughout; moderately acid; clear wavy boundary.

2Btg2—26 to 37 inches; 87 percent dark gray (10YR 4/1) and 10 percent gray (10YR 5/1) silty clay; weak medium prismatic structure; firm; common fine and medium roots; few faint very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; common fine prominent yellowish brown (10YR 5/6) masses of iron and few fine prominent white (10YR 8/1) masses of barite throughout; 1 percent rounded gravel and 1 percent subangular limestone-cherty gravel; neutral; clear wavy boundary.

2Btg3—37 to 47 inches; gray (2.5Y 5/1) silty clay; weak coarse prismatic structure; firm; common fine roots; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; few fine prominent yellowish brown (10YR 5/6) masses of iron throughout and few fine faint gray (10YR 6/1) iron depletions and few fine distinct white (10YR 8/1) masses of barite throughout; 1 percent angular gravel; neutral; clear wavy boundary.

2Btg4—47 to 61 inches; gray (2.5Y 5/1) clay loam; weak coarse prismatic structure; firm; common very fine roots; few distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; few fine distinct black (2.5Y 2.5/1) masses of iron and manganese and few fine prominent white (10YR 8/1) barite crystals throughout; 1 percent limestone-cherty gravel and 1 percent rounded igneous-granite gravel; neutral; clear wavy boundary.

2BCg—61 to 80 inches; light brownish gray (2.5Y 6/2) clay loam; weak coarse prismatic structure; firm; few fine distinct yellowish brown (10YR 5/6) and

common medium prominent brownish yellow (10YR 6/8) masses of iron throughout; 2 percent limestone-cherty gravel; neutral.

Range in Characteristics

Depth to the base of the argillic horizon: More than 42 inches

Ap or A horizon:
Hue—10YR
Value—2 to 5
Chroma—1 to 4
Texture—silt loam, loam, silty clay loam, or clay loam

E or BE horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 4
Texture—silt loam or silty clay loam

Bt, Btg, or 2Btg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—clay loam, clay, silty clay loam, or silty clay
Content of rock fragments—0 to 5 percent

2Cg horizon (if it occurs):
Hue—10YR, 7.5YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 6
Texture—silty clay loam, clay loam, or loam
Content of rock fragments—2 to 15 percent

Atterberry Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs

Typical Pedon (Official Series Description)

Atterberry silt loam, 0 to 2 percent slopes, at an elevation of 660 feet; 1,650 feet north and 1,120 feet east of the southwest corner of sec. 34, T. 16 N., R. 9 E.; in Bureau County, Illinois; USGS Princeton South topographic quadrangle; lat. 41 degrees 19 minutes 30 seconds N. and long. 89 degrees 26 minutes 47 seconds W., NAD 27:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, brown (10YR 5/3) dry; moderate fine granular structure; friable; few fine roots; neutral; abrupt smooth boundary.

E—9 to 13 inches; light brownish gray (10YR 6/2) silt loam; moderate thin platy structure; friable; few fine roots; common fine faint grayish brown (10YR 5/2) redoximorphic depletions; slightly acid; clear smooth boundary.

BE—13 to 17 inches; brown (10YR 5/3) silt loam; moderate medium platy structure parting to moderate very fine subangular blocky; friable; few fine roots; common faint brown (10YR 4/3) clay films on faces of peds and common faint light gray (10YR 7/2) (dry) redoximorphic clay depletions on faces of peds; few fine dark brown (7.5YR 3/2) concretions of iron and manganese oxide; few fine faint grayish brown (10YR 5/2) iron depletions; slightly acid; clear smooth boundary.

Bt—17 to 24 inches; brown (10YR 5/3) silty clay loam; moderate fine subangular blocky structure; firm; few fine roots; many faint dark grayish brown (10YR 4/2) clay films and common faint light gray (10YR 7/2) (dry) redoximorphic clay depletions on faces of peds; common fine rounded dark brown (7.5YR 3/2) concretions of iron and manganese oxide; common fine faint grayish brown (10YR 5/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) iron concentrations; strongly acid; clear smooth boundary.

Btg1—24 to 33 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; many faint grayish brown (10YR 5/2) clay films and few distinct light gray (10YR 7/2) (dry) redoximorphic clay depletions on faces of peds; common fine rounded dark brown (7.5YR 3/2) concretions of iron and manganese oxide; common fine faint light brownish gray (2.5Y 6/2) iron depletions and common fine prominent yellowish brown (10YR 5/6) iron concentrations; strongly acid; clear smooth boundary.

Btg2—33 to 40 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; common faint grayish brown (10YR 5/2) clay films and few faint light gray (10YR 7/2) (dry) redoximorphic clay depletions on faces of peds; many prominent very dark grayish brown (10YR 3/2) clay films lining pores; common fine prominent rounded dark brown (7.5YR 3/2) concretions of iron and manganese oxide; many fine prominent yellowish brown (10YR 5/6) iron concentrations; strongly acid; clear smooth boundary.

Btg3—40 to 48 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure; friable; few fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds; many prominent very dark grayish brown

(10YR 3/2) clay films lining pores; many fine prominent yellowish brown (10YR 5/6) iron concentrations; strongly acid; clear smooth boundary.

BCg—48 to 55 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse prismatic structure; friable; common faint grayish brown (10YR 5/2) clay films on faces of peds; many prominent very dark grayish brown (10YR 3/2) clay films lining pores; many medium prominent yellowish brown (10YR 5/6) iron concentrations; moderately acid; clear smooth boundary.

Cg—55 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; many medium prominent yellowish brown (10YR 5/6) iron concentrations; slightly acid.

Range in Characteristics

Thickness of the solum: 42 to 72 inches

Ap or A horizon:
Value—2 or 3
Chroma—1 or 2
Reaction—moderately acid to neutral

E horizon:
Value—4 to 6
Chroma—1 or 2
Reaction—strongly acid to neutral

Bt or Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam or silt loam
Reaction—strongly acid to neutral

C or Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Reaction—moderately acid to slightly alkaline

61A—Atterberry silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Atterberry and similar soils: 98 percent
Dissimilar soils: 2 percent

Minor Components

Similar soils:
- Soils that have a thicker surface layer
- Soils that have a lighter colored surface layer
- Soils that have a seasonal high water table at a depth of 2 to 4 feet

Dissimilar soils:
- The poorly drained Denny and Sable soils, which are in depressions and are subject to ponding

Properties and Qualities of the Atterberry Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.7 inches
Content of organic matter in the surface layer: 1.5 to 3.5 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 0.5 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

Biggsville Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludolls
Taxadjunct features: The Biggsville soil in map unit 671C2 has a thinner dark surface layer than is defined as the range for the series. This soil is classified as a fine-silty, mixed, superactive, mesic Dystric Eutrudept.

Typical Pedon (Official Series Description)

Biggsville silt loam, 0 to 2 percent slopes, at an

elevation of 630 feet; 1,520 feet west and 200 feet south of the northeast corner of sec. 30, T. 19 N., R. 3 E.; in Rock Island County, Illinois; USGS Hillsdale topographic quadrangle; lat. 41 degrees 36 minutes 40 seconds N. and long. 90 degrees 12 minutes 00 seconds W., NAD 27:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) dry; moderate very fine and fine granular structure; friable; common fine roots; neutral; abrupt smooth boundary.

AB—8 to 16 inches; very dark grayish brown (10YR 3/2) and brown (10YR 4/3) silt loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure parting to moderate fine granular; friable; few fine roots; neutral; gradual smooth boundary.

Bw1—16 to 32 inches; brown (10YR 4/3) and dark yellowish brown (10YR 4/4) silt loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; abrupt smooth boundary.

Bw2—32 to 47 inches; brown (10YR 4/3) silt loam; moderate medium prismatic structure; friable; common medium faint brown (7.5YR 4/4) and common medium distinct yellowish brown (10YR 5/6) masses of iron within peds; common medium faint grayish brown (10YR 5/2) iron depletions within peds; few fine black (7.5YR 2.5/1) iron and manganese oxide stains; slightly acid; gradual smooth boundary.

Cg—47 to 80 inches; grayish brown (10YR 5/2), brown (7.5YR 4/4), and yellowish brown (10YR 5/6) silt loam; massive; friable; few fine black (7.5Y 2.5/1) iron and manganese oxide stains; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Depth to the base of the cambic horizon: More than 42 inches

Ap or A horizon:
Value—2 or 3
Chroma—1 to 3
Reaction—moderately acid to moderately alkaline

Bw or BC horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Reaction—moderately acid to neutral

C or Cg horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Reaction—slightly acid to moderately alkaline

671B—Biggsville silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Shoulders

Composition

Biggsville and similar soils: 96 percent
Dissimilar soils: 4 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils in which the thickness of the solum and the depth to carbonates are less than 42 inches
- Soils that have slopes of less than 2 percent

Dissimilar soils:
- The poorly drained Denny soils, which are in depressions and are subject to ponding

Properties and Qualities of the Biggsville Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.8 inches
Content of organic matter in the surface layer: 3 to 5 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Low for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

671C2—Biggsville silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders

Composition

Biggsville and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils in which the thickness of the solum and the depth to carbonates are less than 42 inches
- Soils that have a thinner surface layer

Dissimilar soils:
- The somewhat poorly drained Radford soils in drainageways

Properties and Qualities of the Biggsville Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.7 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Low for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Clarksdale Series

Taxonomic classification: Fine, smectitic, mesic Udollic Endoaqualfs

Typical Pedon (Official Series Description)

Clarksdale silt loam, 0 to 2 percent slopes, at an elevation of 650 feet; 800 feet south and 550 feet east of the northwest corner of sec. 16, T. 2 N., R. 7 W.; in Adams County, Illinois; USGS Lorraine topographic quadrangle; lat. 40 degrees 09 minutes 55 seconds N. and long. 91 degrees 13 minutes 18 seconds W., NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; common fine roots throughout; neutral; abrupt smooth boundary.

E—8 to 12 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium platy structure parting to weak very fine subangular blocky; friable; common very fine and fine roots throughout; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds and in pores; few fine prominent yellowish brown (10YR 5/6) iron concentrations lining root channels and/or pores; few fine distinct black (2.5Y 2.5/1) masses of iron and manganese throughout; many fine distinct light gray (10YR 7/1 and 7/2) clay depletions between peds; neutral; clear smooth boundary.

BE—12 to 16 inches; grayish brown (10YR 5/2) silt loam; moderate fine subangular blocky structure; friable; few fine roots throughout; common faint very dark grayish brown (10YR 3/2) organo-clay films on faces of peds and in pores; few fine prominent black (2.5Y 2.5/1) masses of iron and manganese throughout; common fine prominent yellowish brown (10YR 5/6) masses of iron throughout; common fine faint light gray (10YR 7/1) clay depletions between peds; moderately acid; clear smooth boundary.

Bt1—16 to 23 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine and fine roots throughout; many

faint dark grayish brown (10YR 4/2) clay films on faces of peds and many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; common fine prominent black (2.5Y 2.5/1) masses of iron and manganese and common fine distinct yellowish brown (10YR 5/6) masses of iron throughout; moderately acid; clear smooth boundary.

Bt2—23 to 31 inches; brown (10YR 5/3) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots throughout; many faint grayish brown (10YR 5/2) clay films on faces of peds and many distinct very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; many fine distinct yellowish brown (10YR 5/6) and few fine prominent strong brown (7.5YR 5/6) masses of iron throughout; common fine prominent black (2.5Y 2.5/1) masses of iron and manganese throughout and common fine faint light brownish gray (10YR 6/2) iron depletions throughout; moderately acid; gradual wavy boundary.

Btg1—31 to 47 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; few fine roots throughout; common faint grayish brown (10YR 5/2) clay films on faces of peds and many prominent very dark gray (10YR 3/1) organo-clay films on faces of peds and in pores; many fine and medium prominent strong brown (7.5YR 5/6) masses of iron throughout; few fine prominent black (2.5Y 2.5/1) masses of iron and manganese throughout; few fine faint light brownish gray (10YR 6/2) iron depletions lining root channels and/or pores; neutral; gradual wavy boundary.

Btg2—47 to 57 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse prismatic structure; firm; few fine roots throughout; common distinct dark grayish brown (10YR 4/2) clay films in root channels and/or pores; many medium prominent strong brown (7.5YR 5/6) masses of iron; few fine prominent black (2.5Y 2.5/1) masses of iron and manganese throughout; neutral; clear wavy boundary.

BCg—57 to 67 inches; light brownish gray (2.5Y 6/2) silt loam; weak coarse subangular blocky structure; firm; common distinct dark grayish brown (10YR 4/2) clay films in root channels and/or pores; common medium prominent strong brown (7.5YR 5/6) and common medium prominent yellowish red (5YR 5/6) masses of iron throughout; neutral; clear wavy boundary.

Cg—67 to 80 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; few faint dark grayish brown (10YR 4/2) clay films in root channels and/or pores; many medium prominent yellowish red (5YR 4/6) and common medium prominent strong brown (7.5YR 5/6) masses of iron throughout; neutral.

Range in Characteristics

Depth to carbonates: More than 40 inches
Depth to the base of the argillic horizon: 40 to 60 inches

Ap or A horizon:
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

E or BE horizon:
Value—4 to 6
Chroma—1 or 2
Texture—silt loam

Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—silty clay loam or silty clay

Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—silty clay loam, silty clay, or silt loam

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 6

257A—Clarksdale silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Clarksdale and similar soils: 93 percent
Dissimilar soils: 7 percent

Minor Components

Similar soils:
- Soils that have a thicker or lighter colored surface layer
- Soils that contain less clay throughout

Dissimilar soils:
- The poorly drained Denny soils, which are in depressions and are subject to ponding

Properties and Qualities of the Clarksdale Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.3 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: 0.5 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 1
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

Coffeen Series

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon

Coffeen silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 595 feet; 860 feet north and 1,740 feet west of the southeast corner of sec. 24, T. 20 N., R. 3 E.; in Whiteside County, Illinois; USGS Erie topographic quadrangle; lat. 41 degrees 42 minutes 09 seconds N. and long. 90 degrees 05 minutes 56 seconds W., NAD 27:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; neutral; abrupt smooth boundary.

A—9 to 17 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak medium and fine subangular blocky structure parting to moderate fine granular; friable; neutral; clear smooth boundary.

Bw1—17 to 24 inches; brown (10YR 4/3) silt loam; moderate medium subangular blocky structure; friable; few faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common fine faint dark grayish brown (10YR 4/2) iron depletions and common fine faint dark yellowish brown (10YR 4/4) iron masses in the matrix; neutral; clear smooth boundary.

Bw2—24 to 33 inches; brown (10YR 4/3) silt loam; moderate medium subangular blocky structure; friable; common fine faint grayish brown (10YR 5/2) iron depletions and common fine faint brown (10YR 5/3) iron masses in the matrix; slightly alkaline; clear smooth boundary.

BCg—33 to 46 inches; grayish brown (2.5Y 5/2) silt loam; weak medium subangular blocky structure; friable; common fine prominent brown (7.5YR 4/4) and common fine distinct dark yellowish brown (10YR 4/4) iron masses in the matrix; common fine rounded iron-manganese concretions; slightly alkaline; gradual smooth boundary.

Cg—46 to 60 inches; grayish brown (2.5Y 5/2) and brown (10YR 5/3) silt loam; massive; friable; few fine rounded iron-manganese concretions; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the solum: 30 to 55 inches

Ap, AB, or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam

Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 or 3
Texture—silt loam or loam; thin layers of fine sandy loam in some pedons

BCg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 8
Chroma—1 to 3
Texture—silt loam or silt loam that has thin strata of loam, fine sandy loam, or sandy loam

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 8
Chroma—1 to 3

Texture—silt loam or silt loam that has thin strata of loam, fine sandy loam, or sandy loam

7428A—Coffeen silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform: Flood plains

Composition

Coffeen and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a thicker surface layer
- Soils that have a seasonal high water table within a depth of 3.5 feet
- Soils that have more clay and less silt

Dissimilar soils:
- The poorly drained Sawmill soils in the lower positions on flood plains

Properties and Qualities of the Coffeen Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.5 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Frequency and most likely period of flooding: Rare, November to June
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Denny Series

Taxonomic classification: Fine, smectitic, mesic Mollic Albaqualfs

Typical Pedon

Denny silt loam, 0 to 2 percent slopes, at an elevation of 720 feet; 225 feet north and 1,680 feet east of the southwest corner of sec. 25, T. 7 N., R. 3 W.; in McDonough County, Illinois; USGS Good Hope topographic quadrangle; lat. 40 degrees 33 minutes 31 seconds N. and long. 90 degrees 41 minutes 14 seconds W., NAD 27:

Ap—0 to 8 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; weak fine granular structure; very friable; few very fine roots throughout; moderately acid; abrupt smooth boundary.

Eg1—8 to 14 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak thin platy; very friable; few very fine roots throughout; few very fine vesicular pores throughout; few faint very dark gray (10YR 3/1) organic coatings in root channels; common faint grayish brown (10YR 5/2) clay depletions on faces of peds; common fine distinct dark yellowish brown (10YR 3/6) masses that have accumulated iron and manganese and are throughout the horizon; few fine prominent black (N 2.5/) iron and manganese concretions in the matrix; moderately acid; clear smooth boundary.

Eg2—14 to 21 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak thick platy structure parting to moderate medium platy; friable; few very fine roots throughout; few fine tubular pores and few very fine vesicular pores throughout; few faint very dark gray (10YR 3/1) organic coatings in root channels; common fine faint dark brown (10YR 3/3) masses that have accumulated iron and manganese and are throughout the horizon; common fine prominent black (N 2.5/) iron and manganese concretions in the matrix; moderately acid; abrupt smooth boundary.

Btg1—21 to 29 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots between peds; common faint dark grayish brown (10YR 4/2) clay films on faces of peds; few faint very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine distinct yellowish brown

(10YR 5/4) masses that have accumulated iron and manganese and are throughout the horizon; common fine prominent black (N 2.5/) iron and manganese concretions in the matrix; moderately acid; clear smooth boundary.

Btg2—29 to 38 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots between peds; common faint dark grayish brown (10YR 4/2) clay films on faces of peds; few faint very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent yellowish brown (10YR 5/8) masses that have accumulated iron and manganese and are throughout the horizon; common fine prominent (N 2.5/) iron and manganese concretions in the matrix; moderately acid; gradual smooth boundary.

Btg3—38 to 46 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate coarse prismatic structure parting to moderate coarse subangular blocky; firm; very few fine roots between peds; common distinct dark grayish brown (10YR 4/2) clay films on faces of peds; few prominent very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent strong brown (7.5YR 5/6) masses that have accumulated iron and manganese and are throughout the horizon; common fine prominent black (N 2.5/) iron and manganese concretions in the matrix; moderately acid; gradual wavy boundary.

Cg1—46 to 63 inches; light brownish gray (2.5Y 6/2) silty clay loam; massive; firm; few very fine roots between peds; few very fine vesicular pores throughout; very few prominent very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent strong brown (7.5YR 5/6) masses that have accumulated iron and manganese and are throughout the horizon; few medium prominent black (N 2.5/) iron and manganese concretions in the matrix; slightly acid; diffuse wavy boundary.

Cg2—63 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; firm; many very fine vesicular pores throughout; very few prominent very dark gray (10YR 3/1) organic coatings in root channels; many fine prominent dark yellowish brown (10YR 4/6) and common fine prominent strong brown (7.5YR 5/6) masses that have accumulated iron and manganese and are throughout the horizon; few medium prominent black (N 2.5/) iron and manganese concretions in the matrix; slightly acid.

Range in Characteristics

Depth to the base of the diagnostic horizon: 40 to 65 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

Eg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam

Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silty clay loam or silty clay

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—silt loam or silty clay loam

45A—Denny silt loam, 0 to 2 percent slopes

Setting

Landform: Depressions

Composition

Denny and similar soils: 98 percent
Dissimilar soils: 2 percent

Minor Components

Similar soils:
- Soils that have a thicker or lighter colored surface layer

Dissimilar soils:
- The somewhat poorly drained Ipava and Muscatune soils on summits
- The poorly drained Sable soils in depressions

Properties and Qualities of the Denny Soil

Parent material: Loess
Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.6 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January to May
Ponding depth: 1 foot during wet periods
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3w
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric

Dunbarton Series

Taxonomic classification: Clayey, smectitic, mesic Lithic Hapludalfs

Typical Pedon

Dunbarton silt loam, 18 to 60 percent slopes, at an elevation of 690 feet; 500 feet east and 2,600 feet north of the southwest corner of sec. 4, T. 11 N., R. 3 W.; in Warren County, Illinois; USGS Monmouth topographic quadrangle; lat. 40 degrees 58 minutes 25 seconds N. and long. 90 degrees 44 minutes 42 seconds W., NAD 27:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, pale brown (10YR 6/3) dry; weak and moderate medium granular structure; friable; common roots; neutral; abrupt smooth boundary.
E—2 to 4 inches; brown (10YR 5/3) silt loam; weak thin platy structure; friable; about 1 percent gravel; moderately acid; abrupt smooth boundary.
BE—4 to 10 inches; yellowish brown (10YR 5/4) silt loam; weak fine subangular blocky structure; friable; many distinct light gray (10YR 7/2) silt coatings; about 5 percent gravel; moderately acid; clear wavy boundary.
2Bt—10 to 16 inches; reddish brown (5YR 4/4) silty clay; strong medium subangular blocky structure; firm; common faint reddish brown (5YR 4/3) clay films; about 10 percent gravel; slightly acid; abrupt smooth boundary.
2Cr—16 to 20 inches; fractured limestone bedrock with reddish brown (5YR 4/4) clay in vertical and horizontal cracks.
2R—20 inches; limestone bedrock.

Range in Characteristics

Thickness of the loess: 0 to 15 inches
Depth to bedrock: 12 to 20 inches

A horizon:
Value—3 or 4

E horizon:
Value—4 or 5
Chroma—2 or 3

2Bt horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—silty clay or clay

505G—Dunbarton silt loam, 18 to 60 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Dunbarton and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that are 20 to 40 inches deep to limestone
- Soils that are underlain by shale

Dissimilar soils:
- The well drained Westville soils on the upper slopes

Properties and Qualities of the Dunbarton Soil

Parent material: Loess over residuum derived from limestone
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Slow to moderate
Depth to restrictive feature: 12 to 20 inches to bedrock (lithic)

Available water capacity to a depth of 60 inches: About 2.6 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and low for concrete
Surface runoff class: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 7e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

835G—Earthen dam

• This map unit consists of large (2 acres or more) earthen embankments that impound water. The soil material consists of silty or loamy local fill. Seeding the front and back slopes of the dam with sod-forming grass vegetation can help to prevent water erosion. Also, topdressing the embankment with 6 to 9 inches of stockpiled topsoil can benefit seedling establishment.

Interpretive Groups

Land capability classification: None assigned
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Elco Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Elco silt loam, 10 to 18 percent slopes, eroded, at an elevation of 730 feet; 1,900 feet west and 2,000 feet south of the northeast corner of sec. 20, T. 8 N., R. 2 W.; in Warren County, Illinois; USGS Roseville topographic quadrangle; lat. 40 degrees 40 minutes 11 seconds N. and long. 90 degrees 38 minutes 38 seconds W., NAD 27:

A—0 to 2 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; friable; many roots; neutral; clear smooth boundary.

E—2 to 9 inches; brown (10YR 5/3) and dark grayish brown (10YR 4/2) silt loam; moderate thin platy structure; very friable; many roots; common faint very pale brown (10YR 7/3) silt coatings on faces of peds; neutral; abrupt smooth boundary.

Bt1—9 to 18 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; friable; many roots; common faint dark yellowish brown (10YR 4/4) clay films; common distinct very pale brown (10YR 8/3) silt coatings; dark grayish brown (10YR 4/2) krotovinas; moderately acid; clear smooth boundary.

Bt2—18 to 26 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; many roots; common faint dark yellowish brown (10YR 4/4) clay films; common distinct very pale brown (10YR 8/3) silt coatings; common prominent black (5YR 2.5/1) stains and concretions of manganese; strongly acid; clear smooth boundary.

2Bt3—26 to 32 inches; light yellowish brown (10YR 6/4) silty clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium prismatic structure parting to moderate fine and medium subangular blocky; friable; few roots; common faint brown (10YR 5/3) clay films; common faint very pale brown (10YR 8/3) silt coatings; common prominent black (5YR 2.5/1) stains and concretions of manganese; strongly acid; clear smooth boundary.

2Bt4—32 to 45 inches; brown (10YR 5/3) clay; many medium distinct yellowish brown (10YR 5/6) mottles; strong medium and coarse prismatic and subangular blocky structure; firm; few roots; many faint grayish brown (10YR 5/2) clay films; many prominent black (5YR 2.5/1) stains and concretions of manganese; strongly acid; clear smooth boundary.

2Btg—45 to 60 inches; grayish brown (2.5YR 5/2) clay; many medium and coarse prominent yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure; firm; few roots; many faint dark grayish brown (2.5Y 4/2) clay films; many prominent black (5YR 2.5/1) stains and concretions of manganese; moderately acid.

Range in Characteristics

Thickness of the loess: 20 to 40 inches
Thickness of the solum: More than 48 inches
Depth to paleosol till: Less than 40 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4

Texture—silt loam
Reaction—moderately acid to neutral

E horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam
Reaction—moderately acid to neutral

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—2 to 6
Texture—silty clay loam or silt loam
Reaction—strongly acid to slightly alkaline

2Bt or 2Btg horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 to 6
Texture—loam, clay loam, silty clay loam, silty clay, or clay
Reaction—strongly acid to slightly alkaline

119D2—Elco silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Elco and similar soils: 94 percent
Dissimilar soils: 6 percent

Minor Components

Similar soils:
- Soils that have less clay in the subsoil
- Soils that have 40 to 60 inches of loess over the till

Dissimilar soils:
- The somewhat poorly drained Atlas soils on nose slopes and in the more eroded areas

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.2 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 2 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

119E2—Elco silt loam, 18 to 25 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Elco and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have less clay in the subsoil
- Soils that have 40 to 60 inches of loess over the till

Dissimilar soils:
- The somewhat poorly drained Atlas soils on nose slopes and in the more eroded areas

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow or slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.4 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate

Depth and months of the highest perched seasonal high water table: 2 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 6e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

957D2—Elco-Atlas silt loams, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Elco—the upper part of backslopes; Atlas—the middle and lower parts of backslopes

Composition

Elco and similar soils: 50 percent
Atlas and similar soils: 40 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that formed in loamy glacial till
- Soils that formed entirely in loess
- Soils that have free lime in the lower part of the loess
- Soils that have slopes of less than 10 percent

Dissimilar soils:
- Sandy soils in isolated areas
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.1 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 2 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Atlas Soil

Parent material: Paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: Less than 40 inches
Available water capacity to a depth of 60 inches: About 8.3 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 0.5 foot, January to May
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: Elco—3e; Atlas—4e
Prime farmland status: Not prime farmland
Hydric soil status: Elco—not hydric; Atlas—not hydric

957D3—Elco-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Elco—the upper part of backslopes; Atlas—the middle and lower parts of backslopes

Composition

Elco and similar soils: 45 percent
Atlas and similar soils: 40 percent
Dissimilar soils: 15 percent

Minor Components

Similar soils:
- Soils that formed in loamy glacial till
- Soils that formed entirely in loess
- Soils that have free lime in the lower part of the loess
- Soils that have slopes of less than 10 percent

Dissimilar soils:
- Sandy soils in isolated areas
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Elco Soil

Parent material: Loess over a paleosol that formed in till
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.1 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 2 feet, February to April
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very slight

Properties and Qualities of the Atlas Soil

Parent material: Paleosol that formed in till
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: Less than 40 inches
Available water capacity to a depth of 60 inches: About 7.8 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: High
Depth and months of the highest perched seasonal high water table: 0.5 foot, January to May
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: Elco—4e; Atlas—6e
Prime farmland status: Not prime farmland
Hydric soil status: Elco—not hydric; Atlas—not hydric

Elkhart Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Taxadjunct features: The Elkhart soils in this survey area have a thinner dark surface layer than is defined as the range for the series.

Typical Pedon (Official Series Description)

Elkhart silt loam, 5 to 10 percent slopes, at an elevation of 570 feet; 2,060 feet south and 1,248 feet west of the northeast corner of sec. 32, T. 19 N., R. 3 W.; in Logan County, Illinois; USGS Broadwell topographic quadrangle; lat. 40 degrees 03 minutes 26 seconds N. and long. 89 degrees 26 minutes 58 seconds W., NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak fine and medium granular structure; friable; common very fine roots; slightly acid; abrupt smooth boundary.

A—8 to 10 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; friable; common very fine roots; slightly acid; clear smooth boundary.

BA—10 to 15 inches; dark brown (10YR 3/3) silty clay loam, brown (10YR 4/3) dry; moderate very fine and fine subangular blocky structure; friable; common very fine roots; common faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; slightly acid; clear smooth boundary.

Bt1—15 to 22 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky

structure; firm; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—22 to 28 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; few very fine roots; few faint dark brown (10YR 3/3) organo-clay films on faces of peds; slightly acid; clear smooth boundary.

BCt—28 to 31 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium and coarse subangular blocky structure; friable; few very fine roots; few faint brown (10YR 4/3) clay films on faces of peds; few fine prominent black (5YR 2.5/1) very weakly cemented concretions of manganese with diffuse boundaries in ped interiors; neutral; clear smooth boundary.

C—31 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few very fine roots in the upper 10 inches; common fine prominent strong brown (7.5YR 5/8) masses of iron in ped interiors; common medium distinct gray (10YR 6/1) iron depletions along root channels and pores; strongly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Depth to the base of the argillic horizon: 20 to 40 inches
Depth to carbonates: 20 to 40 inches

Ap, A, or AB horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or silty clay loam
Reaction—moderately acid to slightly alkaline

BA or Bt horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Reaction—moderately acid to neutral

BC horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam
Reaction—slightly acid to moderately alkaline

C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 6
Texture—silt or silt loam
Reaction—slightly alkaline or moderately alkaline

567C2—Elkhart silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Elkhart and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 60 inches
- Soils that are calcareous within a depth of 20 inches
- Soils that are underlain by clayey glacial till within a depth of 60 inches

Dissimilar soils:
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Elkhart Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.4 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e

Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

567D3—Elkhart silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Elkhart and similar soils: 96 percent
Dissimilar soils: 4 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 60 inches
- Soils that are calcareous within a depth of 20 inches
- Soils that are underlain by clayey glacial till within a depth of 60 inches

Dissimilar soils:
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Elkhart Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.3 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Fayette Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Fayette silt loam, 10 to 18 percent slopes, eroded, at an elevation of 680 feet; 2,100 feet north and 1,700 feet west of the southeast corner of sec. 31, T. 12 N., R. 3 W.; in Warren County, Illinois; USGS Rozetta topographic quadrangle; lat. 40 degrees 59 minutes 13 seconds N. and long. 90 degrees 46 minutes 18 seconds W., NAD 27:

Ap—0 to 5 inches; mixed dark grayish brown (10YR 4/2) and yellowish brown (10YR 5/4) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; common fine roots throughout; moderately acid; clear smooth boundary.

EB—5 to 9 inches; mixed brown (10YR 5/3) and yellowish brown (10YR 5/4) silt loam; weak medium platy structure parting to moderate very fine subangular blocky; friable; common fine roots between peds; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt1—9 to 13 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine and medium subangular blocky structure; friable; few fine roots between peds; common faint brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—13 to 27 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots between peds; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt3—27 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common distinct light gray (10YR 7/2) (dry) clay depletions on faces of peds; few distinct dark brown (7.5YR 3/2) accumulations of iron-manganese on faces of peds; moderately acid; gradual wavy boundary.

BC—38 to 55 inches; yellowish brown (10YR 5/4) silt loam; moderate medium and coarse subangular blocky structure; friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common distinct light gray (10YR 7/2) (dry) clay depletions on faces of peds; few distinct dark brown (7.5YR 3/2) accumulations of iron-

manganese on faces of peds; moderately acid; clear wavy boundary.

C—55 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few distinct dark brown (7.5YR 3/2) concretions of iron and manganese throughout the matrix; moderately acid.

Range in Characteristics

Thickness of the solum: 36 to 70 inches
Depth to free carbonates: More than 40 inches

Ap or A horizon:
Hue—10YR
Value—2 to 4
Chroma—1 to 3

E horizon (if it occurs):
Value—3 to 5
Chroma—1 to 4

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6

BC and C horizons:
Hue—10YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam or silty clay loam

280B—Fayette silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and shoulders

Composition

Fayette and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 4 and 6 feet

Dissimilar soils:
- The somewhat poorly drained Clarksdale and Keomah soils on summits

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.6 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

280C2—Fayette silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Fayette and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 4 and 6 feet

Dissimilar soils:
- The somewhat poorly drained Clarksdale and Keomah soils on summits

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.4 inches

Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

280D2—Fayette silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Fayette and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that are calcareous within a depth of 40 inches

Dissimilar soils:
- Soils that have loamy till or sandy layers within a depth of 60 inches
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.4 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

280D3—Fayette silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Fayette and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that are calcareous within a depth of 40 inches

Dissimilar soils:
- Soils that have loamy till or sandy layers within a depth of 60 inches
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.4 inches
Content of organic matter in the surface layer: 0 to 1 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

895D—Fayette-Westville complex, 10 to 18 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Fayette—the upper part of backslopes; Westville—the lower part of backslopes

Composition

Fayette and similar soils: 50 percent
Westville and similar soils: 40 percent
Dissimilar components: 10 percent

Minor Components

Similar soils:
- Soils that have a seasonal high water table between depths of 4 and 6 feet
- Soils that have 20 to 60 inches of loess over the glacial till
- Soils that do not have bedrock within a depth of 40 inches

Dissimilar components:
- Small areas of bedrock outcrop near the base of the slopes
- The somewhat poorly drained Lawson and Orion soils in drainageways

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.7 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Westville Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10.1 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: Fayette—4e; Westville—4e
Prime farmland status: Not prime farmland
Hydric soil status: Fayette—not hydric; Westville—not hydric

936D2—Fayette-Hickory silt loams, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Fayette—the upper part of backslopes; Hickory—the lower part of backslopes

Composition

Fayette and similar soils: 50 percent
Hickory and similar soils: 40 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that formed in loess and clayey glacial till
- Soils that are calcareous in the lower part

Dissimilar soils:
- Small areas of sandy soils
- The somewhat poorly drained Atlas soils on backslopes

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 9.1 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10.5 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: Fayette—4e; Hickory—3e
Prime farmland status: Not prime farmland
Hydric soil status: Fayette—not hydric; Hickory—not hydric

936G—Fayette-Hickory silt loams, 35 to 60 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Fayette—the upper part of backslopes; Hickory—the lower part of backslopes

Composition

Fayette and similar soils: 50 percent
Hickory and similar soils: 40 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that formed in loess and clayey glacial till
- Soils that are calcareous in the lower part

Dissimilar soils:
- Small areas of sandy soils
- The somewhat poorly drained Atlas soils on backslopes

Properties and Qualities of the Fayette Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.6 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches

Available water capacity to a depth of 60 inches: About 10.4 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: Fayette—7e; Hickory—7e
Prime farmland status: Not prime farmland
Hydric soil status: Fayette—not hydric; Hickory—not hydric

Greenbush Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Hapludalfs

Typical Pedon

Greenbush silt loam, 2 to 5 percent slopes, at an elevation of 700 feet; 1,500 feet west and 1,500 feet north of the southeast corner of sec. 18, T. 8 N., R. 1 W.; in Warren County, Illinois; USGS Greenbush topographic quadrangle; lat. 40 degrees 40 minutes 40 seconds N. and long. 90 degrees 32 minutes 45 seconds W., NAD 27:

Ap—0 to 6 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; moderate fine granular structure; friable; slightly acid; abrupt smooth boundary.

E—6 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak thin platy structure; friable; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; moderately acid; abrupt smooth boundary.

BE—10 to 17 inches; brown (10YR 4/3) silt loam; moderate medium platy structure parting to weak very fine subangular blocky; friable; few distinct very dark gray (10YR 3/1) organic coatings and common distinct gray (10YR 6/1) silt coatings on faces of peds; moderately acid; clear smooth boundary.

Bt1—17 to 29 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; friable; common faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common distinct gray (10YR 6/1) silt coatings on faces of peds; strongly acid; gradual smooth boundary.

Bt2—29 to 38 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate fine angular blocky; friable; common faint brown (10YR 4/3) clay films on faces of peds; many faint light gray (10YR 7/2) silt coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron; common medium distinct light olive gray (5Y 6/2) iron depletions within peds; common prominent black (7.5YR 2.5/0) manganese oxide stains; strongly acid; gradual wavy boundary.

Bt3—38 to 53 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate fine angular blocky; friable; common faint brown (10YR 4/3) clay films on faces of peds; many faint light gray (10YR 7/2) silt coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron; common medium distinct light olive gray (5Y 6/2) iron depletions within peds; common prominent black (7.5YR 2.5/0) manganese oxide stains; strongly acid; gradual wavy boundary.

BCt—53 to 75 inches; brown (10YR 5/3) and light olive gray (5Y 6/2) silt loam; weak medium and coarse prismatic structure parting to weak fine and medium angular blocky; friable; few faint brown (10YR 4/3) clay films on faces of peds; few faint light gray (10YR 7/2) silt coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) masses of iron within peds; common prominent black (7.5YR 2.5/0) manganese oxide stains; moderately acid; gradual wavy boundary.

C—75 to 100 inches; yellowish brown (10YR 5/4) and light olive gray (5Y 6/2) silt loam; massive; friable; many medium distinct light brownish gray (10YR 6/2) iron depletions within peds; many prominent black (7.5YR 2.5/0) manganese oxide stains; moderately acid.

Range in Characteristics

Depth to carbonates: More than 60 inches
Depth to the base of the argillic horizon: 36 to 70 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2

E horizon:
Hue—10YR

Value—3 to 5
Chroma—2 or 3

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam

675B—Greenbush silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Shoulders and summits

Composition

Greenbush and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a thicker or lighter colored surface layer
- Soils that have a seasonal high water table at a depth of more than 2 feet
- Soils that contain more clay in the subsoil
- Soils that have slopes of less than 2 percent

Dissimilar soils:
- The poorly drained Denny soils, which are in depressions and are subject to ponding

Properties and Qualities of the Greenbush Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.8 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

675C2—Greenbush silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders

Composition

Greenbush and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a thinner or lighter colored surface layer
- Soils that have a thicker surface layer
- Soils that are underlain by calcareous material within a depth of 40 inches

Properties and Qualities of the Greenbush Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.5 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium

Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

9675B—Greenbush silt loam, terrace, 2 to 5 percent slopes

Setting

Landform: Terraces
Position on the landform: Shoulders and summits

Composition

Greenbush and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a thinner or lighter colored surface layer
- Soils that have a thicker surface layer
- Soils that are underlain by calcareous material within a depth of 40 inches

Properties and Qualities of the Greenbush Soil

Parent material: Loess or other silty material
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.8 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Hickory Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Hickory silt loam, 18 to 35 percent slopes; at an elevation of 228 meters; 320 feet south and 2,520 feet west of the northeast corner of sec. 18, T. 15 N., R. 6 E.; in Bureau County, Illinois; USGS Neponset topographic quadrangle; lat. 41 degrees 19 minutes 59 seconds N. and long. 89 degrees 50 minutes 50 seconds W., NAD 27:

A—0 to 4 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine granular structure; friable; common fine and medium roots throughout; 1 percent gravel; slightly acid; clear smooth boundary.

Bt1—4 to 13 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak fine subangular blocky structure; friable; common fine roots between peds; common faint brown (7.5YR 4/4) clay films on faces of peds; 2 percent gravel; few fine rounded black (N 2.5/) concretions of iron-manganese in the matrix; slightly acid; clear smooth boundary.

2Bt2—13 to 23 inches; dark yellowish brown (10YR 4/4) clay loam; moderate fine and medium subangular blocky structure; friable; common fine roots between peds; many faint brown (7.5YR 4/4) clay films on faces of peds; 5 percent gravel; few fine rounded black (N 2.5/) concretions of iron-manganese in the matrix; neutral; clear smooth boundary.

2Bt3—23 to 31 inches; dark yellowish brown (10YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few very fine and fine roots between peds; many faint brown (7.5YR 4/4) clay films on faces of peds; 3 percent gravel; few fine rounded black (N 2.5/) concretions of iron-manganese in the matrix; neutral; gradual wavy boundary.

2Bt4—31 to 40 inches; dark yellowish brown (10YR 4/4) clay loam; weak medium and coarse subangular blocky structure; firm; few very fine and fine roots between peds; common faint brown (7.5YR 4/4) clay films on faces of peds; few fine rounded black (N 2.5/) concretions of iron-manganese in the matrix; 5 percent gravel; neutral; clear smooth boundary.

2BC—40 to 54 inches; brown (7.5YR 4/4) clay loam; weak coarse subangular blocky structure; firm; few faint dark reddish brown (5YR 3/3) clay films on faces of peds; few fine rounded black (N 2.5/)

concretions of iron-manganese in the matrix; 5 percent gravel; slightly acid; clear smooth boundary.

2C—54 to 60 inches; yellowish brown (10YR 5/4) clay loam; massive; firm; common faint brown (7.5YR 4/4) clay films on rocks and along pores; few medium faint yellowish brown (10YR 5/6) iron masses in the matrix; 4 percent gravel; effervescent; moderately alkaline.

Range in Characteristics

Thickness of the loess: Less than 20 inches
Depth to the base of the argillic horizon: More than 40 inches
Depth to carbonates: More than 40 inches
Thickness of the solum: Less than 80 inches

Ap or A horizon:
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—2 or 3
Texture—silt loam or loam

E horizon (if it occurs):
Value—4 to 6
Chroma—2 to 4
Texture—silt loam or loam

Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 6
Texture—clay loam, silty clay loam, loam, or gravelly clay loam

CB or C horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—5 to 7
Chroma—1 to 8
Texture—loam, clay loam, or sandy loam or the gravelly analogs of these textures

8D2—Hickory silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Hickory and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that are calcareous within a depth of 40 inches
- Soils that have more clay or less sand in the subsoil
- Soils that have a darker surface layer

Dissimilar soils:
- The somewhat poorly drained Atlas soils on shoulders and backslopes
- The well drained Marseilles soils on backslopes

Properties and Qualities of the Hickory Soil

Parent material: Loamy till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10.2 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

8D3—Hickory clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Hickory and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that are calcareous within a depth of 40 inches
- Soils that contain more clay or less sand in the subsoil
- Soils that have a darker surface layer

Dissimilar soils:
- The somewhat poorly drained Atlas soils on shoulders and backslopes
- The well drained Marseilles soils on backslopes

Properties and Qualities of the Hickory Soil

Parent material: Loamy till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 9.4 inches
Content of organic matter in the surface layer: 0 to 1 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

8F—Hickory silt loam, 18 to 35 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Hickory and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that are calcareous within a depth of 40 inches
- Soils that contain more clay or less sand in the subsoil
- Soils that have a darker surface layer

Dissimilar soils:
- The somewhat poorly drained Atlas soils on shoulders and backslopes
- The well drained Marseilles soils on backslopes

Properties and Qualities of the Hickory Soil

Parent material: Loamy till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10.5 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 6e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

8G—Hickory silt loam, 35 to 60 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Hickory and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
- Soils that are calcareous within a depth of 40 inches
- Soils that contain more clay or less sand in the subsoil
- Soils that have a darker surface layer

Dissimilar soils:
- The somewhat poorly drained Atlas soils on shoulders and backslopes
- The well drained Marseilles soils on backslopes

Properties and Qualities of the Hickory Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate

Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10.2 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 7e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Ipava Series

Taxonomic classification: Fine, smectitic, mesic Aquic Argiudolls

Typical Pedon (Official Series Description)

Ipava silt loam, 0 to 2 percent slopes, at an elevation of 804 feet; 2,046 feet west and 594 feet north of the southeast corner of sec. 25, T. 13 N., R. 2 E.; in Knox County, Illinois; USGS Oneida topographic quadrangle; lat. 41 degrees 04 minutes 40 seconds N. and long. 90 degrees 13 minutes 03 seconds W., NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and medium subangular blocky structure; friable; moderately acid; abrupt smooth boundary.

A—10 to 18 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak fine and medium subangular blocky structure; friable; common faint black (10YR 2/1) organic coatings on faces of peds; moderately acid; clear smooth boundary.

BA—18 to 24 inches; brown (10YR 4/3) silty clay loam; moderate fine and medium subangular blocky structure; friable; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions and few distinct yellowish brown (10YR 5/6) masses of iron in the matrix; moderately acid; clear smooth boundary.

Btg1—24 to 31 inches; dark grayish brown (10YR 4/2) silty clay; moderate fine prismatic structure parting to moderate fine subangular blocky; friable; common faint dark gray (10YR 4/1) clay films on faces of peds; few fine distinct light brownish gray (2.5Y 6/2) iron depletions in the matrix and common fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; slightly acid; clear smooth boundary.

Btg2—31 to 37 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; common faint dark gray (10YR 4/1) clay films on faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine prominent black (7.5YR 2.5/1) very weakly cemented iron and manganese concretions throughout; few fine prominent black (7.5YR 2.5/1) iron and manganese stains on faces of peds; slightly alkaline; gradual smooth boundary.

BCg—37 to 50 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; friable; few distinct very dark grayish brown (10YR 3/2) organo-clay films occurring as linings in pores and on a few vertical faces of peds; common fine faint light brownish gray (2.5Y 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/8) masses of iron in the matrix; few fine prominent black (7.5YR 2.5/1) very weakly cemented iron and manganese concretions throughout; common fine prominent black (7.5YR 2.5/1) iron and manganese stains on faces of peds; slightly alkaline; clear smooth boundary.

Cg—50 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; few prominent very dark grayish brown (10YR 3/2) organo-clay films occurring as linings in pores; common fine prominent yellowish brown (10YR 5/8) masses of iron in the matrix; few fine prominent black (7.5YR 2.5/1) very weakly cemented iron and manganese concretions throughout; few fine prominent black (7.5YR 2.5/1) iron and manganese stains on faces of vertical cracks; moderately alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to the base of the argillic horizon: 35 to 55 inches
Depth to carbonates: More than 40 inches

Ap, A, or AB horizon:
Hue—10YR
Value—2 or 3

Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—moderately acid to neutral

BA, Bt, Btg, BC, or BCg horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—2 to 4
Texture—silty clay loam or silty clay
Reaction—moderately acid to slightly alkaline

Cg or C horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—1 to 4
Reaction—slightly acid to moderately alkaline

43A—Ipava silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Ipava and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a thinner or lighter colored surface layer
- Soils that do not have a seasonal high water table within a depth of 3 feet

Dissimilar soils:
- The poorly drained Denny and Sable soils in depressions and on broad flats

Properties and Qualities of the Ipava Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12 inches
Content of organic matter in the surface layer: 4 to 5 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

43B—Ipava silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Shoulders and summits

Composition

Ipava and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a thinner or lighter colored surface layer
- Soils that do not have a seasonal high water table within a depth of 3 feet

Dissimilar soils:
- The poorly drained Denny and Sable soils in depressions and on broad flats

Properties and Qualities of the Ipava Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10.9 inches
Content of organic matter in the surface layer: 4 to 5 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Flooding: None
Accelerated erosion: None or slight

Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Joy Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Hapludolls

Typical Pedon

Joy silt loam, 0 to 2 percent slopes, at an elevation of 640 feet; 1,900 feet east and 2,600 feet north of the southwest corner of sec. 26, T. 18 N., R. 3 E.; in Whiteside County, Illinois; USGS Spring Hill topographic quadrangle; lat. 41 degrees 31 minutes 01 second N. and long. 90 degrees 06 minutes 59 seconds W., NAD 27:

Ap—0 to 5 inches; black (10YR 2/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; moderately acid; abrupt smooth boundary.

A1—5 to 13 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure parting to moderate medium granular; friable; slightly acid; clear smooth boundary.

A2—13 to 17 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine subangular blocky structure parting to moderate medium granular; friable; neutral; clear smooth boundary.

Bt1—17 to 21 inches; brown (10YR 4/3) silt loam; moderate medium and fine subangular blocky structure; friable; common faint dark grayish brown (10YR 4/2) clay films on faces of peds; neutral; clear smooth boundary.

Bt2—21 to 27 inches; mixed grayish brown (10YR 5/2) and brown (10YR 5/3) silty clay loam; moderate medium and fine subangular blocky structure; friable; common faint dark grayish brown (10YR 4/2) clay films on faces of peds; few prominent black (N 2.5/) coatings of iron-manganese on faces of peds; common medium distinct yellowish brown (10YR 5/6) iron masses in the matrix; neutral; clear smooth boundary.

Bt3—27 to 34 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; friable; common faint brown (10YR 5/3) clay films on faces of peds; few prominent black (N 2.5/) coatings of iron-manganese on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and yellowish brown (10YR 5/6) iron masses in the matrix; neutral; clear smooth boundary.

Bt4—34 to 49 inches; mixed light brownish gray (2.5Y 6/2) and yellowish brown (10YR 5/6) silt loam; weak fine prismatic structure parting to weak fine and medium subangular blocky; friable; few faint grayish brown (10YR 5/2) clay films on faces of peds; few prominent black (N 2.5/) coatings of iron-manganese on faces of peds; neutral; gradual smooth boundary.

Cg—49 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; common prominent black (N 2.5/) coatings of iron-manganese along cleavage planes; many medium prominent yellowish brown (10YR 5/6) iron masses in the matrix; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to free carbonates: More than 40 inches
Thickness of the solum: 36 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam

Bw, Bg, or Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or silty clay loam

C or Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 to 4
Texture—silt loam

275A—Joy silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Joy and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a thicker surface layer and subsurface layer
- Soils that have a seasonal high water table at a depth of less than 1 foot or more than 2 feet

Dissimilar soils:
- The poorly drained Denny and Sable soils in depressions

Properties and Qualities of the Joy Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.9 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Keomah Series

Taxonomic classification: Fine, smectitic, mesic Aeric Endoaqualfs

Typical Pedon (Official Series Description)

Keomah silt loam, 0 to 2 percent slopes, at an elevation of 655 feet; 2,495 feet south and 300 feet west of the northeast corner of sec. 4, T. 2 N., R. 7 W.; in Adams County, Illinois; USGS Lorraine topographic quadrangle; lat. 40 degrees 11 minutes 22 seconds N. and long. 91 degrees 12 minutes 11 seconds W., NAD 27:

Ap1—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak thick platy structure parting to weak fine subangular blocky; friable; many very fine and fine roots; moderately acid; abrupt smooth boundary.

Ap2—6 to 11 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure parting to weak very fine subangular blocky; friable; common very fine and fine roots; few distinct brown (7.5YR 4/4) masses of iron in the matrix; moderately acid; abrupt smooth boundary.

E—11 to 18 inches; grayish brown (10YR 5/2) silt loam, light gray (10YR 7/2) dry; weak medium platy structure parting to weak very fine subangular blocky; friable; common fine roots; few faint dark grayish brown (10YR 4/2) organic coatings on faces of peds and in pores; few prominent strong brown (7.5YR 5/6) masses of iron and few prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; few faint light gray (10YR 7/2) clay depletions in the matrix; slightly acid; clear smooth boundary.

Bt1—18 to 25 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; firm; common fine roots; many faint grayish brown (10YR 5/2) clay films on faces of peds; many prominent strong brown (7.5YR 5/6) masses of iron and common prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; few faint grayish brown (10YR 5/2) iron depletions in the matrix; strongly acid; clear smooth boundary.

Bt2—25 to 33 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many faint grayish brown (10YR 5/2) clay films on faces of peds and few faint pressure faces; many prominent strong brown (7.5YR 5/6) masses of iron and common prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; strongly acid; clear smooth boundary.

Bt3—33 to 44 inches; brown (10YR 5/3) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common faint grayish brown (10YR 5/2) clay films on faces of peds; many prominent strong brown (7.5YR 5/6) masses of iron and common prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; common faint light brownish gray (10YR 6/2) iron depletions in the matrix; moderately acid; clear smooth boundary.

Bt4—44 to 51 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse prismatic structure;

firm; few fine roots; few faint dark grayish brown (10YR 4/2) clay films in root channels and/or pores; many prominent strong brown (7.5YR 5/6) masses of iron and few prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; moderately acid; clear smooth boundary.

BC1—51 to 63 inches; light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure; friable; few very fine roots; common distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and/or pores; many prominent strong brown (7.5YR 5/6) masses of iron and few prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; slightly acid; clear smooth boundary.

BC2—63 to 76 inches; light brownish gray (10YR 6/2) silt loam; weak coarse prismatic structure; friable; common distinct very dark grayish brown (10YR 3/2) organo-clay films in root channels and/or pores; many prominent strong brown (7.5YR 5/6) masses of iron and few prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; slightly acid; clear smooth boundary.

C—76 to 89 inches; yellowish brown (10YR 5/6) silt loam; massive; friable; few faint strong brown (7.5YR 5/6) masses of iron and few prominent black (2.5Y 2.5/1) masses of iron and manganese in the matrix; common prominent light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid.

Range in Characteristics

Depth to the base of the diagnostic horizon: 40 to 76 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—1 or 2
Texture—silt loam

E horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 3
Texture—silt loam

Bt horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 or 5
Chroma—2 to 4
Texture—silty clay loam or silty clay

BC or C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 or 5
Chroma—2 to 4
Texture—silty clay loam or silt loam

17A—Keomah silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Keomah and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 2 and 4 feet
- Soils that have slopes of more than 2 percent

Dissimilar soils:
- The poorly drained Denny soils in depressions

Properties and Qualities of the Keomah Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.3 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: 0.5 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2w
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

9017A—Keomah silt loam, terrace, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Summits

Composition

Keomah and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that do not have a seasonal high water table within a depth of 2 feet
- Soils that have slopes of more than 2 percent

Dissimilar soils:
- The poorly drained Denny soils in depressions

Properties and Qualities of the Keomah Soil

Parent material: Loess or other silty material
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.7 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: 0.5 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: High
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2w
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

Lawson Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon

Lawson silt loam, 0 to 2 percent slopes, occasionally flooded, at an elevation of 695 feet; 318 feet south and 1,040 feet east of the northwest corner of sec. 17, T. 17 N., R. 9 E.; in Bureau County, Illinois; USGS Princeton North topographic quadrangle; lat. 41 degrees 27 minutes 54 seconds N. and long. 89 degrees 29 minutes 14 seconds W., NAD 27:

Ap—0 to 11 inches; very dark grayish (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak medium granular structure; friable; few fine roots throughout; neutral; clear smooth boundary.

A1—11 to 19 inches; black (10YR 2/1) silt loam, very dark gray (10YR 3/1) dry; moderate fine granular structure; friable; few fine roots throughout; neutral; gradual smooth boundary.

A2—19 to 28 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium granular structure; friable; few fine roots throughout; neutral; gradual smooth boundary.

C1—28 to 50 inches; dark grayish brown (10YR 4/2) silt loam; weak medium subangular blocky structure; friable; few fine roots throughout; common faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; very dark grayish brown (10YR 3/2) krotovina; few fine faint brown (10YR 4/3) and common fine prominent yellowish brown (10YR 5/6) iron masses in the matrix; neutral; gradual smooth boundary.

C2—50 to 60 inches; grayish brown (2.5Y 5/2) silt loam; weak medium subangular blocky structure; friable; few fine roots; very dark grayish brown (10YR 3/2) krotovina; common fine faint dark grayish brown (10YR 4/2) iron depletions and common fine prominent yellowish brown (10YR 5/6) iron masses in the matrix; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

C horizon:
Hue—10YR or 2.5Y
Value—3 to 6
Chroma—1 to 3
Texture—silt loam

3451A—Lawson silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Composition

Lawson and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
- Soils that have a thinner surface layer
- Soils that have a buried layer within a depth of 60 inches

Dissimilar soils:
- The poorly drained Sawmill soils in swales
- The poorly drained Zook soils in the lower positions on flood plains

Properties and Qualities of the Lawson Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.1 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Frequency and most likely period of flooding: Frequent, November to June
Potential for frost action: High
Hazard of corrosion: Moderate for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3w
Prime farmland status: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Littleton Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls

Typical Pedon

Littleton silt loam, 0 to 2 percent slopes, at an elevation of 620 feet; 200 feet north and 1,420 feet east of the southwest corner of sec. 16, T. 20 N., R. 4 E.; in Whiteside County, Illinois; USGS Erie topographic quadrangle; lat. 41 degrees 42 minutes 52 seconds N. and long. 90 degrees 02 minutes 57 seconds W., NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure parting to moderate fine granular; friable; few very fine roots throughout; slightly acid; clear smooth boundary.

A1—8 to 20 inches; very dark gray (10YR 3/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and very fine subangular blocky structure parting to moderate fine granular; friable; few fine roots throughout; few very thin strata of brown (10YR 5/3) silt loam; slightly acid; clear smooth boundary.

A2—20 to 36 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; moderate fine and very fine subangular blocky structure; friable; few fine roots between peds; slightly acid; gradual smooth boundary.

BA—36 to 52 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; many faint grayish brown (10YR 5/2) coatings on faces of peds and in root channels; common distinct very dark gray (10YR 3/1) organic coatings on faces of peds; few fine distinct yellowish brown (10YR 5/6) iron masses in the matrix; neutral; clear smooth boundary.

Bg—52 to 61 inches; grayish brown (10YR 5/2) silty clay loam; strong medium prismatic structure; friable; many faint grayish brown (10YR 5/2) coatings on faces of peds; common medium distinct yellowish brown (10YR 5/6) iron masses in the matrix; few prominent black (N 2.5/) iron-manganese concretions; neutral; clear smooth boundary.

Cg—61 to 80 inches; grayish brown (10YR 5/2) silt loam; massive; friable; common medium prominent yellowish brown (10YR 5/6) iron masses in the matrix; few prominent black (N 2.5/) iron-manganese concretions; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Thickness of the solum: 30 to 62 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam

Bg horizon:
Hue—10YR or 2.5Y
Value—3 to 5
Chroma—2 or 3
Texture—silt loam or silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam; thin strata of silty clay loam in some pedons

81A—Littleton silt loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces and alluvial fans
Position on the landform: Summits and footslopes

Composition

Littleton and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a thinner subsurface layer
- Soils that have a seasonal high water table within a depth of 4 feet
- Soils that have slopes of more than 2 percent

Properties and Qualities of the Littleton Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 13.1 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Mannon Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Mollic Hapludalfs

Typical Pedon (Official Series Description)

Mannon silt loam, 2 to 5 percent slopes, at an elevation of 670 feet; 1,400 feet east and 160 feet south of the northwest corner of sec. 27, T. 15 N., R. 5 W.; in Mercer County, Illinois; USGS New Boston topographic quadrangle; lat. 41 degrees 16 minutes 30 seconds N. and long. 90 degrees 57 minutes 22 seconds W., NAD 27:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; neutral; abrupt smooth boundary.

E—8 to 12 inches; brown (10YR 4/3) silt loam; weak medium platy structure; friable; neutral; clear smooth boundary.

Bt1—12 to 21 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; few faint dark brown (10YR 3/3) clay films on faces of peds; slightly acid; clear smooth boundary.

Bt2—21 to 36 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; friable; common faint brown (10YR 4/3) clay films on faces of peds; neutral; clear smooth boundary.

Bt3—36 to 47 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common faint brown (10YR 4/3) clay films on faces of peds; common distinct yellowish brown (10YR 5/6) masses of iron throughout; common distinct light olive gray (5Y 6/2) iron depletions throughout; neutral; clear smooth boundary.

BC—47 to 53 inches; brown (10YR 5/3) silt loam; weak medium subangular blocky structure; friable; common faint light gray (10YR 7/2) silt coatings on faces of peds; common medium distinct yellowish

brown (10YR 5/6) masses of iron throughout; common distinct light olive gray (5Y 6/2) iron depletions throughout; slightly acid; clear smooth boundary.

C—53 to 60 inches; brown (10YR 5/3) silt loam; massive; friable; many medium distinct yellowish brown (10YR 5/6) masses of iron oxide throughout; many medium distinct light olive gray (5Y 6/2) iron oxide depletions throughout; moderately acid.

Range in Characteristics

Depth to the base of the argillic horizon: 45 to 60 inches
Depth to carbonates: More than 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2

E horizon (if it occurs):
Hue—10YR
Value—3 or 4
Chroma—2 or 3

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam

678B—Mannon silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Shoulders

Composition

Mannon and similar soils: 100 percent

Minor Components

Similar soils:
• Soils that have a thicker or lighter colored surface layer
• Soils that do not have a seasonal high water table within a depth of 6 feet
• Soils that have slopes of less than 2 percent

Properties and Qualities of the Mannon Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.7 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Marseilles Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Hapludalfs

Typical Pedon (Official Series Description)

Marseilles silt loam, 35 to 60 percent slopes, at an elevation of 685 feet; 1,400 feet south and 1,150 feet east of the northwest corner of sec. 14, T. 2 S., R. 6 W.; in Bureau County, Illinois; USGS Liberty topographic quadrangle; lat. 39 degrees 53 minutes 57 seconds N. and long. 91 degrees 03 minutes 53 seconds W., NAD 27:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate very fine granular structure; friable; strongly acid; abrupt smooth boundary.

E—3 to 7 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate thin platy and moderate very fine granular structure; friable; very few faint dark grayish brown (10YR 4/2) organic coatings in root channels and/or pores; strongly acid; clear smooth boundary.

BE—7 to 10 inches; yellowish brown (10YR 5/4) silt

loam; weak medium platy and moderate very fine and fine subangular blocky structure; friable; very few distinct dark grayish brown (10YR 4/2) organic coatings in root channels and/or pores; strongly acid; clear smooth boundary.

2Bt1—10 to 17 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; very few distinct dark grayish brown (10YR 4/2) organic coatings in root channels and/or pores and few faint brown (10YR 5/3) clay films on faces of peds; 1 percent gravel; very strongly acid; clear smooth boundary.

2Bt2—17 to 22 inches; yellowish brown (10YR 5/4) silty clay loam; strong medium subangular blocky structure; firm; common faint brown (10YR 5/3) clay films and very few faint very pale brown (10YR 7/3) silt coatings on faces of peds; 1 percent gravel; very strongly acid; clear smooth boundary.

2Bt3—22 to 35 inches; light olive brown (2.5Y 5/4) silty clay loam; moderate medium and coarse subangular blocky structure; firm; very few faint brown (10YR 5/3) clay films and very few distinct very pale brown (10YR 7/3) silt coatings on faces of peds; 1 percent gravel; very strongly acid; gradual smooth boundary.

2Cr—35 to 60 inches; 70 percent light olive brown (2.5Y 5/4) and 30 percent olive (5Y 5/3) silty clay and unweathered bedrock; massive; firm; 10 percent shale gravel; very strongly acid.

Range in Characteristics

Depth to the base of the argillic horizon: 20 to 40 inches
Depth to paralithic contact: 20 to 40 inches

Ap or A horizon:
Hue—10YR
Value—2 to 5
Chroma—2 or 3
Texture—silt loam or silty clay loam

E or BE horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam

Bt horizon:
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or silty clay loam

2Bt horizon:
Hue—7.5YR to 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—clay loam, silt loam, silty clay loam, or silty clay

2Cr horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 4

549D2—Marseilles silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Marseilles and similar soils: 94 percent
Dissimilar components: 6 percent

Minor Components

Similar soils:
- Soils that contain more clay in the subsoil
- Soils that formed in calcareous shale
- Soils that are underlain by sand, sandstone, or limestone

Dissimilar components:
- The somewhat poorly drained Atlas soils on backslopes
- The moderately well drained Elco soils on backslopes
- The well drained Hickory soils on backslopes
- Small areas of bedrock outcrop near the base of the slopes (fig. 3)

Properties and Qualities of the Marseilles Soil

Parent material: Thin layer of loess over residuum derived from shale
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Available water capacity to a depth of 60 inches: About 4.4 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.

Figure 3.—An outcropping of shale bedrock in an area of Marseilles silt loam, 10 to 18 percent slopes, eroded.

Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

549F—Marseilles silt loam, 18 to 35 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Marseilles and similar soils: 94 percent
Dissimilar soils: 6 percent

Minor Components

Similar soils:
- Soils that contain more clay in the subsoil
- Soils that formed in calcareous shale
- Soils that are underlain by sand, sandstone, or limestone

Dissimilar soils:
- The somewhat poorly drained Atlas soils on backslopes
- The moderately well drained Elco soils on backslopes
- The well drained Hickory soils on backslopes

Properties and Qualities of the Marseilles Soil

Parent material: Thin layer of loess over residuum derived from shale
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Available water capacity to a depth of 60 inches: About 5.7 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 7e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

549G—Marseilles silt loam, 35 to 60 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Marseilles and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that contain more clay in the subsoil
- Soils that formed in calcareous shale
- Soils that are underlain by sand, sandstone, or limestone

Dissimilar soils:
- The somewhat poorly drained Atlas soils on backslopes
- The moderately well drained Elco soils on backslopes
- The well drained Hickory soils on backslopes

Properties and Qualities of the Marseilles Soil

Parent material: Thin layer of loess over residuum derived from shale
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 40 inches to bedrock (paralithic)
Available water capacity to a depth of 60 inches: About 5.7 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Very high
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 7e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

M-W—Miscellaneous water

General Definition

• This map unit consists of manmade areas that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Muscatune Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon

Muscatune silt loam, 0 to 2 percent slopes, at an elevation of 692 feet; 2,500 feet west and 2,240 feet north of the southeast corner of sec. 29, T. 9 N., R. 1 W.; in Warren County, Illinois; USGS Greenbush topographic quadrangle; lat. 40 degrees 44 minutes 11 seconds N. and long. 90 degrees 31 minutes 46 seconds W., NAD 27:

Ap—0 to 7 inches; black (10YR 2/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; very friable; common very fine and fine roots throughout; neutral; abrupt smooth boundary.

A—7 to 13 inches; very dark gray (10YR 3/1) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine granular structure; very friable; common very fine and fine roots throughout; neutral; clear smooth boundary.

AB—13 to 20 inches; mixed very dark grayish brown (10YR 3/2) and brown (10YR 4/3) silt loam, dark grayish brown (10YR 4/2) dry; moderate fine subangular blocky structure parting to weak fine granular; friable; common very fine roots throughout; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; few faint dark grayish brown (10YR 4/2) clay films on faces of peds; neutral; clear smooth boundary.

Bt1—20 to 28 inches; brown (10YR 4/3) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots between peds; few faint dark grayish brown (10YR 4/2) clay films on faces of peds; common faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; common prominent black (5YR 2.5/1) manganese stains; neutral; clear smooth boundary.

Bt2—28 to 38 inches; brown (10YR 5/3) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots between peds; common faint dark grayish brown (2.5Y 4/2) clay films on faces of peds; few fine distinct yellowish brown (10YR 5/6) and faint pale brown (10YR 6/3) iron masses in the matrix; common prominent black (5YR 2.5/1) manganese stains; neutral; clear smooth boundary.

Btg—38 to 50 inches; light brownish gray (2.5Y 6/2) silty clay loam; moderate medium subangular blocky structure; friable; few very fine roots between peds; common faint grayish brown (10YR 5/2) clay films on faces of peds; common fine prominent yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) iron masses in the matrix; common prominent black (5YR 2.5/1) manganese stains; slightly acid; clear smooth boundary.

BCg—50 to 60 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium subangular blocky structure; friable; common medium prominent yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) iron masses in the matrix; common prominent black (5YR 2.5/1) manganese stains; slightly acid; clear smooth boundary.

Cg—60 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; many medium prominent yellowish brown (10YR 5/6) and dark yellowish

brown (10YR 4/6) iron masses in the matrix; few fine round very dark brown (10YR 2/2) soft masses of iron and manganese; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 20 inches
Thickness of the loess: More than 60 inches
Depth to free carbonates: More than 40 inches
Thickness of the solum: 40 to 64 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam or silty clay loam

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—silty clay loam

C horizon:
Hue—10YR or 2.5Y
Value—5 or 6
Chroma—2 to 4
Texture—silt loam or silty clay loam

51A—Muscatune silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Muscatune and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils in which the subsoil is calcareous above a depth of 48 inches
- Soils that have a seasonal high water table between the depths of 2 and 4 feet

Dissimilar soils:
- The poorly drained Denny soils in depressions
- The poorly drained Sable soils in depressions on summits

Properties and Qualities of the Muscatune Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.4 inches
Content of organic matter in the surface layer: 3.5 to 5.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 1
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Orion Series

Taxonomic classification: Coarse-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents

Typical Pedon

Orion silt loam, 0 to 2 percent slopes, frequently flooded, at an elevation of 216 meters; 270 feet south and 1,000 feet east of the northwest corner of sec. 17, T. 22 N., R. 6 E.; in Whiteside County, Illinois; USGS Milledgeville topographic quadrangle; lat. 41 degrees 54 minutes 06 seconds N. and long. 89 degrees 50 minutes 13 seconds W., NAD 27:

A—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; massive; friable; many thin strata of brown (10YR 4/3) and very dark gray (10YR 3/1) silt loam; neutral; abrupt smooth boundary.

C1—5 to 15 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; many thin strata of pale brown (10YR 6/3) and yellowish brown (10YR 5/4) silt loam; few fine distinct brown (7.5YR 4/4) masses of iron in the matrix; neutral; clear wavy boundary.

C2—15 to 29 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; many thin strata of dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/6), and pale brown (10YR 6/3) silt loam;

few very dark gray (10YR 3/1) wormcasts; few fine distinct brown (7.5YR 4/4) masses of iron in the matrix; neutral; abrupt wavy boundary.

Ab1—29 to 39 inches; black (2.5Y 2.5/1) silt loam; weak thick platy structure parting to weak fine subangular blocky; friable; neutral; clear smooth boundary.

Ab2—39 to 51 inches; black (2.5Y 2.5/1) silty clay loam; strong medium and fine angular blocky structure; friable; neutral; clear smooth boundary.

Ab3—51 to 60 inches; very dark gray (10YR 3/1) silty clay loam; moderate medium and fine subangular blocky structure; friable; neutral.

Range in Characteristics

Depth to dark buried soil: 20 to 40 inches
Thickness of the surface layer: 5 to 10 inches

Ap or A horizon:
Hue—10YR
Value—3 to 6
Chroma—2 or 3
Texture—silt loam; stratified in some pedons

C horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—silt loam; stratified in some pedons

Ab horizon:
Hue—10YR or 2.5Y
Value—2 or 3
Chroma—1 or 2
Texture—silty clay loam or silt loam; stratified in some pedons

3415A—Orion silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Composition

Orion and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have more sand in the lower part
- Soils in which the buried soil is at a depth of more than 40 inches
- Soils that have a seasonal high water table within a depth of 1 foot

Dissimilar soils:
- The poorly drained Sawmill and Zook soils in the lower positions on flood plains

Properties and Qualities of the Orion Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.3 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Low
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Frequency and most likely period of flooding: Frequent, November to June
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3w
Prime farmland status: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

802B—Orthents, loamy, undulating

Setting

Landform: Ground moraines

Composition

Orthents and similar soils: 85 percent
Dissimilar components: 15 percent

Minor Components

Similar soils:
- Soils that are covered with as much as 2 feet of coarser textured fill material
- Soils that are underlain by shale

Dissimilar components:
- Undisturbed areas of Muscatune, Osco, and Sable soils

- Areas covered by highways, school buildings, or parking lots
- Escarpments associated with cut and fill areas

Properties and Qualities of the Orthents

Parent material: Mine spoil or earthy fill
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10.9 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: Moderate
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Osco Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Argiudolls
Taxadjunct features: The Osco soils in map units 86B2, 86C2, 86C3, and 86D2 have a thinner dark surface layer than is defined as the range for the series. These soils are classified as fine-silty, mixed, superactive, mesic Mollic Hapludalfs.

Typical Pedon (Official Series Description)

Osco silt loam, 2 to 5 percent slopes, at an elevation of 858 feet; 316 feet north and 88 feet west of the southeast corner of sec. 23, T. 24 N., R. 6 E.; in Carroll County, Illinois; USGS Lanark topographic quadrangle; lat. 42 degrees 03 minutes 15 seconds N. and long. 89 degrees 45 minutes 52 seconds W., NAD 27:

Ap—0 to 10 inches; very dark brown (10YR 2/2) silt loam, very dark grayish brown (10YR 3/2) dry; moderate fine granular structure; friable; common fine roots; slightly acid; abrupt smooth boundary.

A—10 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; moderate medium and coarse granular structure; friable; common fine roots; strongly acid; clear smooth boundary.

BA—14 to 20 inches; dark yellowish brown (10YR 3/4) and dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine subangular blocky structure; friable; common fine roots; few distinct light brownish gray (10YR 6/2) (dry) silt coatings on faces of peds; strongly acid; clear smooth boundary.

Bt1—20 to 26 inches; brown (10YR 4/3) silty clay loam; moderate fine subangular blocky structure; friable; few fine roots; few distinct gray (10YR 6/1) (dry) silt coatings and common faint dark brown (10YR 3/3) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—26 to 37 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few fine roots; common distinct light brownish gray (10YR 6/2) (dry) silt coatings and many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine faint brown (10YR 5/3) and common medium prominent strong brown (7.5YR 5/8) redoximorphic concentrations; many prominent very dark gray (N 3/0) and many distinct dark brown (7.5YR 3/2) manganese concretions; strongly acid; clear smooth boundary.

Bt3—37 to 45 inches; light yellowish brown (10YR 6/4) silty clay loam; moderate coarse subangular blocky structure; friable; few fine roots; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) redoximorphic depletions and few medium prominent strong brown (7.5YR 5/8) redoximorphic concentrations; strongly acid; gradual smooth boundary.

BC—45 to 55 inches; yellowish brown (10YR 5/4) and brown (10YR 4/3) silty clay loam; weak coarse angular blocky structure; friable; few fine distinct light brownish gray (10YR 6/2) redoximorphic depletions; strongly acid; gradual smooth boundary.

C—55 to 60 inches; yellowish brown (10YR 5/4) and brown (10YR 4/3) silt loam; massive; friable; many fine distinct yellowish brown (10YR 5/6) redoximorphic concentrations and common medium distinct grayish brown (10YR 5/2) redoximorphic depletions; moderately acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 18 inches
Thickness of the solum: 40 to more than 60 inches
Depth to free carbonates: More than 48 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam or silty clay loam

Bt horizon:
Hue—10YR
Value—4 to 6
Chroma—3 or 4
Texture—silty clay loam or silt loam

C or Cg horizon:
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam

86B—Osco silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits and shoulders

Composition

Osco and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 6 feet

Dissimilar soils:
- The poorly drained Denny soils in depressions
- The poorly drained Sable soils in depressions on ground moraines

Properties and Qualities of the Osco Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.9 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

86B2—Osco silt loam, 2 to 5 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and summits

Composition

Osco and similar soils: 88 percent
Dissimilar soils: 12 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 6 feet

Dissimilar soils:
- The poorly drained Denny soils in depressions
- The poorly drained Sable soils in depressions on ground moraines

Properties and Qualities of the Osco Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.8 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete

Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

86C2—Osco silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Osco and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 6 feet
- Soils that have a thinner subsoil and are calcareous within a depth of 40 inches
- Soils that have more sand or clay in the lower part

Dissimilar soils:
- The somewhat poorly drained Radford soils in drainageways

Properties and Qualities of the Osco Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.7 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

86C3—Osco silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Osco and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 6 feet
- Soils that have a thinner subsoil and are calcareous within a depth of 40 inches
- Soils that have more sand or clay in the lower part

Dissimilar soils:
- The somewhat poorly drained Radford soils in drainageways

Properties and Qualities of the Osco Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.7 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium

Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

86D2—Osco silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Osco and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 6 feet
- Soils that have a thinner subsoil and are calcareous within a depth of 40 inches
- Soils that have more sand or clay in the lower part

Dissimilar soils:
- The somewhat poorly drained Radford soils in drainageways

Properties and Qualities of the Osco Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.7 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

9086B—Osco silt loam, terrace, 2 to 5 percent slopes

Setting

Landform: Terraces
Position on the landform: Summits and shoulders

Composition

Osco and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that do not have a seasonal high water table within a depth of 6 feet

Dissimilar soils:
- The poorly drained Denny soils in depressions
- The poorly drained Sable soils on summits

Properties and Qualities of the Osco Soil

Parent material: Loess or other silty material
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.8 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

864—Pits, quarries

General Definition

• This map unit consists of open pits from which limestone has been removed. The limestone is used primarily as construction material (fig. 4).

Figure 4.—An area of Pits, quarries. Limestone is being mined for use as construction material or as agricultural lime.

Raddle Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludolls

Typical Pedon

Raddle silt loam, 0 to 2 percent slopes, at an elevation of 592 feet; 1,780 feet west and 2,020 feet north of the southeast corner of sec. 23, T. 19 N., R. 4 E.; in Whiteside County, Illinois; Spring Hill topographic quadrangle; lat. 41 degrees 37 minutes 03 seconds N. and long. 90 degrees 00 minutes 13 seconds W., NAD 27:

Ap—0 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak fine and medium granular structure; friable; slightly acid; abrupt smooth boundary.

A1—10 to 16 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure parting to weak fine granular; friable; many faint very dark gray (10YR 3/1) organic coatings on faces of peds; moderately acid; clear smooth boundary.

A2—16 to 21 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate fine and medium subangular blocky structure; friable; clay films on faces of peds; many faint very dark grayish brown (10YR 3/2) organic coatings on faces of peds; moderately acid; clear smooth boundary.

BA—21 to 26 inches; brown (10YR 4/3) silt loam; moderate medium subangular blocky structure; friable; common faint dark brown (10YR 3/3) organic coatings on faces of peds; moderately acid; clear smooth boundary.

Bt1—26 to 34 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; common faint brown (10YR 4/3) clay films on faces of peds; moderately acid; gradual smooth boundary.

Bt2—34 to 51 inches; dark yellowish brown (10YR 4/4) silt loam; moderate coarse subangular blocky structure; friable; few faint brown (10YR 4/3) clay films on faces of peds; moderately acid; clear smooth boundary.

BC—51 to 61 inches; yellowish brown (10YR 5/4) silt loam; weak coarse angular blocky structure; friable; few fine prominent black (N 2.5/) iron-manganese stains on faces of peds; few fine distinct light brownish gray (10YR 6/2) iron depletions; moderately acid; clear smooth boundary.

C—61 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few fine prominent black (N 2.5/) soft masses of iron-manganese in the matrix; few fine distinct light brownish gray (10YR 6/2) iron depletions; slightly acid.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Thickness of the solum: 40 to more than 80 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam

Bt or Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—3 or 4
Texture—silt loam

C horizon:
Hue—7.5YR or 10YR
Value—3 to 6
Chroma—2 to 4
Texture—silt loam; thin strata of sandy loam, loam, clay loam, or silty clay loam in some pedons

430B—Raddle silt loam, 2 to 5 percent slopes

Setting

Landform: Terraces
Position on the landform: Shoulders and summits

Composition

Raddle and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a thinner surface layer
- Soils that have a seasonal high water table within a depth of 6 feet
- Soils that have slopes of more than 5 percent or less than 2 percent

Properties and Qualities of the Raddle Soil

Parent material: Slope alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.8 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Low
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

Radford Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls

Typical Pedon

Radford silt loam, 0 to 2 percent slopes, occasionally flooded, at an elevation of 203 meters; 1,109 feet west and 1,254 feet south of the northeast corner of sec. 23, T. 17 N., R. 8 E.; in Bureau County, Illinois; USGS Buda Northeast topographic quadrangle; lat. 41 degrees 26 minutes 54 seconds N. and long. 89 degrees 32 minutes 04 seconds W., NAD 27:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; common fine roots; moderately acid; abrupt smooth boundary.

A—9 to 21 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; common fine roots; few fine dark masses of iron and manganese throughout; slightly acid; gradual smooth boundary.

C—21 to 29 inches; stratified very dark gray (10YR 3/1) silt loam and brown (10YR 5/3) silty clay loam; weak medium subangular blocky structure; friable; few fine roots; common fine dark masses of iron and manganese throughout; slightly acid; clear smooth boundary.

Ab1—29 to 36 inches; black (10YR 2/1) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; few medium faint very dark grayish brown (10YR 3/2) masses of iron and manganese in the matrix; few very fine dark masses of iron and manganese throughout; slightly acid; clear smooth boundary.

Ab2—36 to 43 inches; black (10YR 2/1) silty clay loam; weak medium subangular blocky structure; friable; few fine faint very dark grayish brown (10YR 3/2) masses of iron and manganese in the matrix; few very fine dark masses of iron and manganese throughout; neutral; clear smooth boundary.

Bgb—43 to 60 inches; black (10YR 2/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; friable; few fine faint dark gray (10YR 4/1) iron depletions in the matrix; few very fine dark masses of iron and manganese throughout; neutral.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to the buried soil: 20 to 40 inches

Ap or A horizon:
Value—2 or 3
Chroma—1 or 2

C horizon:
Hue—10YR
Value—2 to 6
Chroma—1 or 2
Texture—silt loam

Ab horizon:
Hue—10YR or N

Value—2 or 3
Chroma—0 or 1
Texture—silt loam, silty clay loam, clay loam, or loam

Bgb horizon (if it occurs):
Hue—10YR, 2.5Y, 5Y, or N
Value—3 to 6
Chroma—0 to 2

3074A—Radford silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Composition

Radford and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
• Soils in which the buried layer is at a depth of less than 20 inches or more than 40 inches
• Soils that have a lighter colored surface layer

Dissimilar soils:
• Soils that are subject to less frequent flooding than the Radford soil
• The poorly drained Sawmill and Zook soils in the lower positions on flood plains

Properties and Qualities of the Radford Soil

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.3 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 1 foot, January to May
Frequency and most likely period of flooding: Frequent, November to June
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3w
Prime farmland status: Prime farmland where protected from flooding or not frequently flooded during the growing season
Hydric soil status: Not hydric

Rozetta Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon (Official Series Description)

Rozetta silt loam, 0 to 2 percent slopes, at an elevation of 890 feet; 150 feet south and 500 feet east of the center of sec. 18, T. 27 N., R. 6 E.; in Stephenson County, Illinois; USGS Pearl City topographic quadrangle; lat. 42 degrees 20 minutes 00 seconds N. and long. 89 degrees 51 minutes 19 seconds W., NAD 27:

A—0 to 4 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 6/1) dry; weak medium granular structure; friable; many fine roots throughout; moderately acid; clear wavy boundary.

E—4 to 11 inches; dark grayish brown (10YR 4/2) silt loam; weak medium platy structure; friable; many fine roots throughout; strongly acid; clear smooth boundary.

BE—11 to 14 inches; brown (10YR 4/3) silty clay loam; weak medium subangular blocky structure; firm; many fine roots between peds; few faint brown (10YR 5/3) (dry) clay depletions on faces of peds; strongly acid; clear smooth boundary.

Bt1—14 to 21 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; many fine roots between peds; many faint brown (10YR 5/3) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—21 to 39 inches; brown (10YR 5/3) silty clay loam; moderate medium and coarse subangular blocky structure; firm; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium faint grayish brown (10YR 5/2) iron depletions; common medium faint light yellowish brown (10YR 6/4) and brown (10YR 4/3) masses of iron in the matrix; strongly acid; clear smooth boundary.

Bt3—39 to 50 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse subangular blocky structure; firm; few faint brown (10YR 4/3) clay films on faces of peds; common medium distinct

grayish brown (10YR 5/2) iron depletions; common medium faint pale brown (10YR 6/3) masses of iron in the matrix; moderately acid; clear smooth boundary.

C—50 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common medium distinct dark grayish brown (10YR 4/2) iron depletions; slightly acid.

Range in Characteristics

Thickness of the solum: 42 to 72 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 3
Texture—silt loam or silty clay loam

E horizon:
Hue—10YR
Value—4 to 6
Chroma—2 or 3
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam

C horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or silty clay loam

279B—Rozetta silt loam, 2 to 5 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Shoulders and summits

Composition

Rozetta and similar soils: 93 percent
Dissimilar soils: 7 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 2 and 4 feet
- Soils that do not have a seasonal high water table within a depth of 6 feet

Dissimilar soils:
- The somewhat poorly drained Atterberry and Clarksdale soils on summits

Properties and Qualities of the Rozetta Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.3 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

279C2—Rozetta silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders and backslopes

Composition

Rozetta and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 2 and 4 feet
- Soils that do not have a seasonal high water table within a depth of 6 feet

Properties and Qualities of the Rozetta Soil

Parent material: Loess

Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.4 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

279C3—Rozetta silty clay loam, 5 to 10 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders

Composition

Rozetta and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 2 and 4 feet
- Soils that do not have a seasonal high water table within a depth of 6 feet

Properties and Qualities of the Rozetta Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

9279B—Rozetta silt loam, terrace, 2 to 5 percent slopes

Setting

Landform: Stream terraces
Position on the landform: Summits and shoulders

Composition

Rozetta and similar soils: 95 percent
Dissimilar soils: 5 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 2 and 4 feet
- Soils that do not have a seasonal high water table within a depth of 6 feet

Dissimilar soils:
- The somewhat poorly drained Atterberry and Clarksdale soils on summits

Properties and Qualities of the Rozetta Soil

Parent material: Loess or other silty material
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches

Available water capacity to a depth of 60 inches: About 12.2 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Moderate
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2e
Prime farmland status: Prime farmland
Hydric soil status: Not hydric

9279C2—Rozetta silt loam, terrace, 5 to 10 percent slopes, eroded

Setting

Landform: Terraces
Position on the landform: Shoulders and backslopes

Composition

Rozetta and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table between depths of 2 and 4 feet
- Soils that do not have a seasonal high water table within a depth of 6 feet

Properties and Qualities of the Rozetta Soil

Parent material: Loess or other silty material
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.2 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 4 feet, February to April
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Sable Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaquolls

Typical Pedon (Official Series Description)

Sable silty clay loam, 0 to 2 percent slopes, at an elevation of 732 feet; 1,281 feet south and 97 feet west of the northeast corner of sec. 14, T. 9 N., R. 3 W.; in Warren County, Illinois; USGS Kirkwood East topographic quadrangle; lat. 40 degrees 46 minutes 30 seconds N. and long. 90 degrees 41 minutes 32 seconds W., NAD 27:

Ap—0 to 8 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium granular structure; firm; moderately acid; abrupt smooth boundary.
A—8 to 19 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine angular blocky structure; firm; few fine rounded dark concretions of iron and manganese oxides; slightly acid; clear smooth boundary.
AB—19 to 23 inches; very dark gray (10YR 3/1) silty clay loam, grayish brown (10YR 5/2) dry; moderate fine angular blocky structure; firm; few faint dark grayish brown (10YR 3/2) organic coatings on faces of peds; few fine dark rounded concretions of iron and manganese; clear smooth boundary.
Bg—23 to 29 inches; dark gray (10YR 4/1) silty clay loam; moderate fine and medium subangular blocky structure; firm; common faint very dark gray (10YR 3/1) organic coatings on faces of peds; common fine and medium dark rounded concretions of iron and manganese oxides; common medium distinct brown (10YR 5/3) masses of iron in the matrix; few medium faint dark grayish brown (10YR 4/2) iron depletions; neutral; clear smooth boundary.

Btg1—29 to 38 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium and coarse subangular blocky structure; firm; few faint dark gray (10YR 4/1) clay films on faces of peds; many fine and medium dark rounded concretions of iron and manganese; many medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear wavy boundary.

Btg2—38 to 47 inches; gray (N 5/) silt loam; weak medium prismatic structure parting to weak medium and coarse angular blocky; firm; few prominent grayish brown (10YR 5/2) clay films on faces of peds; common fine dark rounded concretions of iron and manganese; many medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; slightly alkaline; gradual smooth boundary.

Cg—47 to 60 inches; gray (N 5/) silt loam; massive; friable; many fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; slightly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 12 to 24 inches
Thickness of the solum: 40 to 60 inches

Ap or A horizon:
Hue—10YR to 5Y or N
Value—2 or 3
Chroma—0 or 1
Texture—silty clay loam or silt loam

Bg or Btg horizon:
Hue—10YR to 5Y or N
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam

C horizon:
Hue—10YR to 5Y or N
Value—4 to 6
Chroma—0 to 2
Texture—silt loam or silty clay loam

68A—Sable silty clay loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Sable and similar soils: 90 percent
Dissimilar soils: 10 percent

Minor Components

Similar soils:
- Soils that have a thicker surface layer
- Soils that are calcareous in the lower part
- Soils that have a thinner surface layer of silt loam and a lighter colored subsurface layer of silt loam

Dissimilar soils:
- The well drained Osco soils on summits
- The somewhat poorly drained Ipava or Muscatune soils on summits

Properties and Qualities of the Sable Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.9 inches
Content of organic matter in the surface layer: 5 to 6 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January to May
Ponding depth: 0.5 foot during wet periods
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 2w
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric

68A+—Sable silt loam, 0 to 2 percent slopes, overwash

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Sable and similar soils: 94 percent
Dissimilar soils: 6 percent

Minor Components

Similar soils:
- Soils that have a thicker surface layer
- Soils that are calcareous in the lower part
- Soils that have a thinner surface layer of silt loam and a lighter colored subsurface layer of silt loam

Dissimilar soils:
- The well drained Osco soils on summits
- The somewhat poorly drained Ipava or Muscatune soils on summits

Properties and Qualities of the Sable Soil

Parent material: Loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.1 inches
Content of organic matter in the surface layer: 2 to 4 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January to May
Ponding depth: 0.5 foot during wet periods
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2w
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric

Sawmill Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls

Typical Pedon (Official Series Description)

Sawmill silty clay loam, 0 to 2 percent slopes, occasionally flooded, at an elevation of 535 feet; 300 feet south and 750 feet east of the northwest corner of sec. 20, T. 15 N., R. 4 W.; in Sangamon County, Illinois; USGS New City topographic quadrangle; lat. 39 degrees 44 minutes 34 seconds N. and long. 89 degrees 34 minutes 15 seconds W., NAD 27:

Ap—0 to 10 inches; very dark gray (10YR 3/1) and very dark grayish brown (10YR 3/2) silty clay loam, gray (10YR 5/1) dry; weak fine subangular blocky structure; firm; few fine roots throughout; few subrounded pebbles 1 to 3 millimeters in diameter; slightly acid; clear smooth boundary.

A1—10 to 17 inches; black (10YR 2/1) and very dark grayish brown (10YR 3/2) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; firm; few fine roots between peds; few subrounded pebbles 1 to 3 millimeters in diameter; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; few fine concretions of manganese lining root channels and pores; neutral; clear smooth boundary.

A2—17 to 25 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine and medium angular blocky structure; firm; few fine roots between peds; few fine concretions of manganese lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear smooth boundary.

AB—25 to 32 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; weak medium prismatic structure parting to moderate fine subangular blocky; firm; few fine roots between peds; few fine concretions of manganese lining root channels and pores; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; neutral; clear smooth boundary.

Bg—32 to 40 inches; dark gray (10YR 4/1) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; few fine roots between peds; few faint very dark gray (10YR 3/1) organic coatings on faces of peds; few fine concretions of manganese lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) masses of iron in the matrix; slightly alkaline; clear smooth boundary.

Btg1—40 to 49 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure parting to weak medium angular blocky; firm; common faint dark gray (10YR 4/1) clay films on faces of peds; few fine concretions of manganese lining root channels and pores; few fine prominent strong brown (7.5YR 5/6) and common fine distinct yellowish brown (10YR 5/4) masses of iron in the matrix; slightly alkaline; clear smooth boundary.

Btg2—49 to 58 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure; firm; few distinct gray (10YR 5/1) clay films on faces of peds; few fine concretions of manganese lining pores; few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; slightly alkaline; gradual smooth boundary.

Cg—58 to 65 inches; grayish brown (2.5Y 5/2) silty clay loam; massive; firm; very dark gray (10YR 3/1) channel linings and fillings; many medium prominent yellowish brown (10YR 5/6) masses of iron in the matrix; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 24 to 36 inches
Thickness of the solum: 36 to 60 inches

Ap or A horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 or 3
Chroma—0 to 2
Texture—silty clay loam

Bg or Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 or 2
Texture—silty clay loam; strata in some pedons

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam or clay loam; strata in some pedons

3107+—Sawmill silt loam, 0 to 2 percent slopes, frequently flooded, overwash

Setting

Landform: Flood plains

Composition

Sawmill and similar soils: 98 percent
Dissimilar soils: 2 percent

Minor Components

Similar soils:
- Soils that have more clay in the subsoil
- Soils that have a thicker surface layer

Dissimilar soils:
- The somewhat poorly drained Lawson, Orion, and Radford soils on flood plains

Properties and Qualities of the Sawmill Soil

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.4 inches
Content of organic matter in the surface layer: 4 to 5 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January to May
Frequency and most likely period of flooding: Frequent, November to June
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3w
Prime farmland status: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Hydric

3107A—Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Composition

Sawmill and similar soils: 99 percent
Dissimilar soils: 1 percent

Minor Components

Similar soils:
- Soils that have more clay in the subsoil
- Soils that have a thicker surface layer

Dissimilar soils:
- The somewhat poorly drained Lawson, Orion, and Radford soils on flood plains

Properties and Qualities of the Sawmill Soil

Parent material: Alluvium
Drainage class: Poorly drained

Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 13 inches
Content of organic matter in the surface layer: 4 to 5 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: At the surface, January to May
Frequency and most likely period of flooding: Frequent, November to June
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 3w
Prime farmland status: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Hydric

Seaton Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Seaton silt loam, 2 to 5 percent slopes; at an elevation of 685 feet; 660 feet north and 30 feet east of the center of sec. 8, T. 11 N., R. 4 W.; in Whiteside County, Illinois; USGS Rozetta topographic quadrangle; lat. 40 degrees 57 minutes 44 seconds N. and long. 90 degrees 52 minutes 24 seconds W., NAD 27:

A—0 to 4 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine granular structure; very friable; slightly acid; clear smooth boundary.
E—4 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak thin platy structure; friable; slightly acid; clear smooth boundary.
BE—9 to 15 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; friable; few faint dark brown (10YR 3/3) clay films and common faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; moderately acid; clear smooth boundary.
Bt1—15 to 21 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; friable; few faint dark brown (10YR 3/3) clay films and few faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; moderately acid; clear smooth boundary.
Bt2—21 to 27 inches; brown (7.5YR 5/4) silt loam; moderate fine and medium subangular blocky structure; firm; few distinct dark brown (10YR 3/3) clay films and few faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; strongly acid; clear smooth boundary.
Bt3—27 to 34 inches; yellowish brown (10YR 5/4) silt loam; moderate medium angular blocky structure; firm; common faint dark brown (10YR 3/3) clay films on faces of peds; strongly acid; gradual smooth boundary.
Bt4—34 to 44 inches; brown (10YR 5/3) silt loam; weak medium and coarse prismatic structure; firm; few faint dark brown (10YR 3/3) clay films and few faint light yellowish brown (10YR 6/4) silt coatings on faces of peds; moderately acid; gradual smooth boundary.
BC—44 to 70 inches; brown (10YR 4/3) silt loam; weak very coarse prismatic structure; friable; few faint brown (7.5YR 4/2) clay films on vertical faces of peds; moderately acid; gradual smooth boundary.
C—70 to 95 inches; light brownish gray (10YR 6/2) and brown (10YR 5/3) silt loam; massive; friable; common fine distinct dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) masses of iron; massive; friable; slightly acid.

Range in Characteristics

Thickness of the loess: More than 80 inches
Thickness of the solum: 42 to more than 60 inches

Ap or A horizon:
Hue—10YR
Value—2 to 4
Chroma—2 or 3
Texture—silt loam or silt
Reaction—moderately acid to neutral

E horizon (if it occurs):
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—silt loam or silt
Reaction—moderately acid to neutral

Bt horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6

Texture—silt loam or silt
Reaction—very strongly acid to neutral

BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 or 5
Chroma—3 or 4

C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or silt
Reaction—moderately acid to moderately alkaline

274C2—Seaton silt loam, 5 to 10 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Shoulders

Composition

Seaton and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have carbonates within a depth of 40 inches

Dissimilar soils:
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Seaton Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.7 inches
Content of organic matter in the surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Low
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Low for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

274D—Seaton silt loam, 10 to 18 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Seaton and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have carbonates within a depth of 40 inches

Dissimilar soils:
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Seaton Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.9 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Low
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Low for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

943D3—Seaton-Timula silt loams, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Seaton—the upper and middle parts of backslopes; Timula—the middle and lower parts of backslopes

Composition

Seaton and similar soils: 45 percent
Timula and similar soils: 40 percent
Dissimilar soils: 15 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that are calcareous throughout

Dissimilar soils:
- The somewhat poorly drained Orion soils in drainageways

Properties and Qualities of the Seaton Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.6 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: Low for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Properties and Qualities of the Timula Soil

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.1 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: Low for steel and low for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: Seaton—6e; Timula—6e
Prime farmland status: Not prime farmland
Hydric soil status: Seaton—not hydric; Timula—not hydric

Spaulding Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Calciaquolls

Typical Pedon

Spaulding silty clay loam, 0 to 2 percent slopes, at an elevation of 612 feet; 2,410 feet east and 1,300 feet south of the northwest corner of sec. 22, T. 17 N., R. 3 W.; in Sangamon County, Illinois; USGS Cornland topographic quadrangle; lat. 39 degrees 54 minutes 52 seconds N. and long. 89 degrees 24 minutes 54 seconds W., NAD 27:

Apk—0 to 9 inches; black (10YR 2/1) silty clay loam, very dark gray (10YR 3/1) dry; weak and moderate fine granular structure; friable; many fine roots throughout; few snail shells; violently effervescent; 15 percent calcium carbonate equivalent; moderately alkaline; abrupt smooth boundary.

Ak1—9 to 18 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate very fine and fine subangular blocky structure; friable; many fine roots throughout; few snail shells; violently effervescent; 22 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Ak2—18 to 22 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; moderate very fine and fine subangular blocky structure; firm; common fine roots throughout; few fine prominent light olive brown (2.5Y 5/6) masses of iron along micropores; few snail shells; violently effervescent; 22 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Btgk1—22 to 26 inches; dark gray (2.5Y 4/1) silty clay loam; moderate very fine and fine subangular blocky structure; firm; common fine roots throughout; common faint very dark gray (10YR 3/1) organo-clay films on faces of peds; common distinct black (10YR 2/1) organic coatings in root channels and/or pores; few fine prominent light olive brown (2.5Y 5/6) masses of iron along micropores; few fine carbonate nodules; strongly effervescent; 12 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Btgk2—26 to 32 inches; olive gray (5Y 5/2) silty clay loam; moderate fine and medium subangular blocky structure; firm; common fine roots throughout; few faint gray (5Y 5/1) clay films on faces of peds; common fine rounded prominent black (10YR 2/1) masses of manganese and common medium prominent light olive brown (2.5Y 5/6) and yellowish brown (10YR 5/6) masses of iron in the matrix; common medium and coarse carbonate nodules; strongly effervescent; 12 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Btgk3—32 to 38 inches; gray (5Y 6/1) silty clay loam; moderate fine and medium subangular blocky structure; firm; few faint gray (5Y 5/1) clay films on faces of peds; very few prominent very dark gray (10YR 3/1) organic coatings in root channels and/or pores; many fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; few fine carbonate nodules; strongly effervescent; 16 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

BCgk—38 to 44 inches; gray (5Y 6/1) silty clay loam; weak medium subangular blocky structure; firm; few faint gray (5Y 5/1) clay films in root channels and/or pores; few prominent very dark gray (10YR 3/1) organic coatings in root channels and/or pores; many fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/6) masses of iron in the matrix; few fine carbonate nodules; strongly effervescent; 16 percent calcium carbonate equivalent; moderately alkaline; clear smooth boundary.

Cg—44 to 80 inches; gray (5Y 6/1) silt loam; massive; friable; many medium prominent strong brown (7.5YR 5/8) masses of iron in the matrix; strongly effervescent; 19 percent calcium carbonate equivalent; moderately alkaline.

Range in Characteristics

Thickness of the loess: More than 80 inches
Thickness of the mollic epipedon: 10 to 24 inches
Thickness of the solum: 22 to 60 inches

Apk or Ak horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 or 3
Chroma—0 or 1
Texture—silty clay loam

Bgk or Btgk horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—3 to 6
Chroma—0 to 2
Texture—silty clay loam or silt loam

Cg horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 8
Texture—silt loam

712A—Spaulding silty clay loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines or depressions
Position on the landform: Toeslopes

Composition

Spaulding and similar soils: 91 percent
Dissimilar soils: 9 percent

Minor Components

Similar soils:
- Soils that have a thicker surface layer
- Soils that are not calcareous within a depth of 20 inches

Dissimilar soils:
- The poorly drained Sable soils in positions on the landscape similar to those of the Spaulding soil

Properties and Qualities of the Spaulding Soil

Parent material: Calcareous loess
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 12.8 inches
Content of organic matter in the surface layer: 4 to 6 percent
Shrink-swell potential: Moderate

Depth and months of the highest apparent seasonal high water table: At the surface, January to May
Ponding depth: 0.5 foot during wet periods
Flooding: None
Potential for frost action: High
Hazard of corrosion: High for steel and low for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2w
Prime farmland status: Prime farmland where drained
Hydric soil status: Hydric

Stronghurst Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs

Typical Pedon

Stronghurst silt loam, 0 to 2 percent slopes, at an elevation of 214 meters; 582 feet south and 78 feet west of the northeast corner of sec. 23, T. 16 N., R. 8 E.; in Bureau County, Illinois; USGS Wyanet topographic quadrangle; lat. 41 degrees 16 minutes 32 seconds N. and long. 89 degrees 31 minutes 47 seconds W., NAD 27:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate fine granular structure; very friable; few fine roots; common fine prominent black (5YR 2/1) accumulations of iron and manganese; neutral; abrupt smooth boundary.

E—8 to 13 inches; brown (10YR 5/3) silt loam; moderate thin and very thin platy structure; friable; few fine roots; common fine faint light brownish gray (10YR 6/2) and common fine distinct yellowish brown (10YR 5/6 and 5/8) redoximorphic features; common fine prominent black (5YR 2.5/1) accumulations of iron and manganese; strongly acid; clear smooth boundary.

Bt1—13 to 24 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; friable; few fine roots; many distinct grayish brown (10YR 5/2) clay films and many distinct light gray (10YR 7/2) silt coatings on faces of peds; common fine distinct light brownish gray (10YR 6/2), yellowish brown (10YR 5/8), and strong brown (7.5YR 5/6) redoximorphic features; common fine black (10YR 2/1) accumulations of iron and manganese; strongly acid; clear smooth boundary.

Bt2—24 to 30 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; many distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2), yellowish brown (10YR 5/8), and strong brown (7.5YR 5/6) redoximorphic features; common fine prominent black (10YR 2/1) accumulations of iron and manganese; strongly acid; clear smooth boundary.

Bt3—30 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium prismatic structure; friable; few fine roots; common distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct yellowish brown (10YR 5/8), strong brown (7.5YR 5/6), and light brownish gray (2.5Y 6/2) redoximorphic features; common fine black (10YR 2/1) accumulations of iron and manganese; strongly acid; clear smooth boundary.

Bt4—38 to 47 inches; yellowish brown (10YR 5/4) silty clay loam; moderate coarse prismatic structure; friable; few fine roots; few distinct grayish brown (10YR 5/2) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2 and 2.5Y 6/2) and yellowish brown (10YR 5/8) redoximorphic features; common fine prominent black (10YR 2/1) accumulations of iron and manganese; strongly acid; gradual smooth boundary.

C—47 to 60 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common fine faint strong brown (7.5YR 5/6) and common fine prominent light brownish gray (2.5Y 6/2) redoximorphic features; common fine black (10YR 2/1) accumulations of iron and manganese; moderately acid.

Range in Characteristics

Thickness of the solum: More than 42 inches
Depth to the top of the argillic horizon: 6 to 24 inches

Ap or A horizon:
Value—3 to 6
Chroma—1 or 2

E horizon:
Value—4 to 6
Chroma—2 or 3

Bt or Btg horizon:
Hue—10YR or 2.5Y
Value—4 to 6

Chroma—1 to 4
Texture—silty clay loam or silt loam

C or Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam or silty clay loam

278A—Stronghurst silt loam, 0 to 2 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Summits

Composition

Stronghurst and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have a darker surface layer
- Soils that have a seasonal high water table at a depth of less than 1 foot or more than 2 feet

Properties and Qualities of the Stronghurst Soil

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 11.9 inches
Content of organic matter in the surface layer: 1 to 3 percent
Shrink-swell potential: Moderate
Depth and months of the highest apparent seasonal high water table: 0.5 foot, January to May
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Low
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 2w
Prime farmland status: Prime farmland where drained
Hydric soil status: Not hydric

Thebes Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon (Official Series Description)

Thebes silt loam, 5 to 10 percent slopes, at an elevation of 655 feet; 1,060 feet west and 1,800 feet south of the northeast corner of sec. 3, T. 13 N., R. 3 W.; in Mercer County, Illinois; USGS Aledo East topographic quadrangle; lat. 41 degrees 09 minutes 02 seconds N. and long. 90 degrees 42 minutes 30 seconds W., NAD 27:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; slightly acid; clear smooth boundary.

Bt1—9 to 14 inches; yellowish brown (10YR 5/4) silty clay loam; weak fine and medium subangular blocky structure; friable; few faint brown (10YR 5/3) clay films on faces of peds; strongly acid; clear wavy boundary.

Bt2—14 to 26 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common faint brown (10YR 4/3) clay films on faces of peds; moderately acid; clear wavy boundary.

Bt3—26 to 31 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common faint brown (10YR 4/3) clay films; few medium faint pale brown (10YR 6/3) iron depletions and few medium distinct strong brown (7.5YR 4/6) iron concentrations; common prominent black (5YR 2.5/1) iron-manganese stains; slightly acid; clear wavy boundary.

2Bt4—31 to 40 inches; dark yellowish brown (10YR 4/4) loam; moderate medium subangular blocky structure; friable; few faint brown (10YR 4/3) clay films on faces of peds; common coarse faint pale brown (10YR 6/3) iron depletions and common coarse distinct strong brown (7.5YR 4/6) iron concentrations; common prominent black (5YR 2.5/1) iron-manganese stains; slightly acid; clear wavy boundary.

2BC—40 to 50 inches; yellowish brown (10YR 5/4) and brown (7.5YR 4/4), stratified sandy loam and loamy sand; weak medium subangular blocky structure; friable; few medium distinct pale brown (10YR 6/3) iron depletions; moderately acid; clear wavy boundary.

2C—50 to 80 inches; dark yellowish brown (10YR 4/4), stratified loamy sand and sand; massive;

friable; common medium and coarse faint brown (7.5YR 4/4) iron concentrations; slightly acid.

Range in Characteristics

Thickness of the loess or silty material: 20 to 40 inches
Thickness of the solum: 25 to 55 inches

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—1 to 4
Texture—silt loam or silty clay loam
Reaction—slightly acid or neutral

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam
Reaction—moderately acid or slightly acid

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam or silt loam
Reaction—very strongly acid to slightly acid

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—loam, sandy loam, fine sandy loam, sandy clay loam, or clay loam
Reaction—very strongly acid to slightly acid

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—loamy sand, fine sand, loamy fine sand, or sand; strata in some pedons
Reaction—very strongly acid to slightly acid

212D2—Thebes silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Thebes and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that have less than 20 inches of loess at the surface
- Soils that contain more sand throughout

Dissimilar soils:
- The well drained Greenbush and Rozetta soils on shoulders

Properties and Qualities of the Thebes Soil

Parent material: Loess over eolian sands
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 9.9 inches
Content of organic matter in the surface layer: 1 to 2 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

212D3—Thebes silty clay loam, 10 to 18 percent slopes, severely eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Thebes and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have less than 20 inches of loess at the surface
- Soils that contain more sand throughout

Dissimilar soils:
- The well drained Greenbush and Rozetta soils on shoulders

Properties and Qualities of the Thebes Soil

Parent material: Loess over eolian sands
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 10 inches
Content of organic matter in the surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer is mostly subsoil material.
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 4e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

212F—Thebes silt loam, 18 to 35 percent slopes

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Thebes and similar soils: 100 percent

Minor Components

Similar soils:
- Soils that have less than 20 inches of loess at the surface
- Soils that contain more sand throughout

Dissimilar soils:
- The well drained Greenbush and Rozetta soils on shoulders

Properties and Qualities of the Thebes Soil

Parent material: Loess over eolian sands
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 8.9 inches
Content of organic matter in the surface layer: 2 to 3 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: None or slight
Potential for frost action: High
Hazard of corrosion: Moderate for steel and moderate for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 6e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Timula Series

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Typic Eutrudepts
Map units in which this series occurs: 943D3

Typical Pedon

Timula silt loam, in an area of Seaton-Timula silt loams, 18 to 30 percent slopes, eroded, at an elevation of 213 meters; 1,080 feet east and 2,000 feet south of the northwest corner of sec. 29, T. 22 N., R. 5 E.; in Whiteside County, Illinois; USGS Morrison topographic quadrangle; lat. 41 degrees 52 minutes 03 seconds N. and long. 89 degrees 57 minutes 19 seconds W., NAD 27:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure parting to weak medium granular; friable; few fine roots throughout; few dark yellowish brown (10YR 4/4) fragments of subsoil material; neutral; abrupt smooth boundary.

Bw1—6 to 12 inches; yellowish brown (10YR 5/4) silt loam; moderate medium and fine subangular blocky structure; friable; few fine roots between peds; few faint brown (10YR 4/3) organic coatings and dark yellowish brown (10YR 4/4) films on faces of peds; neutral; clear smooth boundary.

Bw2—12 to 23 inches; yellowish brown (10YR 5/4) silt loam; weak coarse and medium subangular blocky structure; friable; few fine roots between peds;

common faint dark yellowish brown (10YR 4/4) films on faces of peds; neutral; clear smooth boundary.

BC—23 to 28 inches; yellowish brown (10YR 5/4) silt loam; weak coarse angular blocky structure; friable; few fine distinct yellowish brown (10YR 5/6) iron oxide masses in the matrix and light brownish gray (10YR 6/2) iron depletions; slightly effervescent; slightly alkaline; gradual smooth boundary.

C—28 to 60 inches; light yellowish brown (2.5Y 6/4) silt loam; massive; friable; common fine distinct yellowish brown (10YR 5/6) iron masses in the matrix and common fine distinct light gray (10YR 7/2) iron depletions; few fine soft masses of iron; strongly effervescent; slightly alkaline.

Range in Characteristics

Thickness of the solum: 18 to 40 inches
Depth to carbonates: 18 to 40 inches

Ap or A horizon:
Hue—10YR
Value—3 or 4
Chroma—1 to 3
Texture—silt loam or silt

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam or silt

Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silt

BC, Bk, or C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 or 6
Chroma—2 to 4
Texture—silt loam or silt

Velma Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Mollic Hapludalfs
Taxadjunct features: The Velma soils in this survey area have a thinner dark surface layer than is defined as the range for the series.

Typical Pedon

Velma silt loam, 10 to 18 percent slopes, eroded, at an elevation of 790 feet; 1,880 feet north and 260 feet east of the southwest corner of sec. 25, T. 14 N., R. 3 E.; in Henry County, Illinois; USGS Galva topographic quadrangle; lat. 41 degrees 10 minutes 12 seconds N. and long. 90 degrees 06 minutes 52 seconds W., NAD 27:

Ap—0 to 10 inches; very dark gray (10YR 3/1) and dark brown (10YR 3/3) silt loam, dark grayish brown (10YR 4/2) dry; weak fine and medium granular structure; friable; strongly acid; abrupt smooth boundary.

AB—10 to 13 inches; dark brown (10YR 3/3) and very dark gray (10YR 3/1) silt loam, grayish brown (10YR 5/2) and brown (10YR 5/3) dry; weak medium subangular blocky structure parting to weak fine and medium granular; friable; strongly acid; clear smooth boundary.

2Bt1—13 to 18 inches; dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; friable; distinct dark grayish brown (10YR 4/2) clay films; prominent very dark grayish brown (10YR 3/2) organic coatings; strongly acid; abrupt smooth boundary.

2Bt2—18 to 22 inches; yellowish brown (10YR 5/6 and 5/8) clay loam; weak medium subangular blocky structure; friable; distinct brown (10YR 4/3) clay films; strongly acid; clear smooth boundary.

2Bt3—22 to 27 inches; yellowish brown (10YR 5/4) clay loam; moderate medium subangular blocky structure; friable; faint brown (10YR 4/3) clay films; few fine prominent brownish yellow (10YR 6/8) iron accumulations; neutral; clear smooth boundary.

2Bt4—27 to 34 inches; yellowish brown (10YR 5/4 and 5/6) clay loam; moderate medium and coarse subangular and angular blocky structure; firm; faint brown (10YR 4/3) clay films; few medium distinct light brownish gray (10YR 6/2) iron depletions; neutral; clear smooth boundary.

2BC—34 to 44 inches; pale brown (10YR 6/3) and yellowish brown (10YR 5/6) clay loam; moderate medium and coarse angular blocky structure; firm; neutral; clear smooth boundary.

2C—44 to 60 inches; yellowish brown (10YR 5/4 and 5/6) clay loam; massive; firm; few fine distinct light gray (5Y 7/1) iron depletions; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Thickness of the loess: 0 to 20 inches
Thickness of the solum: 42 to more than 60 inches
Depth to carbonates: 42 to 60 inches

Ap or A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—silt loam or loam

Bt or 2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—clay loam or loam

C or 2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 to 8
Texture—clay loam, loam, or sandy loam

250D2—Velma silt loam, 10 to 18 percent slopes, eroded

Setting

Landform: Ground moraines
Position on the landform: Backslopes

Composition

Velma and similar soils: 92 percent
Dissimilar soils: 8 percent

Minor Components

Similar soils:
• Soils that have a lighter colored surface layer or contain more clay in the surface layer
• Soils that contain more clay in the subsoil

Dissimilar soils:
• The somewhat poorly drained Atlas soils on the upper slopes

Properties and Qualities of the Velma Soil

Parent material: Till
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 9.2 inches
Content of organic matter in the surface layer: 3 to 4 percent
Shrink-swell potential: Moderate
Flooding: None
Accelerated erosion: The surface layer has been thinned by erosion.
Potential for frost action: High
Hazard of corrosion: High for steel and high for concrete
Surface runoff class: Medium
Susceptibility to water erosion: High
Susceptibility to wind erosion: Slight

Interpretive Groups

Land capability classification: 3e
Prime farmland status: Not prime farmland
Hydric soil status: Not hydric

Westville Series

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Hapludalfs
Map units in which this series occurs: 895D

Typical Pedon

Westville loam, 10 to 18 percent slopes, eroded, at an elevation of 708 feet; 180 feet west and 1,920 feet north of the southeast corner of sec. 3, T. 14 N., R. 1 E.; in Henry County, Illinois; USGS Woodhull topographic quadrangle; lat. 41 degrees 13 minutes 47 seconds N. and long. 90 degrees 21 minutes 40 seconds W., NAD 27:

Ap—0 to 5 inches; mixed dark brown (10YR 3/3) and dark grayish brown (10YR 4/2) loam, mixed grayish brown (10YR 5/2) and brown (10YR 5/3) dry; moderate fine granular structure; friable; slightly acid; clear smooth boundary.

BA—5 to 9 inches; mixed brown (10YR 4/3) and dark brown (10YR 3/3) clay loam; moderate fine subangular blocky structure parting to moderate fine and medium granular; friable; moderately acid; clear smooth boundary.

Bt1—9 to 15 inches; brown (7.5YR 4/4) clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; common distinct brown (7.5YR 4/2) clay films on faces of peds; moderately acid; clear smooth boundary.

Bt2—15 to 23 inches; brown (7.5YR 4/4) clay loam; weak medium prismatic structure parting to weak fine and medium subangular blocky; firm; many faint reddish brown (5YR 4/4) clay films on faces of peds; few dark stains of iron and manganese; strongly acid; gradual smooth boundary.

Bt3—23 to 35 inches; reddish brown (5YR 4/4) clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; common faint reddish brown (5YR 4/3) clay films on faces of peds; few dark stains of iron and manganese; moderately acid; gradual smooth boundary.

Bt4—35 to 45 inches; yellowish red (5YR 4/4) sandy

clay loam; weak medium prismatic structure parting to weak fine and medium subangular blocky; firm; common distinct reddish brown (5YR 4/4) clay films on faces of peds; moderately acid; gradual smooth boundary.

BC1—45 to 58 inches; strong brown (7.5YR 5/4) sandy clay loam; weak medium subangular and angular blocky structure; firm; strongly acid; gradual smooth boundary.

BC2—58 to 60 inches; strong brown (7.5YR 5/4) sandy clay loam; weak fine and medium subangular blocky structure; firm; moderately acid.

Range in Characteristics

Thickness of the solum: 48 to more than 60 inches
Thickness of the loess: Less than 15 inches

Ap or A horizon:
Hue—10YR
Value—2 to 4
Chroma—2 or 3
Texture—loam or silt loam

E horizon (if it occurs):
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Texture—loam or silt loam

Bt and BC horizons:
Hue—5YR, 7.5YR, or 10YR
Value—3 to 6
Chroma—3 or 4
Texture—clay loam or sandy clay loam

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—sandy loam or loam

Zook Series

Taxonomic classification: Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Typical Pedon

Zook silty clay loam, frequently flooded, at an elevation of 590 feet; 2,640 feet west and 1,200 feet south of the northeast corner of sec. 22, T. 12 N., R. 3 W; in Warren County, Illinois; USGS Little York topographic quadrangle; lat. 41 degrees 01 minute 14 seconds N. and long. 90 degrees 43 minutes 03 seconds W., NAD 27:

Ap—0 to 8 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate fine subangular blocky structure; friable; slightly acid; clear smooth boundary.

A—8 to 22 inches; very dark gray (N 3/0) silty clay, gray (N 5/0) dry; moderate fine subangular blocky structure; firm; slightly acid; clear smooth boundary.

Bg1—22 to 38 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; weak fine prismatic structure parting to moderate fine subangular and angular blocky; firm; few fine prominent strong brown (7.5YR 5/6) redoximorphic features; neutral; clear wavy boundary.

Bg2—38 to 55 inches; dark gray (5Y 4/1) silty clay; weak medium prismatic structure parting to moderate fine subangular and angular blocky; firm; common faint very dark gray (5Y 3/1) organic coatings in root channels and krotovinas; common medium faint olive gray (5Y 5/2) and common medium prominent strong brown (7.5YR 5/6) redoximorphic features; neutral; clear wavy boundary.

BCg—55 to 60 inches; olive gray (5Y 5/2) silty clay loam; weak fine and medium subangular blocky structure; firm; common faint gray (5Y 5/1) organic coatings in root channels and on faces of peds; common medium prominent strong brown (7.5YR 5/6) redoximorphic features; neutral.

Range in Characteristics

Ap or A horizon:
Hue—10YR, 2.5Y, or N
Chroma—0 to 2

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or N
Value—2 to 6
Chroma—0 or 1
Texture—silty clay or silty clay loam

1405A—Zook silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Composition

Zook and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that contain less clay

Dissimilar soils:
- The somewhat poorly drained Radford soils on flood plains

Properties and Qualities of the Zook Soil

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 8.2 inches
Content of organic matter in the surface layer: 4 to 5 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January to June
Ponding depth: 0.5 foot during wet periods
Frequency and most likely period of flooding: Frequent, November to June
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 5w
Prime farmland status: Not prime farmland
Hydric soil status: Hydric

3405A—Zook silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform: Flood plains

Composition

Zook and similar soils: 97 percent
Dissimilar soils: 3 percent

Minor Components

Similar soils:
- Soils that contain less clay

Dissimilar soils:
- The somewhat poorly drained Radford soils on flood plains

Properties and Qualities of the Zook Soil

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow or moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity to a depth of 60 inches: About 8.2 inches
Content of organic matter in the surface layer: 4 to 5 percent
Shrink-swell potential: High
Depth and months of the highest apparent seasonal high water table: At the surface, January to May
Frequency and most likely period of flooding: Frequent, November to June
Potential for frost action: High
Hazard of corrosion: High for steel and moderate for concrete
Surface runoff class: Negligible
Susceptibility to water erosion: Slight
Susceptibility to wind erosion: Very slight

Interpretive Groups

Land capability classification: 3w
Prime farmland status: Prime farmland where drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil status: Hydric

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of reclamation material, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair, poor*, and *very poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Soil Series and Detailed Soil Map Units.” Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Crop Yield Estimates

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of the soils also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents (Fehrenbacher and others, 1978). Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage; erosion control; protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The relative productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Pasture yields.—Under good management, proper grazing is essential for the production of high-quality forage, stand survival, and erosion control. Proper grazing helps plants to maintain sufficient and generally vigorous top growth during the growing season. Brush control is essential in many areas, and weed control generally is needed. Rotation grazing and renovation also are important management practices.

Yield estimates are often provided in animal unit months (AUM), or the amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about forage yields other than those shown in table 6.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not take into account major and generally expensive landshaping that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils generally are grouped at three levels—capability class, subclass, and unit (USDA, 1961). These categories indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, soybeans, small grain, and hay. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes 1, 2, 3, and 4 are suitable for the mechanized production of commonly grown field crops and for pasture and forestland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class 1 to class 4. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes 5, 6, and 7 are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class 5 to class 7. The local office of the Cooperative Extension Service or the Natural Resources Conservation Service can provide guidance on the use of these soils as cropland.

Areas in class 8 are generally not suited to crops, pasture, or forestland without a level of management

that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses identify the dominant kind of limitation in the class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class 1 because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, forestland, wildlife habitat, or recreation.

The capability classification of the soils in the survey area is given in table 6.

Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or forestland or for other purposes. They either are used for food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland where these limitations are overcome by drainage measures, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

About 157,918 acres in the survey area, or nearly 55 percent of the total acreage, meets the soil requirements for prime farmland.

The map units in the survey area that meet the criteria for prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the table, measures that overcome limitations are needed. The need for these measures is indicated in parentheses after the map unit name. The location of each map unit is shown on the detailed soil maps. The soil qualities that affect use and management are described in the section "Soil Series and Detailed Soil Map Units."

Forestland Management and Productivity

The tables in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forestland management.

Forestland Productivity

In table 8, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

In tables 9a, 9b, 9c, 9d, and 9e, interpretive ratings are given for various aspects of forestland management. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified forestland management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forestland management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

Rating class terms for seedling mortality are expressed as *low, moderate,* and *high*. Where these terms are used, the numerical ratings indicate gradations between the point at which the potential for seedling mortality is highest (1.00) and the point at which the potential is lowest (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forestland management practices. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

For *limitations affecting construction of haul roads and log landings*, the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of *slight* indicates that no significant limitations affect construction activities, *moderate* indicates that one or more limitations can cause some difficulty in construction, and *severe* indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *soil rutting hazard* are based on depth to a water table, rock fragments on or below the surface, the Unified classification, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that the soil is subject to little or no rutting, *moderate* indicates that rutting is likely, and *severe* indicates that ruts form readily.

Ratings in the column *hazard of off-road or off-trail erosion* are based on slope and on soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing,

mining, or other kinds of disturbance. The hazard is described as slight, moderate, severe, or very severe. A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions; *moderate* indicates that some erosion is likely and that erosion-control measures may be needed; *severe* indicates that erosion is very likely and that erosion-control measures, including revegetation of bare areas, are advised; and *very severe* indicates that significant erosion is expected, loss of soil productivity and off-site damage are likely, and erosion-control measures are costly and generally impractical.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the column *suitability for mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 1 foot is considered in the ratings.

Ratings in the column *suitability for mechanical site preparation (deep)* are based on slope, depth to a restrictive layer, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, poorly suited, or unsuited to this management activity. The part of the soil from the surface to a depth of about 3 feet is considered in the ratings.

Ratings in the column *potential for seedling mortality* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. The soils are described as having a low, moderate, or high potential for seedling mortality.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Table 10 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in table 10 are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Recreation

The soils of the survey area are rated in tables 11a and 11b according to limitations that affect their suitability for recreation. The ratings are both verbal

and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 11a and 11b can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site

preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 12, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, soybeans, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are bromegrass, timothy, orchardgrass, clover, alfalfa, wheatgrass, and birdsfoot trefoil.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestems, indiangrass, blueberry, goldenrod, dandelions, blackberry, ragweed, wheatgrass, and nightshade.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, birch, maple, green ash, willow, and American elm.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and tamarack.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction,

salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, rushes, sedges, bulrushes, wild rice, arrowhead, waterplantain, cattail, prairie cordgrass, bluejoint grass, asters, and beggarticks.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include Hungarian partridge, ring-necked pheasant, bobwhite quail, sharp-tailed grouse, meadowlark, field sparrow, killdeer, cottontail rabbit, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, thrushes, woodpeckers, owls, tree squirrels, porcupine, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 1995). These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 1998) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 1998).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

Table 13 identifies hydric soils in Warren County and also nonhydric soils that may have hydric inclusions. This information can help in planning land uses; however, onsite investigation is recommended to

determine whether hydric soils occur and the location of the included hydric soils (National Research Council, 1995; Hurt and others, 1998).

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of earthfill and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 14a and 14b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories

or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 15 shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome

without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin

layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 16 gives information about the soils as potential sources of reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable

material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Tables 17a and 17b give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; aquifer-fed excavated ponds; constructing grassed waterways and surface drains; constructing terraces and diversions; and tile drains and underground outlets. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Grassed waterways and surface drains are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways and surface drains. A hazard of wind erosion, a low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Tile drains and underground outlets are used in some areas to remove excess subsurface and surface water from the soil. The ratings in the table apply to the soil in its undisturbed condition and do not include

consideration of current land use. Depth to bedrock, a dense layer, or a cemented pan, the content of large stones, and the content of clay influence the ease of digging, filling, and compacting. A seasonal high water table, ponding, and flooding may restrict the period when excavations can be made. The slope influences the use of machinery. Soil texture and depth to the water table influence the resistance to sloughing. Subsidence of organic layers influences grade and stability of tile drains.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

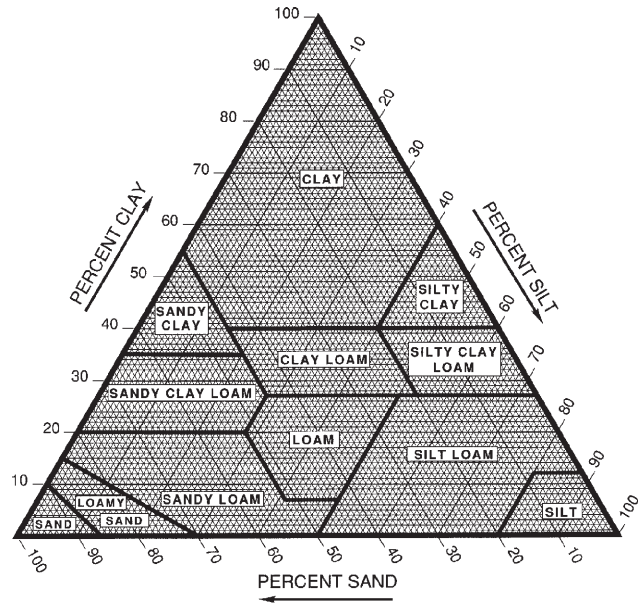


Figure 5.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 18 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 5). “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained

and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 19 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is

considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 19, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 19 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. Descriptions of these groups are available in the "National Soil Survey Handbook" (USDA, 2003).

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 20 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity

hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

Table 21 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 21 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Also shown in table 21 is the kind of water table—that is, apparent or perched. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 21 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions

(the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 22 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Beach deposits. Material, such as sand and gravel, that is generally laid down parallel to an active or relict shoreline of a postglacial or glacial lake.

Beach ridge. A low, essentially continuous mound of beach or beach-and-dune material accumulated by the action of waves and currents on the backshore of a beach, beyond the present limit of storm waves or the reach of ordinary tides. The ridges are roughly parallel to the shoreline and represent successive positions of an advancing shoreline.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles.

Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or "chain," of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clayey soil. Silty clay, sandy clay, or clay.

Closed depression. A low area completely surrounded by higher ground and having no natural outlet.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain splay. A fan-shaped deposit or other outspread deposit formed where an overloaded

stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Glacial drift (geology). Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash (geology). Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till (geology). Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Glaciated uplands. Land areas that were previously covered by continental or alpine glaciers and that are at a higher elevation than the flood plain.

Glaciofluvial deposits (geology). Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits (geology). Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of

transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Typical methods of irrigation used in the survey area are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit (geology). Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at

$^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

MLRA (Major Land Resource Area). A geographic area characterized by a particular pattern of land uses, elevation and topography, soils, climate, water resources, and potential natural vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Particle-size control section. The part of the soil profile on which calculations of particle-size classes are based. The thickness can vary depending on specific soil properties, but for many soils the particle-size control section is from 25 to 100 centimeters.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rocklined pits.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (K_{sat}). See Permeability.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average

height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slackwater. A still body of water in a stream.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Understory. Any plants in a forest community that grow to a height of less than 5 feet.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1971-2000 at Monmouth, Illinois)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	31.3	14.6	23.0	58	-18	0	1.62	0.73	2.38	4	8.7
February---	37.7	20.3	29.0	67	-12	2	1.72	.89	2.45	4	5.8
March------	50.4	30.2	40.3	80	4	39	2.85	1.46	4.07	6	3.3
April------	63.9	40.4	52.2	87	19	153	3.76	2.15	5.19	7	1.5
May--------	74.5	50.8	62.7	91	33	397	4.27	2.63	5.74	8	.0
June-------	83.1	60.1	71.6	96	44	650	4.26	2.43	5.88	6	.0
July-------	86.6	64.1	75.4	99	48	789	4.33	2.05	6.30	6	.0
August-----	84.4	61.7	73.1	97	46	713	4.01	1.97	5.79	5	.0
September--	77.7	53.7	65.7	94	33	468	3.45	1.47	5.12	5	.0
October----	65.6	43.1	54.3	86	22	188	2.97	1.60	4.18	5	.1
November---	49.2	31.4	40.3	74	8	30	2.74	1.28	4.01	5	2.3
December---	35.7	20.0	27.8	63	-10	3	2.32	1.24	3.28	5	6.8
Yearly:											
Average---	61.7	40.9	51.3	---	---	---	---	---	---	---	---
Extreme---	104	-25	---	99	-19	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,434	38.31	31.95	44.39	66	28.5

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Monmouth, Illinois)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 16	Apr. 20	May 1
2 years in 10 later than--	Apr. 10	Apr. 16	Apr. 27
5 years in 10 later than--	Mar. 31	Apr. 8	Apr. 18
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 22	Oct. 8	Sept. 27
2 years in 10 earlier than--	Oct. 27	Oct. 14	Oct. 3
5 years in 10 earlier than--	Nov. 5	Oct. 25	Oct. 13

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Monmouth, Illinois)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	200	180	155
8 years in 10	206	186	163
5 years in 10	218	199	177
2 years in 10	231	212	191
1 year in 10	237	219	199

Table 4.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
*Assumption	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Atlas	Fine, smectitic, mesic Aeric Chromic Vertic Epiaqualfs
Atterberry	Fine-silty, mixed, superactive, mesic Udollic Endoaqualfs
*Biggsville	Fine-silty, mixed, superactive, mesic Typic Hapludolls
Clarksdale	Fine, smectitic, mesic Udollic Endoaqualfs
Coffeen	Coarse-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Denny	Fine, smectitic, mesic Mollic Albaqualfs
Dunbarton	Clayey, smectitic, mesic Lithic Hapludalfs
Elco	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
*Elkhart	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Fayette	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Greenbush	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Hickory	Fine-loamy, mixed, active, mesic Typic Hapludalfs
Ipava	Fine, smectitic, mesic Aquic Argiudolls
Joy	Fine-silty, mixed, superactive, mesic Aquic Hapludolls
Keomah	Fine, smectitic, mesic Aeric Endoaqualfs
Lawson	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Littleton	Fine-silty, mixed, superactive, mesic Aquic Cumulic Hapludolls
Mannon	Fine-silty, mixed, superactive, mesic Mollic Hapludalfs
Marseilles	Fine-silty, mixed, active, mesic Typic Hapludalfs
Muscatune	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Orion	Coarse-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents
Orthents	Fine-loamy, mixed, active, nonacid, mesic Typic Udorthents
*Osco	Fine-silty, mixed, superactive, mesic Typic Argiudolls
Raddle	Fine-silty, mixed, superactive, mesic Typic Hapludolls
Radford	Fine-silty, mixed, superactive, mesic Fluvaquentic Hapludolls
Rozetta	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Sable	Fine-silty, mixed, superactive, mesic Typic Endoaquolls
Sawmill	Fine-silty, mixed, superactive, mesic Cumulic Endoaquolls
Seaton	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Spaulding	Fine-silty, mixed, superactive, mesic Typic Calciaquolls
Stronghurst	Fine-silty, mixed, superactive, mesic Aeric Endoaqualfs
Thebes	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Timula	Coarse-silty, mixed, superactive, mesic Typic Eutrudepts
*Velma	Fine-loamy, mixed, superactive, mesic Mollic Hapludalfs
Westville	Fine-loamy, mixed, superactive, mesic Typic Hapludalfs
Zook	Fine, smectitic, mesic Cumulic Vertic Endoaquolls

Table 5.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
8D2	Hickory silt loam, 10 to 18 percent slopes, eroded	5,115	1.5
8D3	Hickory clay loam, 10 to 18 percent slopes, severely eroded	517	0.1
8F	Hickory silt loam, 18 to 35 percent slopes	7,569	2.2
8G	Hickory silt loam, 35 to 60 percent slopes	3,409	1.0
17A	Keomah silt loam, 0 to 2 percent slopes	1,925	0.6
43A	Ipava silt loam, 0 to 2 percent slopes	8,632	2.5
43B	Ipava silt loam, 2 to 5 percent slopes	5,134	1.5
45A	Denny silt loam, 0 to 2 percent slopes	326	*
51A	Muscatune silt loam, 0 to 2 percent slopes	70,260	20.2
61A	Atterberry silt loam, 0 to 2 percent slopes	490	0.1
68A	Sable silty clay loam, 0 to 2 percent slopes	41,220	11.8
68A+	Sable silt loam, 0 to 2 percent slopes, overwash	339	*
81A	Littleton silt loam, 0 to 2 percent slopes	519	0.1
86B	Osco silt loam, 2 to 5 percent slopes	58,783	16.9
86B2	Osco silt loam, 2 to 5 percent slopes, eroded	11,423	3.3
86C2	Osco silt loam, 5 to 10 percent slopes, eroded	22,796	6.5
86C3	Osco silty clay loam, 5 to 10 percent slopes, severely eroded	1,253	0.4
86D2	Osco silt loam, 10 to 18 percent slopes, eroded	1,144	0.3
119D2	Elco silt loam, 10 to 18 percent slopes, eroded	4,124	1.2
119E2	Elco silt loam, 18 to 25 percent slopes, eroded	2,756	0.8
212D2	Thebes silt loam, 10 to 18 percent slopes, eroded	146	*
212D3	Thebes silty clay loam, 10 to 18 percent slopes, severely eroded	6	*
212F	Thebes silt loam, 18 to 35 percent slopes	101	*
250D2	Velma silt loam, 10 to 18 percent slopes, eroded	1,378	0.4
257A	Clarksdale silt loam, 0 to 2 percent slopes	2,282	0.7
259C2	Assumption silt loam, 5 to 10 percent slopes, eroded	2,794	0.8
259D2	Assumption silt loam, 10 to 18 percent slopes, eroded	4,811	1.4
274C2	Seaton silt loam, 5 to 10 percent slopes, eroded	419	0.1
274D	Seaton silt loam, 10 to 18 percent slopes	380	0.1
275A	Joy silt loam, 0 to 2 percent slopes	1,040	0.3
278A	Stronghurst silt loam, 0 to 2 percent slopes	317	*
279B	Rozetta silt loam, 2 to 5 percent slopes	14,071	4.0
279C2	Rozetta silt loam, 5 to 10 percent slopes, eroded	11,974	3.4
279C3	Rozetta silty clay loam, 5 to 10 percent slopes, severely eroded	1,590	0.5
280B	Fayette silt loam, 2 to 5 percent slopes	102	*
280C2	Fayette silt loam, 5 to 10 percent slopes, eroded	475	0.1
280D2	Fayette silt loam, 10 to 18 percent slopes, eroded	4,055	1.2
280D3	Fayette silty clay loam, 10 to 18 percent slopes, severely eroded	786	0.2
430B	Raddle silt loam, 2 to 5 percent slopes	559	0.2
505G	Dunbarton silt loam, 18 to 60 percent slopes	519	0.1
549D2	Marseilles silt loam, 10 to 18 percent slopes, eroded	867	0.2
549F	Marseilles silt loam, 18 to 35 percent slopes	1,568	0.5
549G	Marseilles silt loam, 35 to 60 percent slopes	1,124	0.3
567C2	Elkhart silt loam, 5 to 10 percent slopes, eroded	108	*
567D3	Elkhart silty clay loam, 10 to 18 percent slopes, severely eroded	397	0.1
671B	Biggsville silt loam, 2 to 5 percent slopes	2,433	0.7
671C2	Biggsville silt loam, 5 to 10 percent slopes, eroded	1,040	0.3
675B	Greenbush silt loam, 2 to 5 percent slopes	6,457	1.9
675C2	Greenbush silt loam, 5 to 10 percent slopes, eroded	2,022	0.6
678B	Mannon silt loam, 2 to 5 percent slopes	214	*
712A	Spaulding silty clay loam, 0 to 2 percent slopes	422	0.1
802B	Orthents, loamy, undulating	317	*
835G	Earthen dam	14	*
864	Pits, quarries	280	*
895D	Fayette-Westville complex, 10 to 18 percent slopes	692	0.2
936D2	Fayette-Hickory silt loams, 10 to 18 percent slopes, eroded	1,587	0.5
936G	Fayette-Hickory silt loams, 35 to 60 percent slopes	1,484	0.4
943D3	Seaton-Timula silt loams, 10 to 18 percent slopes, severely eroded	338	*
957D2	Elco-Atlas silt loams, 10 to 18 percent slopes, eroded	1,607	0.5
957D3	Elco-Atlas silty clay loams, 10 to 18 percent slopes, severely eroded	3,540	1.0
1405A	Zook silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	74	*
3074A	Radford silt loam, 0 to 2 percent slopes, frequently flooded	5,893	1.7

See footnote at end of table.

Table 5.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
3107+	Sawmill silt loam, 0 to 2 percent slopes, frequently flooded, overwash	2,663	0.8
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	2,107	0.6
3405A	Zook silty clay loam, 0 to 2 percent slopes, frequently flooded	1,050	0.3
3415A	Orion silt loam, 0 to 2 percent slopes, frequently flooded	6,684	1.9
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded	5,541	1.6
7428A	Coffeen silt loam, 0 to 2 percent slopes, rarely flooded	155	*
9017A	Keomah silt loam, terrace, 0 to 2 percent slopes	162	*
9086B	Osco silt loam, terrace, 2 to 5 percent slopes	170	*
9279B	Rozetta silt loam, terrace, 2 to 5 percent slopes	397	0.1
9279C2	Rozetta silt loam, terrace, 5 to 10 percent slopes, eroded	223	*
9675B	Greenbush silt loam, terrace, 2 to 5 percent slopes	104	*
M-W	Miscellaneous water	97	*
W	Water	730	0.2
	Total	348,100	100.0

* Less than 0.1 percent.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Oats	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM*
8D2 Hickory	3e	72	50	23	26	2.7	4.5
8D3 Hickory	4e	66	46	22	24	2.5	4.2
8F Hickory	6e	---	---	---	---	2.4	4.0
8G Hickory	7e	---	---	---	---	---	---
17A Keomah	2w	129	72	39	52	5.1	8.5
43A Ipava	1	163	91	52	66	6.1	10.1
43B Ipava	2e	161	90	51	65	6.0	10.1
45A Denny	3w	113	62	37	47	4.0	6.7
51A Muscatune	1	167	95	51	64	6.2	10.3
61A Atterberry	1	149	85	44	60	5.6	9.3
68A Sable	2w	156	85	51	61	5.6	9.3
68A+ Sable	2w	156	85	51	61	5.6	9.3
81A Littleton	1	159	90	50	63	6.1	10.1
86B Osco	2e	153	88	46	61	5.8	9.7
86B2 Osco	2e	149	85	44	60	5.7	9.4
86C2 Osco	3e	146	84	43	58	5.5	9.2
86C3 Osco	4e	135	77	40	54	5.1	8.6
86D2 Osco	3e	140	80	41	56	5.3	8.9
119D2 Elco	3e	100	57	33	42	3.9	6.5

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Oats	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM*
119E2---------- Elco	6e	---	---	---	---	3.7	6.2
212D2---------- Thebes	3e	90	66	32	41	3.6	6.0
212D3---------- Thebes	4e	83	61	29	38	3.3	5.5
212F---------- Thebes	6e	---	---	---	---	3.2	5.3
250D2---------- Velma	3e	106	65	35	46	4.1	6.9
257A---------- Clarksdale	1	140	79	43	57	5.3	8.8
259C2---------- Assumption	3e	120	72	37	53	4.7	7.8
259D2---------- Assumption	4e	115	69	35	50	4.5	7.5
274C2---------- Seaton	3e	111	65	33	46	4.5	7.5
274D---------- Seaton	3e	110	64	33	46	4.5	7.4
275A---------- Joy	1	161	92	48	63	6.1	10.2
278A---------- Stronghurst	2w	138	76	42	55	5.3	8.8
279B---------- Rozetta	2e	130	72	40	53	5.1	8.6
279C2---------- Rozetta	3e	123	69	38	51	4.9	8.2
279C3---------- Rozetta	4e	114	64	35	47	4.5	7.5
280B---------- Fayette	2e	128	72	39	52	5.1	8.6
280C2---------- Fayette	3e	121	69	37	50	4.9	8.1
280D2---------- Fayette	3e	116	61	35	48	4.7	7.8
280D3---------- Fayette	4e	107	61	32	44	4.3	7.2
430B---------- Raddle	2e	148	82	45	58	5.7	9.6
505G---------- Dunbarton	7e	---	---	---	---	---	---

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Oats	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM*
549D2---------- Marseilles	4e	90	56	31	40	3.8	6.3
549F---------- Marseilles	7e	---	---	---	---	---	---
549G---------- Marseilles	7e	---	---	---	---	---	---
567C2---------- Elkhart	3e	124	69	37	50	4.8	8.0
567D3---------- Elkhart	4e	110	61	32	44	4.2	7.1
671B---------- Biggsville	2e	149	87	45	60	5.5	9.2
671C2---------- Biggsville	3e	141	83	42	57	5.3	8.8
675B---------- Greenbush	2e	147	82	42	57	5.5	9.2
675C2---------- Greenbush	3e	139	78	40	55	5.3	8.8
678B---------- Mannon	2e	136	75	43	56	5.3	8.7
712A---------- Spaulding	2w	138	76	44	---	---	---
802B---------- Orthents	2e	---	---	---	---	---	---
835G. Earthen dam							
864. Pits, quarries							
895D---------- Fayette-Westville	4e	114	64	35	47	4.4	7.4
936D2----------		96	59	23	38	3.8	6.3
Fayette----------	4e						
Hickory----------	3e						
936G---------- Fayette-Hickory	7e	---	---	---	---	---	---
943D3---------- Seaton-Timula	6e	---	---	---	---	3.7	6.1
957D2----------		85	50	27	33	3.2	4.3
Elco----------	3e						
Atlas----------	4e						

See footnote at end of table.

Table 6.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability	Corn	Oats	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM*
957D3		---	---	---	---	2.8	4.7
Elco	4e						
Atlas	6e						
1405A	5w	---	---	---	---	---	---
Zook							
3074A	3w	129	---	41	---	5.0	8.4
Radford							
3107+	3w	132	---	42	---	5.0	8.3
Sawmill							
3107A	3w	132	---	42	---	5.0	8.3
Sawmill							
3405A	3w	83	---	32	---	3.2	5.3
Zook							
3415A	3w	80	---	26	---	4.2	7.0
Orion							
3451A	3w	145	77	43	56	5.1	8.6
Lawson							
7428A	1	152	79	47	57	5.8	9.7
Coffeen							
9017A	2w	129	72	39	52	5.1	8.5
Keomah							
9086B	2e	153	88	46	61	5.8	9.7
Osco							
9279B	2e	130	72	40	53	5.1	8.6
Rozetta							
9279C2	3e	123	69	38	51	4.9	8.1
Rozetta							
9675B	2e	147	82	43	58	5.5	9.2
Greenbush							

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

Table 7.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
17A	Keomah silt loam, 0 to 2 percent slopes (where drained)
43A	Ipava silt loam, 0 to 2 percent slopes
43B	Ipava silt loam, 2 to 5 percent slopes
45A	Denny silt loam, 0 to 2 percent slopes (where drained)
51A	Muscatune silt loam, 0 to 2 percent slopes
61A	Atterberry silt loam, 0 to 2 percent slopes (where drained)
68A	Sable silty clay loam, 0 to 2 percent slopes (where drained)
68A+	Sable silt loam, 0 to 2 percent slopes, overwash (where drained)
81A	Littleton silt loam, 0 to 2 percent slopes
86B	Osco silt loam, 2 to 5 percent slopes
86B2	Osco silt loam, 2 to 5 percent slopes, eroded
257A	Clarksdale silt loam, 0 to 2 percent slopes (where drained)
275A	Joy silt loam, 0 to 2 percent slopes
278A	Stronghurst silt loam, 0 to 2 percent slopes (where drained)
279B	Rozetta silt loam, 2 to 5 percent slopes
280B	Fayette silt loam, 2 to 5 percent slopes
430B	Raddle silt loam, 2 to 5 percent slopes
671B	Biggsville silt loam, 2 to 5 percent slopes
675B	Greenbush silt loam, 2 to 5 percent slopes
678B	Mannon silt loam, 2 to 5 percent slopes
712A	Spaulding silty clay loam, 0 to 2 percent slopes (where drained)
3074A	Radford silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3107+	Sawmill silt loam, 0 to 2 percent slopes, frequently flooded, overwash (where drained and either protected from flooding or not frequently flooded during the growing season)
3107A	Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3405A	Zook silty clay loam, 0 to 2 percent slopes, frequently flooded (where drained and either protected from flooding or not frequently flooded during the growing season)
3415A	Orion silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
3451A	Lawson silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
7428A	Coffeen silt loam, 0 to 2 percent slopes, rarely flooded
9017A	Keomah silt loam, terrace, 0 to 2 percent slopes (where drained)
9086B	Osco silt loam, terrace, 2 to 5 percent slopes
9279B	Rozetta silt loam, terrace, 2 to 5 percent slopes
9675B	Greenbush silt loam, terrace, 2 to 5 percent slopes

Table 8.--Forestland Productivity

(Only the soils that are suitable for forestland management are listed)

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
8D2, 8D3, 8F:				
Hickory	Bitternut hickory	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Black oak	---	---	
	Green ash	---	---	
	Northern red oak	85	72	
	Tuliptree	95	100	
	White oak	85	72	
8G:				
Hickory	Black oak	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Bitternut hickory	---	---	
	Green ash	---	---	
	Northern red oak	85	72	
	White oak	85	72	
17A:				
Keomah	Northern red oak	70	57	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak
	White oak	65	43	
119D2, 119E2:				
Elco	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	85	72	
	White oak	85	72	
212D2, 212D3, 212F:				
Thebes	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	---	---	
	Tuliptree	---	---	
	White oak	80	57	

Table 8.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
274C2, 274D:				
Seaton	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	90	72	
279B, 279C2, 279C3:				
Rozetta	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	80	57	
280B, 280C2, 280D2, 280D3:				
Fayette	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	80	57	
505G:				
Dunbarton	Black oak	---	---	Eastern redcedar, eastern white pine, jack pine, red pine
	Northern red oak	61	57	
	Shagbark hickory	---	---	
	White oak	---	---	
549D2, 549F:				
Marseilles	Black oak	---	---	Black oak, common hackberry, eastern white pine, green ash
	Northern red oak	66	43	
	White ash	---	---	
	White oak	66	29	
549G:				
Marseilles	White oak	66	29	Black oak, common hackberry, eastern white pine, green ash
675B, 675C2:				
Greenbush	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	80	57	

Table 8.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
678B:				
Mannon	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	White oak	80	57	
895D:				
Fayette	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	80	57	
Westville	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	White oak	80	57	
936D2, 936G:				
Fayette	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	80	57	
Hickory	Bitternut hickory	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Black oak	---	---	
	Green ash	---	---	
	Northern red oak	85	72	
	Tuliptree	95	100	
	White oak	85	72	

Table 8.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
943D3:				
Seaton	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	90	72	
Timula	Bur oak	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Green ash	---	---	
	Northern red oak	---	---	
	White oak	70	57	
957D2, 957D3:				
Elco	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	---	---	
	White oak	80	57	
Atlas	Bur oak	70	57	Black oak, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash
	Green ash	---	---	
	Northern red oak	70	57	
	White oak	70	57	
1405A:				
Zook	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak, sweetgum, tamarack, water hickory
3074A:				
Radford	Eastern cottonwood	---	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak
	Pin oak	96	72	
	Sweetgum	86	100	
	Tuliptree	90	86	
	White ash	---	---	

Table 8.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber (cu ft/ac)	Trees to manage
3107+, 3107A:				
Sawmill	American sycamore	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak, sweetgum, tamarack
	Cherrybark oak	---	---	
	Eastern cottonwood	---	---	
	Pin oak	90	72	
	Sweetgum	---	---	
3405A:				
Zook	---	---	---	Common hackberry, eastern cottonwood, green ash, pin oak, river birch, swamp white oak, sweetgum
3415A:				
Orion	Red maple	---	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak
	Silver maple	80	29	
	White ash	---	---	
3451A:				
Lawson	Silver maple	70	29	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak
	White ash	---	---	
7428A:				
Coffeen	Eastern cottonwood	100	---	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak
	Pin oak	90	72	
	Tuliptree	90	86	
9017A:				
Keomah	Northern red oak	70	57	Common hackberry, common persimmon, eastern cottonwood, green ash, pecan, pin oak, swamp white oak
	White oak	65	43	

Table 8.--Forestland Productivity--Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
9279B, 9279C2:				
Rozetta	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pecan, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	80	57	
9675B:				
Greenbush	Black walnut	---	---	Black walnut, eastern cottonwood, eastern white pine, green ash, northern red oak, pin oak, tuliptree, white oak
	Northern red oak	80	57	
	Tuliptree	90	86	
	White oak	80	57	

Table 9a.--Forestland Management

(Only the soils that are suitable for forestland management are listed. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
8F:						
Hickory	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
8G:						
Hickory	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
17A:						
Keomah	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
119D2:						
Elco	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
119E2:						
Elco	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
212D2, 212D3:						
Thebes	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
212F:						
Thebes	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
274C2:						
Seaton	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
274D:						
Seaton	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
278A:						
Stronghurst	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		

Table 9a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279B:						
Rozetta	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
279C2, 279C3:						
Rozetta	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
280B:						
Fayette	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
280C2:						
Fayette	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
280D2, 280D3:						
Fayette	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
505G:						
Dunbarton	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
549D2:						
Marseilles	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
549F:						
Marseilles	Moderate		Poorly suited		Severe	
	Slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
549G:						
Marseilles	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
671B:						
Biggsville	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
671C2:						
Biggsville	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		
675B:						
Greenbush	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
675C2:						
Greenbush	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		

Table 9a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
678B:						
Mannon	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
895D:						
Fayette	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
Westville	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
936D2:						
Fayette	Slight		Poorly suited		Severe	
			Slope	1.00	Low strength	1.00
			Low strength	0.50		
Hickory	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
936G:						
Fayette	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
Hickory	Severe		Poorly suited		Severe	
	Slope	1.00	Slope	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
943D3:						
Seaton	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
Timula	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
957D2:						
Elco	Slight		Poorly suited		Severe	
			Slope	1.00	Low strength	1.00
			Low strength	0.50		
Atlas	Moderate		Poorly suited		Severe	
	Stickiness/slope	0.50	Slope	1.00	Low strength	1.00
	Low strength	0.50	Wetness	0.50		
			Low strength	0.50		
957D3:						
Elco	Moderate		Poorly suited		Severe	
	Low strength	0.50	Slope	1.00	Low strength	1.00
			Low strength	0.50		
Atlas	Slight		Poorly suited		Severe	
			Slope	1.00	Low strength	1.00
			Wetness	0.50		
			Low strength	0.50		

Table 9a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1405A:						
Zook	Severe		Poorly suited		Severe	
	Flooding	1.00	Ponding	1.00	Low strength	1.00
	Low strength	0.50	Flooding	1.00		
			Wetness	1.00		
			Low strength	0.50		
3074A:						
Radford	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
			Wetness	0.50		
3107+, 3107A:						
Sawmill	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Wetness	0.50		
			Low strength	0.50		
3405A:						
Zook	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Wetness	1.00		
			Low strength	0.50		
3415A:						
Orion	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
			Wetness	0.50		
3451A:						
Lawson	Severe		Poorly suited		Severe	
	Flooding	1.00	Flooding	1.00	Low strength	1.00
	Low strength	0.50	Low strength	0.50		
			Wetness	0.50		
7428A:						
Coffeen	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Wetness	0.50		
9017A:						
Keomah	Moderate		Moderately suited		Severe	
	Low strength	0.50	Wetness	0.50	Low strength	1.00
			Low strength	0.50		
9279B:						
Rozetta	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
9279C2:						
Rozetta	Moderate		Moderately suited		Severe	
	Low strength	0.50	Low strength	0.50	Low strength	1.00
			Slope	0.50		

Table 9a.--Forestland Management--Continued

Map symbol and soil name	Limitations affecting construction of haul roads and log landings		Suitability for log landings		Soil rutting hazard	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9675B:						
Greenbush	Moderate Low strength	0.50	Moderately suited Low strength	0.50	Severe Low strength	1.00

Table 9b.--Forestland Management

(Only the soils that are suitable for forestland management are listed. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Slight		Severe		Poorly suited	
			Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
8F:						
Hickory	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
8G:						
Hickory	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
17A:						
Keomah	Slight		Slight		Moderately suited	
					Wetness	0.50
					Low strength	0.50
119D2, 119E2:						
Elco	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
212D2, 212D3:						
Thebes	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
212F:						
Thebes	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
274C2:						
Seaton	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
					Slope	0.50
274D:						
Seaton	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
278A:						
Stronghurst	Slight		Slight		Moderately suited	
					Wetness	0.50
					Low strength	0.50
279B:						
Rozetta	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50

Table 9b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279C2, 279C3:						
Rozetta	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
					Slope	0.50
280B:						
Fayette	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
280C2:						
Fayette	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
					Slope	0.50
280D2, 280D3:						
Fayette	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
505G:						
Dunbarton	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
549D2:						
Marseilles	Slight		Severe		Poorly suited	
			Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
549F:						
Marseilles	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
549G:						
Marseilles	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
675B:						
Greenbush	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
675C2:						
Greenbush	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
					Slope	0.50
678B:						
Mannon	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
895D:						
Fayette	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
Westville	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50

Table 9b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
936D2:						
Fayette	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
Hickory	Slight		Severe		Poorly suited	
			Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
936G:						
Fayette	Very severe		Severe		Poorly suited	
	Slope/erodibility	0.95	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
Hickory	Severe		Severe		Poorly suited	
	Slope/erodibility	0.75	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
943D3:						
Seaton	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
Timula	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
957D2:						
Elco	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
Atlas	Slight		Severe		Poorly suited	
			Slope/erodibility	0.95	Slope	1.00
					Wetness	0.50
					Low strength	0.50
957D3:						
Elco	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Low strength	0.50
Atlas	Moderate		Severe		Poorly suited	
	Slope/erodibility	0.50	Slope/erodibility	0.95	Slope	1.00
					Wetness	0.50
					Low strength	0.50
1405A:						
Zook	Slight		Slight		Poorly suited	
					Ponding	1.00
					Flooding	1.00
					Wetness	1.00
					Low strength	0.50
3074A:						
Radford	Slight		Slight		Poorly suited	
					Flooding	1.00
					Low strength	0.50
					Wetness	0.50

Table 9b.--Forestland Management--Continued

Map symbol and soil name	Hazard of off-road or off-trail erosion		Hazard of erosion on roads and trails		Suitability for roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3107+, 3107A:						
Sawmill	Slight		Slight		Poorly suited	
					Flooding	1.00
					Wetness	0.50
					Low strength	0.50
3405A:						
Zook	Slight		Slight		Poorly suited	
					Flooding	1.00
					Wetness	1.00
					Low strength	0.50
3415A:						
Orion	Slight		Slight		Poorly suited	
					Flooding	1.00
					Low strength	0.50
					Wetness	0.50
3451A:						
Lawson	Slight		Slight		Poorly suited	
					Flooding	1.00
					Low strength	0.50
					Wetness	0.50
7428A:						
Coffeen	Slight		Slight		Moderately suited	
					Low strength	0.50
					Wetness	0.50
9017A:						
Keomah	Slight		Slight		Moderately suited	
					Wetness	0.50
					Low strength	0.50
9279B:						
Rozetta	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
9279C2:						
Rozetta	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50
					Slope	0.50
9675B:						
Greenbush	Slight		Moderate		Moderately suited	
			Slope/erodibility	0.50	Low strength	0.50

Table 9c.--Forestland Management

(Only the soils that are suitable for forestland management are listed. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
8F:						
Hickory	Moderately suited		Unsuited		Moderately suited	
	Stickiness	0.50	Slope	1.00	Low strength	0.50
			Stickiness	0.50	Slope	0.50
8G:						
Hickory	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
17A:						
Keomah	Well suited		Well suited		Moderately suited	
					Low strength	0.50
119D2:						
Elco	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
119E2:						
Elco	Moderately suited		Poorly suited		Moderately suited	
	Stickiness	0.50	Slope	0.75	Low strength	0.50
			Stickiness	0.50	Slope	0.50
212D2, 212D3:						
Thebes	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
212F:						
Thebes	Moderately suited		Unsuited		Moderately suited	
	Stickiness	0.50	Slope	1.00	Low strength	0.50
			Stickiness	0.50	Slope	0.50
274C2, 274D:						
Seaton	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
278A:						
Stronghurst	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
279B:						
Rozetta	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
279C2, 279C3:						
Rozetta	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50

Table 9c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
280B:						
Fayette	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
280C2, 280D2, 280D3:						
Fayette	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
505G:						
Dunbarton	Poorly suited		Unsuited		Poorly suited	
	Stickiness	0.75	Slope	1.00	Slope	1.00
	Slope	0.50	Stickiness	0.75	Low strength	0.50
549D2:						
Marseilles	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
549F:						
Marseilles	Moderately suited		Unsuited		Moderately suited	
	Stickiness	0.50	Slope	1.00	Low strength	0.50
			Stickiness	0.50	Slope	0.50
549G:						
Marseilles	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
671B:						
Biggsville	Well suited		Well suited		Moderately suited	
					Low strength	0.50
671C2:						
Biggsville	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
675B:						
Greenbush	Well suited		Well suited		Moderately suited	
					Low strength	0.50
675C2:						
Greenbush	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
678B:						
Mannon	Well suited		Well suited		Moderately suited	
					Low strength	0.50
895D:						
Fayette	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
Westville	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
936D2:						
Fayette	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		

Table 9c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
936D2:						
Hickory	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
936G:						
Fayette	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
Hickory	Moderately suited		Unsuited		Poorly suited	
	Slope	0.50	Slope	1.00	Slope	1.00
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
943D3:						
Seaton	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
Timula	Well suited		Moderately suited		Moderately suited	
			Slope	0.50	Low strength	0.50
957D2, 957D3:						
Elco	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
Atlas	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
1405A:						
Zook	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
3074A:						
Radford	Well suited		Well suited		Moderately suited	
					Low strength	0.50
3107+, 3107A:						
Sawmill	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
3405A:						
Zook	Poorly suited		Poorly suited		Moderately suited	
	Stickiness	0.75	Stickiness	0.75	Low strength	0.50
3415A:						
Orion	Well suited		Well suited		Moderately suited	
					Low strength	0.50
3451A:						
Lawson	Well suited		Well suited		Moderately suited	
					Low strength	0.50
7428A:						
Coffeen	Well suited		Well suited		Moderately suited	
					Low strength	0.50
9017A:						
Keomah	Well suited		Well suited		Moderately suited	
					Low strength	0.50

Table 9c.--Forestland Management--Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9279B:						
Rozetta	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Stickiness	0.50	Low strength	0.50
9279C2:						
Rozetta	Moderately suited		Moderately suited		Moderately suited	
	Stickiness	0.50	Slope	0.50	Low strength	0.50
			Stickiness	0.50		
9675B:						
Greenbush	Well suited		Well suited		Moderately suited	
					Low strength	0.50

Table 9d.--Forestland Management

(Only the soils that are suitable for forestland management are listed. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:				
Hickory	Well suited		Well suited	
8F:				
Hickory	Poorly suited		Poorly suited	
	Slope	0.50	Slope	0.50
8G:				
Hickory	Unsuited		Unsuited	
	Slope	1.00	Slope	1.00
17A:				
Keomah	Well suited		Well suited	
119D2:				
Elco	Well suited		Well suited	
119E2:				
Elco	Poorly suited		Poorly suited	
	Slope	0.50	Slope	0.50
212D2, 212D3:				
Thebes	Well suited		Well suited	
212F:				
Thebes	Poorly suited		Poorly suited	
	Slope	0.50	Slope	0.50
274C2, 274D:				
Seaton	Well suited		Well suited	
278A:				
Stronghurst	Well suited		Well suited	
279B, 279C2, 279C3:				
Rozetta	Well suited		Well suited	
280B, 280C2, 280D2, 280D3:				
Fayette	Well suited		Well suited	
505G:				
Dunbarton	Unsuited		Unsuited	
	Slope	1.00	Slope	1.00
	Stickiness	0.50		
549D2:				
Marseilles	Well suited		Well suited	
549F:				
Marseilles	Poorly suited		Poorly suited	
	Slope	0.50	Slope	0.50

Table 9d.--Forestland Management--Continued

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
	Rating class and limiting features	Value	Rating class and limiting features	Value
549G:				
Marseilles	Unsuited		Unsuited	
	Slope	1.00	Slope	1.00
671B, 671C2:				
Biggsville	Well suited		Well suited	
675B, 675C2:				
Greenbush	Well suited		Well suited	
678B:				
Mannon	Well suited		Well suited	
895D:				
Fayette	Well suited		Well suited	
Westville	Well suited		Well suited	
936D2:				
Fayette	Well suited		Well suited	
Hickory	Well suited		Well suited	
936G:				
Fayette	Unsuited		Unsuited	
	Slope	1.00	Slope	1.00
Hickory	Unsuited		Unsuited	
	Slope	1.00	Slope	1.00
943D3:				
Seaton	Well suited		Well suited	
Timula	Well suited		Well suited	
957D2, 957D3:				
Elco	Well suited		Well suited	
Atlas	Poorly suited		Well suited	
	Stickiness	0.50		
1405A:				
Zook	Poorly suited		Well suited	
	Stickiness	0.50		
3074A:				
Radford	Well suited		Well suited	
3107+, 3107A:				
Sawmill	Well suited		Well suited	
3405A:				
Zook	Poorly suited		Well suited	
	Stickiness	0.50		
3415A:				
Orion	Well suited		Well suited	
3451A:				
Lawson	Well suited		Well suited	

Table 9d.--Forestland Management--Continued

Map symbol and soil name	Suitability for mechanical site preparation (surface)		Suitability for mechanical site preparation (deep)	
	Rating class and limiting features	Value	Rating class and limiting features	Value
7428A:				
Coffeen	Well suited		Well suited	
9017A:				
Keomah	Well suited		Well suited	
9279B, 9279C2:				
Rozetta	Well suited		Well suited	
9675B:				
Greenbush	Well suited		Well suited	

Table 9e.--Forestland Management

(Only the soils that are suitable for forestland management are listed. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential for seedling mortality	
	Rating class and limiting features	Value
8D2, 8D3, 8F, 8G:		
Hickory	Low	
17A:		
Keomah	High Depth to saturated zone	1.00
119D2, 119E2:		
Elco	Low	
212D2, 212D3, 212F:		
Thebes	Low	
274C2, 274D:		
Seaton	Low	
278A:		
Stronghurst	High Depth to saturated zone	1.00
279B, 279C2, 279C3:		
Rozetta	Low	
280B, 280C2, 280D2, 280D3:		
Fayette	Low	
505G:		
Dunbarton	Low	
549D2, 549F, 549G:		
Marseilles	Low	
671B, 671C2:		
Biggsville	Low	
675B, 675C2:		
Greenbush	Low	
678B:		
Mannon	Low	
895D:		
Fayette	Low	
Westville	Low	

Table 9e.--Forestland Management--Continued

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Value
936D2, 936G:		
Fayette	Low	
Hickory	Low	
943D3:		
Seaton	Low	
Timula	Low	
957D2, 957D3:		
Elco	Low	
Atlas	High Depth to saturated zone	1.00
1405A:		
Zook	High Depth to saturated zone	1.00
3074A:		
Radford	Low	
3107+, 3107A:		
Sawmill	High Depth to saturated zone	1.00
3405A:		
Zook	High Depth to saturated zone	1.00
3415A:		
Orion	Low	
3451A:		
Lawson	Low	
7428A:		
Coffeen	Low	
9017A:		
Keomah	High Depth to saturated zone	1.00
9279B, 9279C2:		
Rozetta	Low	
9675B:		
Greenbush	Low	

Table 10.--Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
8D2, 8D3, 8F, 8G:					
Hickory	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
17A:					
Keomah	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
43A, 43B:					
Ipava	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
45A:					
Denny	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
51A:					
Muscatune	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
61A:					
Atterberry	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
68A, 68A+:					
Sable	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
81A:					
Littleton	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
86B, 86B2, 86C2, 86C3, 86D2:					
Osco	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
119D2, 119E2:					
Elco	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
212D2, 212D3, 212F:					
Thebes	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
250D2:					
Velma	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
257A:					
Clarksdale	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
259C2, 259D2:					
Assumption	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
274C2, 274D:					
Seaton	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
275A:					
Joy	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
278A: Stronghurst	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
279B, 279C2, 279C3: Rozetta	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
280B, 280C2, 280D2, 280D3: Fayette	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
430B:					
Raddle	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
505G:					
Dunbarton	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	Cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	Bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
549D2, 549F, 549G:					
Marseilles	American cranberrybush, American hazelnut, black chokeberry, common chokecherry, common elderberry, common juniper, coralberry, mapleleaf viburnum, silky dogwood	American plum, bur oak, chinkapin oak, common serviceberry, eastern redcedar, nannyberry, prairie crabapple, roughleaf dogwood, smooth sumac	Black oak, common hackberry, eastern white pine, green ash	Carolina poplar	---
567C2, 567D3:					
Elkhart	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
671B, 671C2: Biggsville	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
675B, 675C2: Greenbush	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
678B: Mannon	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
712A: Spaulding	Common winterberry, gray dogwood, redosier dogwood	Common pawpaw, nannyberry, roughleaf dogwood, silky dogwood	Arborvitae, bur oak, common hackberry, eastern redcedar, green hawthorn	Carolina poplar, eastern cottonwood, green ash	---
802B. Orthents					

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
835G. Earthen dam					
864. Pits, quarries					
895D:					
Fayette	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Westville	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
936D2, 936G:					
Fayette	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
936D2, 936G:					
Hickory	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
943D3:					
Seaton	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Timula	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
957D2, 957D3:					
Elco	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
957D2, 957D3:					
Atlas	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
1405A:					
Zook	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3074A:					
Radford	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3107+, 3107A: Sawmill	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3405A: Zook	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3415A: Orion	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3451A:					
Lawson	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
7428A:					
Coffeen	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	Blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
9017A:					
Keomah	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	Cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	Arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	Green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
9086B:					
Osco	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
9279B, 9279C2:					
Rozetta	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
9675B:					
Greenbush	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 11a.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
8F, 8G:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
17A:						
Keomah	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
43A:						
Ipava	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
43B:						
Ipava	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.28
					Restricted permeability	0.21
45A:						
Denny	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
51A:						
Muscatune	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
61A:						
Atterberry	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
68A, 68A+:						
Sable	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00		
	Ponding	1.00			Ponding	1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81A:						
Littleton	Somewhat limited Depth to saturated zone	0.98	Somewhat limited Depth to saturated zone	0.75	Somewhat limited Depth to saturated zone	0.98
86B, 86B2:						
Osco	Not limited		Not limited		Somewhat limited Slope	0.28
86C2, 86C3:						
Osco	Not limited		Not limited		Very limited Slope	1.00
86D2:						
Osco	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
119D2:						
Elco	Somewhat limited Slope Restricted permeability	0.96 0.43	Somewhat limited Slope Restricted permeability	0.96 0.43	Very limited Slope Restricted permeability	1.00 0.43
119E2:						
Elco	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21	Very limited Slope Restricted permeability	1.00 0.21
212D2, 212D3:						
Thebes	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
212F:						
Thebes	Very limited Slope	1.00	Very limited Slope	1.00	Very limited Slope	1.00
250D2:						
Velma	Somewhat limited Slope	0.96	Somewhat limited Slope	0.96	Very limited Slope	1.00
257A:						
Clarksdale	Very limited Depth to saturated zone Restricted permeability	1.00 0.21	Somewhat limited Depth to saturated zone Restricted permeability	0.94 0.21	Very limited Depth to saturated zone Restricted permeability	1.00 0.21
259C2:						
Assumption	Somewhat limited Restricted permeability	0.43	Somewhat limited Restricted permeability	0.43	Very limited Slope Restricted permeability	1.00 0.43
259D2:						
Assumption	Somewhat limited Slope Restricted permeability	0.96 0.43	Somewhat limited Slope Restricted permeability	0.96 0.43	Very limited Slope Restricted permeability	1.00 0.43
274C2:						
Seaton	Not limited		Not limited		Very limited Slope	1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
274D:						
Seaton	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
275A:						
Joy	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
278A:						
Stronghurst	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
279B:						
Rozetta	Not limited		Not limited		Somewhat limited	
					Slope	0.28
279C2, 279C3:						
Rozetta	Not limited		Not limited		Very limited	
					Slope	1.00
280B:						
Fayette	Not limited		Not limited		Somewhat limited	
					Slope	0.28
280C2:						
Fayette	Not limited		Not limited		Very limited	
					Slope	1.00
280D2, 280D3:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
430B:						
Raddle	Not limited		Not limited		Somewhat limited	
					Slope	0.28
505G:						
Dunbarton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
					Gravel content	0.70
549D2:						
Marseilles	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Slope	0.96	Slope	0.96	Restricted permeability	0.96
					Depth to bedrock	0.71
549F, 549G:						
Marseilles	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
					Depth to bedrock	0.10
567C2:						
Elkhart	Not limited		Not limited		Very limited	
					Slope	1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
567D3:						
Elkhart	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
671B:						
Biggsville	Not limited		Not limited		Somewhat limited	
					Slope	0.28
671C2:						
Biggsville	Not limited		Not limited		Very limited	
					Slope	1.00
675B:						
Greenbush	Not limited		Not limited		Somewhat limited	
					Slope	0.28
675C2:						
Greenbush	Not limited		Not limited		Very limited	
					Slope	1.00
678B:						
Mannon	Not limited		Not limited		Somewhat limited	
					Slope	0.28
712A:						
Spaulding	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00
802B:						
Orthents	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.21	Restricted permeability	0.21	Slope	0.50
					Restricted permeability	0.21
835G.						
Earthen dam						
864.						
Pits, quarries						
895D:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
Westville	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
936D2:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
936G:						
Fayette	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
943D3:						
Seaton	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
Timula	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
957D2, 957D3:						
Elco	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Restricted permeability	0.43	Restricted permeability	0.43	Restricted permeability	0.43
Atlas	Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00	Slope	0.96	Restricted permeability	1.00
	Slope	0.96	Depth to saturated zone	0.94	Depth to saturated zone	1.00
1405A:						
Zook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Restricted permeability	0.96	Ponding	1.00
	Restricted permeability	0.96	Flooding	0.40	Restricted permeability	0.96
3074A:						
Radford	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
	Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
3107+, 3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Flooding	0.40	Depth to saturated zone	1.00
3405A:						
Zook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Restricted permeability	0.96	Flooding	1.00
	Restricted permeability	0.96	Flooding	0.40	Restricted permeability	0.96
3415A:						
Orion	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
	Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98
3451A:						
Lawson	Very limited		Somewhat limited		Very limited	
	Flooding	1.00	Depth to saturated zone	0.75	Flooding	1.00
	Depth to saturated zone	0.98	Flooding	0.40	Depth to saturated zone	0.98

Table 11a.--Recreation--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7428A:						
Coffeen	Very limited		Somewhat limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.98
	Depth to saturated zone	0.98				
9017A:						
Keomah	Very limited		Somewhat limited		Very limited	
	Depth to saturated zone	1.00	Restricted permeability	0.96	Depth to saturated zone	1.00
	Restricted permeability	0.96	Depth to saturated zone	0.94	Restricted permeability	0.96
9086B:						
Osco	Not limited		Not limited		Somewhat limited	
					Slope	0.28
9279B:						
Rozetta	Not limited		Not limited		Somewhat limited	
					Slope	0.28
9279C2:						
Rozetta	Not limited		Not limited		Very limited	
					Slope	1.00
9675B:						
Greenbush	Not limited		Not limited		Somewhat limited	
					Slope	0.28

Table 11b.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Not limited		Not limited		Somewhat limited	
					Slope	0.96
8F:						
Hickory	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.04	Slope	1.00
8G:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
17A:						
Keomah	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
43A, 43B:						
Ipava	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
45A:						
Denny	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
51A:						
Muscatune	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
61A:						
Atterberry	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
68A, 68A+:						
Sable	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
81A:						
Littleton	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
86B, 86B2, 86C2, 86C3:						
Osco	Not limited		Not limited		Not limited	
86D2:						
Osco	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
119D2:						
Elco	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
119E2:						
Elco	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	0.50				
212D2, 212D3:						
Thebes	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
212F:						
Thebes	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00	Slope	0.04		
250D2:						
Velma	Not limited		Not limited		Somewhat limited	
					Slope	0.96
257A:						
Clarksdale	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
259C2:						
Assumption	Not limited		Not limited		Not limited	
259D2:						
Assumption	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
274C2:						
Seaton	Not limited		Not limited		Not limited	
274D:						
Seaton	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
275A:						
Joy	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
278A:						
Stronghurst	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
279B, 279C2, 279C3:						
Rozetta	Not limited		Not limited		Not limited	
280B, 280C2:						
Fayette	Not limited		Not limited		Not limited	
280D2, 280D3:						
Fayette	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
430B:						
Raddle	Not limited		Not limited		Not limited	

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
505G:						
Dunbarton	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Depth to bedrock	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
					Droughty	0.77
549D2:						
Marseilles	Not limited		Not limited		Somewhat limited	
					Slope	0.96
					Depth to bedrock	0.71
549F:						
Marseilles	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.04	Slope	1.00
					Depth to bedrock	0.10
549G:						
Marseilles	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Depth to bedrock	0.10
567C2:						
Elkhart	Not limited		Not limited		Not limited	
567D3:						
Elkhart	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
671B, 671C2:						
Biggsville	Not limited		Not limited		Not limited	
675B, 675C2:						
Greenbush	Not limited		Not limited		Not limited	
678B:						
Mannon	Not limited		Not limited		Not limited	
712A:						
Spaulding	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
802B:						
Orthents	Not limited		Not limited		Not limited	
835G.						
Earthen dam						
864.						
Pits, quarries						
895D:						
Fayette	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
Westville	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
936D2:						
Fayette	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
Hickory	Not limited		Not limited		Somewhat limited	
					Slope	0.96
936G:						
Fayette	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
	Water erosion	1.00	Slope	1.00		
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
943D3:						
Seaton	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
Timula	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
957D2:						
Elco	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
Atlas	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Slope	0.96
					Depth to saturated zone	0.94
957D3:						
Elco	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
Atlas	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.96
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
1405A:						
Zook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
					Flooding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	0.40	Flooding	0.40		
3074A:						
Radford	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
					Depth to saturated zone	0.75
	Flooding	0.40	Flooding	0.40		
3107+, 3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
					Depth to saturated zone	1.00
	Flooding	0.40	Flooding	0.40		

Table 11b.--Recreation--Continued

Map symbol and soil name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3405A:						
Zook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3415A:						
Orion	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
3451A:						
Lawson	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.75
7428A:						
Coffeen	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.44	Depth to saturated zone	0.75
9017A:						
Keomah	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
9086B:						
Osco	Not limited		Not limited		Not limited	
9279B, 9279C2:						
Rozetta	Not limited		Not limited		Not limited	
9675B:						
Greenbush	Not limited		Not limited		Not limited	

Table 12.--Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
8D2, 8D3:										
Hickory	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
8F:										
Hickory	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
8G:										
Hickory	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
17A:										
Keomah	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
43A:										
Ipava	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
43B:										
Ipava	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
45A:										
Denny	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
51A:										
Muscatune	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
61A:										
Atterberry	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
68A, 68A+:										
Sable	Fair	Good	Good	Fair	Fair	Good	Good	Good	Fair	Good.
81A:										
Littleton	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
86B, 86B2:										
Osco	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
86C2, 86C3:										
Osco	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
86D2:										
Osco	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
119D2:										
Elco	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
119E2:										
Elco	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
212D2, 212D3:										
Thebes	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
212F:										
Thebes	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
250D2:										
Velma	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
257A:										
Clarksdale	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
259C2:										
Assumption	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Fair	Very poor.
259D2:										
Assumption	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
274C2:										
Seaton	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
274D:										
Seaton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
275A:										
Joy	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
278A:										
Stronghurst	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
279B:										
Rozetta	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
279C2, 279C3:										
Rozetta	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
280B:										
Fayette	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
280C2:										
Fayette	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
280D2, 280D3:										
Fayette	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
430B:										
Raddle	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
505G:										
Dunbarton	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
549D2:										
Marseilles	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
549F:										
Marseilles	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
549G:										
Marseilles	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
567C2:										
Elkhart	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
567D3:										
Elkhart	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
671B:										
Biggsville	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
671C2:										
Biggsville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
675B:										
Greenbush	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
675C2:										
Greenbush	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
678B:										
Mannon	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
712A:										
Spaulding	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
802B.										
Orthents										
835G.										
Earthen dam										
864.										
Pits, quarries										
895D:										
Fayette	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Westville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
936D2:										
Fayette	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Hickory	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
936G:										
Fayette	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Hickory	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
943D3:										
Seaton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Timula	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
957D2, 957D3:										
Elco	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Atlas	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
1405A:										
Zook	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3074A:										
Radford	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3107+, 3107A:										
Sawmill	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3405A:										
Zook	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3415A:										
Orion	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3451A:										
Lawson	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
7428A:										
Coffeen	Fair	Good	Good	Good	Good	Fair	Poor	Good	Good	Fair.
9017A:										
Keomah	Good	Good	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair.
9086B:										
Osco	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
9279B:										
Rozetta	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
9279C2:										
Rozetta	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 12.--Wildlife Habitat--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
9675B:										
Greenbush	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.

Table 13.--Hydric Soils

(Only the map units that have hydric components are listed. See text for a description of hydric qualities)

Map symbol and map unit name	Component	Hydric status	Local landform
17A:			
Keomah silt loam, 0 to 2 percent slopes	Keomah	No	ground moraine
	Denny	Yes	depression
43A:			
Ipava silt loam, 0 to 2 percent slopes	Ipava	No	ground moraine
	Denny	Yes	depression
	Sable	Yes	depression
43B:			
Ipava silt loam, 2 to 5 percent slopes	Ipava	No	ground moraine
	Denny	Yes	depression
	Sable	Yes	ground moraine
45A:			
Denny silt loam, 0 to 2 percent slopes	Denny	Yes	depression
	Sable	Yes	ground moraine
51A:			
Muscatune silt loam, 0 to 2 percent slopes	Muscatune	No	ground moraine
	Denny	Yes	depression
	Sable	Yes	depression
61A:			
Atterberry silt loam, 0 to 2 percent slopes	Atterberry	No	ground moraine
	Denny	Yes	depression
	Sable	Yes	depression
68A:			
Sable silty clay loam, 0 to 2 percent slopes	Sable	Yes	ground moraine
68A+:			
Sable silt loam, 0 to 2 percent slopes, overwash	Sable	Yes	ground moraine
	Denny	Yes	depression
86B:			
Osco silt loam, 2 to 5 percent slopes	Osco	No	ground moraine
	Denny	Yes	depression
	Sable	Yes	ground moraine, depression
86B2:			
Osco silt loam, 2 to 5 percent slopes, eroded	Osco	No	ground moraine
	Denny	Yes	ground moraine
	Sable	Yes	ground moraine
257A:			
Clarksdale silt loam, 0 to 2 percent slopes	Clarksdale	No	ground moraine
	Denny	Yes	depression
275A:			
Joy silt loam, 0 to 2 percent slopes	Joy	No	ground moraine
	Sable	Yes	depression
671B:			
Biggsville silt loam, 2 to 5 percent slopes	Biggsville	No	ground moraine
	Denny	Yes	depression

Table 13.--Hydric Soils--Continued

Map symbol and map unit name	Component	Hydric status	Local landform
675B:			
Greenbush silt loam, 2 to 5 percent slopes	Greenbush	No	ground moraine
	Denny	Yes	depression
712A:			
Spaulding silty clay loam, 0 to 2 percent slopes	Spaulding	Yes	ground moraine, depression
	Sable	Yes	ground moraine, depression
1405A:			
Zook silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded	Zook	Yes	flood plain
3074A:			
Radford silt loam, 0 to 2 percent slopes, frequently flooded	Radford	No	flood plain
	Sawmill	Yes	flood plain
	Zook	Yes	flood plain
3107+:			
Sawmill silt loam, 0 to 2 percent slopes, frequently flooded, overwash	Sawmill	Yes	flood plain
3107A:			
Sawmill silty clay loam, 0 to 2 percent slopes, frequently flooded	Sawmill	Yes	flood plain
3405A:			
Zook silty clay loam, 0 to 2 percent slopes, frequently flooded	Zook	Yes	flood plain
3415A:			
Orion silt loam, 0 to 2 percent slopes, frequently flooded	Orion	No	flood plain
	Sawmill	Yes	flood plain
	Zook	Yes	flood plain
3451A:			
Lawson silt loam, 0 to 2 percent slopes, frequently flooded	Lawson	No	flood plain
	Sawmill	Yes	swale
	Zook	Yes	flood plain
7428A:			
Coffeen silt loam, 0 to 2 percent slopes, rarely flooded	Coffeen	No	flood plain
	Sawmill	Yes	flood plain
9086B:			
Osco silt loam, terrace, 2 to 5 percent slopes	Osco	No	terrace
	Denny	Yes	depression

Table 14a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
8F, 8G:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
17A:						
Keomah	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00			Depth to saturated zone	1.00
43A, 43B:						
Ipava	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	0.98	Shrink-swell	1.00	Depth to saturated zone	0.98
45A:						
Denny	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
51A:						
Muscatune	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
61A:						
Atterberry	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
68A, 68A+:						
Sable	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
81A:						
Littleton	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86B, 86B2:						
Osco	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		
86C2, 86C3:						
Osco	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
			Depth to saturated zone	0.15	Shrink-swell	0.50
86D2:						
Osco	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		
119D2:						
Elco	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Shrink-swell	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Slope	0.96		
119E2:						
Elco	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Shrink-swell	0.50		
212D2:						
Thebes	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
212D3:						
Thebes	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
212F:						
Thebes	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
250D2:						
Velma	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
257A:						
Clarksdale	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
259C2:						
Assumption	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
			Depth to saturated zone	0.99	Slope	0.97
259D2:						
Assumption	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Shrink-swell	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Slope	0.96		
274C2:						
Seaton	Not limited		Not limited		Somewhat limited	
					Slope	0.97
274D:						
Seaton	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
275A:						
Joy	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
278A:						
Stronghurst	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
279B:						
Rozetta	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		
279C2:						
Rozetta	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
			Depth to saturated zone	0.15	Shrink-swell	0.50
279C3:						
Rozetta	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.15	Slope	0.97
					Shrink-swell	0.50
280B:						
Fayette	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
280C2:						
Fayette	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
					Shrink-swell	0.50
280D2, 280D3:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
430B:						
Raddle	Not limited		Not limited		Not limited	
505G:						
Dunbarton	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
	Shrink-swell	1.00	Depth to hard bedrock	1.00	Shrink-swell	1.00
549D2:						
Marseilles	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to soft bedrock	0.42		
549F:						
Marseilles	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to soft bedrock	0.42		
549G:						
Marseilles	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to soft bedrock	0.10		
567C2:						
Elkhart	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	0.16	Slope	0.97
					Shrink-swell	0.50
567D3:						
Elkhart	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
			Depth to saturated zone	0.16		
671B:						
Biggsville	Not limited		Somewhat limited		Not limited	
			Depth to saturated zone	0.15		
671C2:						
Biggsville	Not limited		Somewhat limited		Somewhat limited	
			Depth to saturated zone	0.15	Slope	0.97
675B:						
Greenbush	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		
675C2:						
Greenbush	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
			Depth to saturated zone	0.15	Shrink-swell	0.50

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
678B:						
Mannon	Not limited		Somewhat limited		Not limited	
			Depth to saturated zone	0.15		
712A:						
Spaulding	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
802B:						
Orthents	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
835G.						
Earthen dam						
864.						
Pits, quarries						
895D:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Westville	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
936D2:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
936G:						
Fayette	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
943D3:						
Seaton	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
Timula	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.96	Slope	0.96	Slope	1.00
957D2, 957D3:						
Elco	Somewhat limited		Very limited		Very limited	
	Slope	0.96	Shrink-swell	1.00	Slope	1.00
	Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
			Slope	0.96		

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
957D2, 957D3:						
Atlas	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Slope	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Shrink-swell	1.00
	Slope	0.96	Slope	0.96	Depth to saturated zone	1.00
1405A:						
Zook	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3074A:						
Radford	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
			Shrink-swell	0.50		
3107+:						
Sawmill	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
3405A:						
Zook	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3415A:						
Orion	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
3451A:						
Lawson	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
			Shrink-swell	0.50		
7428A:						
Coffeen	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98

Table 14a.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9017A:						
Keomah	Very limited		Very limited		Very limited	
	Shrink-swell	1.00	Depth to saturated zone	1.00	Shrink-swell	1.00
	Depth to saturated zone	1.00	Shrink-swell	1.00	Depth to saturated zone	1.00
9086B:						
Osco	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		
9279B:						
Rozetta	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		
9279C2:						
Rozetta	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.97
			Depth to saturated zone	0.15	Shrink-swell	0.50
9675B:						
Greenbush	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
			Depth to saturated zone	0.15		

Table 14b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
8F, 8G:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
17A:						
Keomah	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				
43A, 43B:						
Ipava	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to aturated zone	0.75				
45A:						
Denny	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	1.00				
51A:						
Muscatune	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				
61A:						
Atterberry	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
	Shrink-swell	0.50				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68A, 68A+:						
Sable	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
81A:						
Littleton	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
86B, 86B2:						
Osco	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
86C2, 86C3:						
Osco	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
86D2:						
Osco	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Depth to saturated zone	0.15		
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
119D2:						
Elco	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
	Low strength	1.00	Slope	0.96		
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
119E2:						
Elco	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to saturated zone	0.99		
	Shrink-swell	0.50	Cutbanks cave	0.10		
212D2:						
Thebes	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Slope	0.96
	Low strength	1.00	Slope	0.96		
	Slope	0.96				
	Shrink-swell	0.50				
212D3:						
Thebes	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Cutbanks cave	1.00	Slope	0.96
	Low strength	1.00	Slope	0.96		
	Slope	0.96				
	Shrink-swell	0.50				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
212F:						
Thebes	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	1.00		
	Low strength	1.00				
	Shrink-swell	0.50				
250D2:						
Velma	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
257A:						
Clarksdale	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				
259C2:						
Assumption	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.99		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
259D2:						
Assumption	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
	Low strength	1.00	Slope	0.96		
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
274C2:						
Seaton	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.50		
	Low strength	1.00				
274D:						
Seaton	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.50		
	Slope	0.96				
275A:						
Joy	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
278A:						
Stronghurst	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.94				
	Shrink-swell	0.50				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279B:						
Rozetta	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to	0.15		
	Low strength	1.00	saturated zone			
	Shrink-swell	0.50	Cutbanks cave	0.10		
279C2:						
Rozetta	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to	0.15		
	Low strength	1.00	saturated zone			
	Shrink-swell	0.50	Cutbanks cave	0.10		
279C3:						
Rozetta	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to	0.15		
	Low strength	1.00	saturated zone			
	Shrink-swell	0.50	Cutbanks cave	0.10		
280B:						
Fayette	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
280C2:						
Fayette	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
280D2, 280D3:						
Fayette	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
430B:						
Raddle	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	0.78				
505G:						
Dunbarton	Very limited		Very limited		Very limited	
	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10	Droughty	0.77
	Shrink-swell	1.00				
	Frost action	0.50				
549D2:						
Marseilles	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Depth to soft bedrock	0.42	Depth to bedrock	0.42
	Slope	0.96				
	Shrink-swell	0.50	Cutbanks cave	0.10		

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
549F:						
Marseilles	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Depth to soft bedrock	0.42	Depth to bedrock	0.42
	Low strength	1.00				
	Shrink-swell	0.50	Cutbanks cave	0.10		
549G:						
Marseilles	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10	Depth to bedrock	0.10
	Low strength	1.00	Depth to soft bedrock	0.10		
	Shrink-swell	0.50				
567C2:						
Elkhart	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Cutbanks cave	0.50		
	Low strength	1.00	Depth to saturated zone	0.16		
	Shrink-swell	0.50				
567D3:						
Elkhart	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.50		
	Slope	0.96	Depth to saturated zone	0.16		
671B:						
Biggsville	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
671C2:						
Biggsville	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
675B:						
Greenbush	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
675C2:						
Greenbush	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00				
	Shrink-swell	0.50	Cutbanks cave	0.10		
678B:						
Mannon	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00				
			Cutbanks cave	0.10		

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
712A:						
Spaulding	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
802B:						
Orthents	Very limited		Somewhat limited		Not limited	
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
835G.						
Earthen dam						
864.						
Pits, quarries						
895D:						
Fayette	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
Westville	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
936D2:						
Fayette	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.10		
	Slope	0.96				
	Shrink-swell	0.50				
Hickory	Very limited		Somewhat limited		Somewhat limited	
	Low strength	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				
936G:						
Fayette	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	1.00	Cutbanks cave	0.10		
	Low strength	1.00				
	Shrink-swell	0.50				
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
	Frost action	0.50				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
943D3:						
Seaton	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Low strength	1.00	Cutbanks cave	0.50		
	Slope	0.96				
Timula	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Slope	0.96	Slope	0.96
	Slope	0.96	Cutbanks cave	0.50		
	Low strength	0.22				
957D2, 957D3:						
Elco	Very limited		Somewhat limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
	Low strength	1.00				
	Slope	0.96	Slope	0.96		
	Shrink-swell	0.50	Cutbanks cave	0.10		
Atlas	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
	Low strength	1.00			Depth to saturated zone	0.94
	Shrink-swell	1.00	Slope	0.96		
	Slope	0.96	Cutbanks cave	0.10		
	Depth to saturated zone	0.94	Too clayey	0.02		
1405A:						
Zook	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
					Depth to saturated zone	1.00
	Frost action	1.00	Flooding	0.80		
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.00		
3074A:						
Radford	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00			Depth to saturated zone	0.75
	Low strength	1.00	Flooding	0.80		
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
3107+:						
Sawmill	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00			Depth to saturated zone	1.00
	Low strength	1.00	Flooding	0.80		
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
3107A:						
Sawmill	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00			Depth to saturated zone	1.00
	Low strength	1.00	Flooding	0.80		
	Depth to saturated zone	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3405A:						
Zook	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks cave	0.10		
	Low strength	1.00	Too clayey	0.00		
	Shrink-swell	1.00				
3415A:						
Orion	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	0.75
	Low strength	1.00	Flooding	0.80		
	Depth to saturated zone	0.75				
3451A:						
Lawson	Very limited		Very limited		Very limited	
	Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.75
	Low strength	1.00	Cutbanks cave	0.10		
	Depth to saturated zone	0.75				
7428A:						
Coffeen	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	0.75	Cutbanks cave	0.10		
	Flooding	0.40				
9017A:						
Keomah	Very limited		Very limited		Somewhat limited	
	Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	1.00				
	Depth to saturated zone	0.94				
9086B:						
Osco	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
9279B:						
Rozetta	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				
9279C2:						
Rozetta	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00	Cutbanks cave	0.10		
	Shrink-swell	0.50				

Table 14b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9675B:						
Greenbush	Very limited		Somewhat limited		Not limited	
	Frost action	1.00	Depth to saturated zone	0.15		
	Low strength	1.00				
	Shrink-swell	0.50	Cutbanks cave	0.10		

Table 15.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:										
Hickory---------	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
8F, 8G:										
Hickory---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
17A:										
Keomah----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	0.53					Too clayey	0.50
43A:										
Ipava----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00			Too clayey	0.50			Too clayey	0.50
43B:										
Ipava----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Slope	0.18	Too clayey	0.50			Too clayey	0.50
45A:										
Denny----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00			Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00			Ponding	1.00				
	Depth to saturated zone	1.00			Too clayey	0.50			Too clayey	0.50

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51A:										
Muscatune	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
61A:										
Atterberry	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
68A, 68A+:										
Sable	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
81A:										
Littleton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53						
86B, 86B2:										
Osco	Somewhat limited		Somewhat limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Slope	0.18	Too clayey	0.50				
86C2, 86C3:										
Osco	Somewhat limited		Very limited		Very limited		Very limited		Not limited	
	Restricted permeability	0.46	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	0.40	Seepage	0.53						

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86D2:										
Osco	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Slope	0.96	Slope	0.96	Too clayey	0.50
	Depth to saturated zone	0.40			Too clayey	0.50				
119D2:										
Elco	Very limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	1.00	Depth to saturated zone	0.96	Depth to saturated zone	0.68	Depth to saturated zone	0.32	Too clayey	0.50
	Slope	0.96	Seepage	0.53	Too clayey	0.50			Depth to saturated zone	0.25
119E2:										
Elco	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Restricted permeability	1.00	Seepage	0.53	Too clayey	0.50			Depth to saturated zone	0.25
212D2:										
Thebes	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Slope	0.96	Seepage	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46			Too clayey	0.50			Too clayey	0.50
212D3:										
Thebes	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Filtering capacity	1.00	Slope	1.00	Seepage	1.00	Seepage	1.00	Slope	0.96
	Slope	0.96	Seepage	1.00	Slope	0.96	Slope	0.96	Seepage	0.52
	Restricted permeability	0.46								

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
212F:										
Thebes----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
			Seepage	1.00	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Slope	1.00			Too clayey	0.50				
	Restricted permeability	0.46								
250D2:										
Velma----------	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
257A:										
Clarksdale------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
259C2:										
Assumption------	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Restricted permeability	1.00	Depth to saturated zone	0.96	Too clayey	0.50			Depth to saturated zone	0.25
			Seepage	0.53						
259D2:										
Assumption------	Very limited		Very limited		Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.96
	Restricted permeability	1.00	Depth to saturated zone	0.96	Slope	0.96	Slope	0.96	Too clayey	0.50
	Slope	0.96	Seepage	0.53	Too clayey	0.50			Depth to saturated zone	0.25
274C2:										
Seaton----------	Somewhat limited		Very limited		Not limited		Not limited		Not limited	
	Restricted permeability	0.46	Slope	1.00						
			Seepage	0.53						
274D:										
Seaton----------	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53						

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
275A:										
Joy----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53						
278A:										
Stronghurst-----	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
279B:										
Rozetta---------	Somewhat limited		Somewhat limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Slope	0.18	Too clayey	0.50				
279C2, 279C3:										
Rozetta---------	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Seepage	0.53	Too clayey	0.50				
280B:										
Fayette---------	Somewhat limited		Somewhat limited		Somewhat limited		Not limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
			Slope	0.18						
280C2:										
Fayette---------	Somewhat limited		Very limited		Somewhat limited		Not limited		Somewhat limited	
	Restricted permeability	0.46	Slope	1.00	Too clayey	0.50			Too clayey	0.50
			Seepage	0.53						
280D2, 280D3:										
Fayette---------	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
430B:										
Raddle	Somewhat limited		Somewhat limited		Not limited		Not limited		Not limited	
	Restricted permeability	0.46	Seepage	0.53						
			Slope	0.18						
505G:										
Dunbarton	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
	Slope	1.00			Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
			Slope	1.00	Too clayey	1.00			Too clayey	1.00
			Seepage	0.21						
549D2:										
Marseilles	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Depth to soft bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
					Slope	0.96	Slope	0.96	Slope	0.96
	Depth to bedrock	1.00	Slope	1.00	Too clayey	0.50			Too clayey	0.50
	Slope	0.96								
549F, 549G:										
Marseilles	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Depth to soft bedrock	1.00	Slope	1.00	Slope	1.00	Depth to bedrock	1.00
					Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
	Depth to bedrock	1.00	Slope	1.00	Too clayey	0.50			Too clayey	0.50
	Slope	1.00								
567C2:										
Elkhart	Somewhat limited		Very limited		Very limited		Very limited		Not limited	
	Restricted permeability	0.46	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
			Seepage	0.53						
	Depth to saturated zone	0.43								
567D3:										
Elkhart	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53						
					Slope	0.96	Slope	0.96		
	Depth to saturated zone	0.43								

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
671B:										
Biggsville	Somewhat limited		Somewhat limited		Very limited		Very limited		Not limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	0.40	Slope	0.18						
671C2:										
Biggsville	Somewhat limited		Very limited		Very limited		Very limited		Not limited	
	Restricted permeability	0.46	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	0.40	Seepage	0.53						
675B:										
Greenbush	Somewhat limited		Somewhat limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Slope	0.18	Too clayey	0.50				
675C2:										
Greenbush	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Seepage	0.53	Too clayey	0.50				
678B:										
Mannon	Somewhat limited		Somewhat limited		Very limited		Very limited		Not limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Depth to saturated zone	0.40	Slope	0.18						
712A:										
Spaulding	Very limited		Very limited		Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	0.53					Too clayey	0.50

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
802B:										
Orthents	Very limited		Somewhat limited		Not limited		Not limited		Not limited	
	Restricted permeability	1.00	Slope	0.32						
835G. Earthen dam										
864. Pits, quarries										
895D:										
Fayette	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
Westville	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
936D2:										
Fayette	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
Hickory	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
936G:										
Fayette	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50
Hickory	Very limited		Very limited		Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50			Too clayey	0.50

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
943D3:										
Seaton----------	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53						
Timula----------	Somewhat limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.96	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	0.46	Seepage	0.53						
957D2, 957D3:										
Elco----------	Very limited		Very limited		Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Slope	1.00	Slope	0.96	Slope	0.96	Slope	0.96
	Restricted permeability	1.00	Depth to saturated zone	0.96	Depth to saturated zone	0.68	Depth to saturated zone	0.32	Too clayey	0.50
	Slope	0.96	Seepage	0.53	Too clayey	0.50			Depth to saturated zone	0.25
Atlas----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	1.00			Too clayey	1.00	Slope	0.96	Depth to saturated zone	1.00
	Slope	0.96			Slope	0.96			Slope	0.96
1405A:										
Zook----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Ponding	1.00	Flooding	1.00	Flooding	1.00	Ponding	1.00
	Restricted permeability	1.00	Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	1.00			Too clayey	1.00				
3074A:										
Radford---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50				

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3107+, 3107A:										
Sawmill---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Restricted permeability	0.46	Seepage	0.53	Too clayey	0.50				
3405A:										
Zook----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
	Depth to saturated zone	1.00			Too clayey	1.00				
3415A:										
Orion----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Restricted permeability	0.46	Seepage	0.53						
3451A:										
Lawson----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00		
	Restricted permeability	0.46	Seepage	0.53						
7428A:										
Coffeen---------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00	Seepage	1.00	Seepage	1.00	Seepage	0.22
	Flooding	0.40	Flooding	0.40	Flooding	0.40	Flooding	0.40		
9017A:										
Keomah----------	Very limited		Very limited		Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.08	Too clayey	0.50			Too clayey	0.50

Table 15.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9086B:										
Osco----------	Somewhat limited		Somewhat limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Slope	0.18	Too clayey	0.50				
9279B:										
Rozetta---------	Somewhat limited		Somewhat limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Slope	0.18	Too clayey	0.50				
9279C2:										
Rozetta---------	Somewhat limited		Very limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Slope	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Seepage	0.53	Too clayey	0.50				
9675B:										
Greenbush-------	Somewhat limited		Somewhat limited		Very limited		Very limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
	Depth to saturated zone	0.40	Slope	0.18	Too clayey	0.50				

Table 16.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
	Too acid	0.88	Shrink-swell	0.94	Too clayey	0.57
	Too clayey	0.98			Rock fragments	0.88
8F:						
Hickory	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
	Too acid	0.88	Low strength	0.00	Too clayey	0.57
	Too clayey	0.98	Shrink-swell	0.94	Rock fragments	0.88
8G:						
Hickory	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
	Too acid	0.68	Low strength	0.00	Too clayey	0.57
	Too clayey	0.98	Shrink-swell	0.99	Rock fragments	0.88
	Water erosion	0.99				
17A:						
Keomah	Fair		Poor		Fair	
	Low content of organic matter	0.02	Low strength	0.00	Depth to saturated zone	0.04
	Too clayey	0.08	Depth to saturated zone	0.04	Too clayey	0.05
	Water erosion	0.68	Shrink-swell	0.89		
	Too acid	0.74				
43A:						
Ipava	Fair		Poor		Fair	
	Water erosion	0.99	Low strength	0.00	Depth to saturated zone	0.14
			Depth to saturated zone	0.14		
			Shrink-swell	0.59		
43B:						
Ipava	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Low content of organic matter	0.88	Depth to saturated zone	0.14	Depth to saturated zone	0.14
	Water erosion	0.99	Shrink-swell	0.22		
45A:						
Denny	Fair		Poor		Poor	
	Too clayey	0.02	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.01
	Water erosion	0.90	Shrink-swell	0.74		
	Too acid	0.95				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
51A:						
Muscatune	Fair		Poor		Fair	
	Too acid	0.84	Low strength	0.00	Depth to saturated zone	0.14
	Too clayey	0.92	Depth to saturated zone	0.14	Too clayey	0.67
	Low content of organic matter	0.92	Shrink-swell	0.99		
	Water erosion	0.99				
61A:						
Atterberry	Fair		Poor		Fair	
	Low content of organic matter	0.18	Low strength	0.00	Depth to saturated zone	0.04
	Too acid	0.54	Depth to saturated zone	0.04	Too clayey	0.55
	Water erosion	0.90	Shrink-swell	0.99	Too acid	0.98
	Too clayey	0.92				
68A:						
Sable	Fair		Poor		Poor	
	Low content of organic matter	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.98	Low strength	0.00	Too clayey	0.98
	Water erosion	0.99	Shrink-swell	0.87		
68A+:						
Sable	Fair		Poor		Poor	
	Low content of organic matter	0.68	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too clayey	0.98	Low strength	0.00	Too clayey	0.67
	Water erosion	0.99	Shrink-swell	0.97		
81A:						
Littleton	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Depth to saturated zone	0.14
	Water erosion	0.68	Depth to saturated zone	0.14		
86B:						
Osco	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.64
	Too acid	0.84	Shrink-swell	0.87		
	Too clayey	0.98				
	Water erosion	0.99				
86B2:						
Osco	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.64
	Too acid	0.54	Shrink-swell	0.99		
	Too clayey	0.98				
	Water erosion	0.99				
86C2, 86C3:						
Osco	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.64
	Water erosion	0.68	Shrink-swell	0.87		
	Too acid	0.84				
	Too clayey	0.98				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
86D2:						
Osco	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Slope	0.04
	Too acid	0.84	Shrink-swell	0.87	Too clayey	0.64
	Too clayey	0.98				
	Water erosion	0.99				
119D2:						
Elco	Fair		Poor		Fair	
	Low content of organic matter	0.02	Low strength	0.00	Slope	0.04
	Water erosion	0.90	Shrink-swell	0.38	Too clayey	0.57
	Too clayey	0.98	Depth to saturated zone	0.98	Depth to saturated zone	0.98
119E2:						
Elco	Fair		Poor		Poor	
	Low content of organic matter	0.02	Low strength	0.00	Slope	0.00
	Water erosion	0.68	Slope	0.50	Too clayey	0.57
	Too clayey	0.98	Shrink-swell	0.87	Depth to saturated zone	0.98
			Depth to saturated zone	0.98		
212D2:						
Thebes	Fair		Good		Fair	
	Low content of organic matter	0.50			Slope	0.04
	Too acid	0.54			Too clayey	0.64
	Water erosion	0.90			Too acid	0.98
	Too clayey	0.98				
212D3:						
Thebes	Fair		Good		Fair	
	Low content of organic matter	0.12			Slope	0.04
	Too acid	0.54			Too clayey	0.64
	Water erosion	0.90			Too acid	0.98
	Too clayey	0.98				
212F:						
Thebes	Fair		Poor		Poor	
	Low content of organic matter	0.50	Low strength	0.00	Slope	0.00
	Too acid	0.54	Slope	0.00	Too clayey	0.64
	Water erosion	0.90			Too acid	0.98
	Too clayey	0.98				
250D2:						
Velma	Fair		Poor		Fair	
	Low content of organic matter	0.68	Low strength	0.00	Slope	0.04
	Too acid	0.88	Shrink-swell	0.98		
	Carbonate content	0.97				
257A:						
Clarksdale	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Low content of organic matter	0.12	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Water erosion	0.90	Shrink-swell	0.50		
	Too acid	0.97				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
259C2:						
Assumption	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.64
	Too acid	0.97	Shrink-swell	0.31	Depth to saturated zone	0.98
	Too clayey	0.98	Depth to saturated zone	0.98		
	Water erosion	0.99				
259D2:						
Assumption	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
	Too acid	0.97	Shrink-swell	0.38	Too clayey	0.64
	Too clayey	0.98	Depth to saturated zone	0.98	Depth to saturated zone	0.98
	Water erosion	0.99				
274C2:						
Seaton	Fair		Poor		Good	
	Low content of organic matter	0.88	Low strength	0.00		
	Too acid	0.88				
	Water erosion	0.90				
	Carbonate content	0.97				
274D:						
Seaton	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Slope	0.04
	Too acid	0.88				
	Water erosion	0.90				
	Carbonate content	0.97				
275A:						
Joy	Fair		Poor		Fair	
	Low content of organic matter	0.60	Low strength	0.00	Depth to saturated zone	0.14
	Water erosion	0.90	Depth to saturated zone	0.14		
	Too acid	0.97				
278A:						
Stronghurst	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Depth to saturated zone	0.04
	Water erosion	0.90	Depth to saturated zone	0.04	Too clayey	0.70
	Too acid	0.97	Shrink-swell	0.97		
	Too clayey	0.98				
279B:						
Rozetta	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
	Water erosion	0.68	Shrink-swell	0.92		
	Too acid	0.68				
	Too clayey	0.98				
279C2:						
Rozetta	Fair		Poor		Fair	
	Low content of organic matter	0.24	Low strength	0.00	Too clayey	0.60
	Water erosion	0.68	Shrink-swell	0.93		
	Too acid	0.68				
	Too clayey	0.98				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
279C3:						
Rozetta	Fair		Poor		Fair	
	Low content of organic matter	0.24	Low strength	0.00	Too clayey	0.60
	Water erosion	0.68				
	Too acid	0.68				
	Too clayey	0.98				
280B:						
Fayette	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.64
			Shrink-swell	0.87		
	Water erosion	0.68				
	Too acid	0.68				
	Too clayey	0.98				
280C2:						
Fayette	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too clayey	0.57
			Shrink-swell	0.87		
	Too acid	0.68				
	Water erosion	0.90				
	Too clayey	0.98				
280D2:						
Fayette	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
			Shrink-swell	0.87	Too clayey	0.57
	Too acid	0.68				
	Water erosion	0.90				
	Too clayey	0.98				
280D3:						
Fayette	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
			Shrink-swell	0.87	Too clayey	0.57
	Water erosion	0.68				
	Too acid	0.68				
	Too clayey	0.98				
430B:						
Raddle	Fair		Fair		Good	
	Water erosion	0.68	Low strength	0.22		
505G:						
Dunbarton	Poor		Poor		Poor	
	Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
	Depth to bedrock	0.00	Low strength	0.00	Depth to bedrock	0.00
	Low content of organic matter	0.12	Slope	0.00	Rock fragments	0.50
			Shrink-swell	0.12	Too clayey	0.53
	Water erosion	0.90				
	Too clayey	0.92				
549D2:						
Marseilles	Fair		Poor		Fair	
	Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.04
			Low strength	0.00	Depth to bedrock	0.29
	Depth to bedrock	0.29	Shrink-swell	0.87	Too clayey	0.39
	Too acid	0.50			Too acid	0.88
	Droughty	0.50				
	Too clayey	0.68				
	Water erosion	0.99				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
549F:						
Marseilles	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.00
			Low strength	0.00	Too clayey	0.39
	Too acid	0.50	Slope	0.00	Too acid	0.88
	Too clayey	0.68	Shrink-swell	0.87	Depth to bedrock	0.90
	Depth to bedrock	0.90				
	Droughty	0.99				
	Water erosion	0.99				
549G:						
Marseilles	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to bedrock	0.00	Slope	0.00
			Slope	0.00	Too clayey	0.39
	Too acid	0.50	Low strength	0.00	Too acid	0.88
	Too clayey	0.68	Shrink-swell	0.87	Depth to bedrock	0.90
	Depth to bedrock	0.90				
	Droughty	0.99				
	Water erosion	0.99				
567C2:						
Elkhart	Fair		Poor		Fair	
	Low content of organic matter	0.01	Low strength	0.00	Too clayey	0.57
	Water erosion	0.68				
	Carbonate content	0.68				
	Too clayey	0.98				
567D3:						
Elkhart	Fair		Poor		Fair	
	Low content of organic matter	0.01	Low strength	0.00	Slope	0.04
					Carbonate content	0.68
	Water erosion	0.68				
	Carbonate content	0.68				
671B:						
Biggsville	Fair		Poor		Good	
	Water erosion	0.90	Low strength	0.00		
	Carbonate content	0.97				
671C2:						
Biggsville	Fair		Poor		Good	
	Low content of organic matter	0.50	Low strength	0.00		
	Water erosion	0.90				
675B:						
Greenbush	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.70
			Shrink-swell	0.91		
	Too acid	0.97				
	Too clayey	0.98				
	Water erosion	0.99				
675C2:						
Greenbush	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.72
			Shrink-swell	0.87		
	Too acid	0.97				
	Water erosion	0.99				
	Too clayey	0.99				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
678B:						
Mannon	Fair		Poor		Good	
	Low content of organic matter	0.68	Low strength	0.00		
	Water erosion	0.90				
	Too acid	0.97				
712A:						
Spaulding	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.68	Low strength	0.00	Carbonate content	0.68
	Too clayey	0.98	Shrink-swell	0.98	Too clayey	0.98
	Water erosion	0.99				
802B:						
Orthents	Fair		Poor		Good	
	Low content of organic matter	0.68	Low strength	0.00		
	Water erosion	0.90	Shrink-swell	0.87		
835G.						
Earthen dam						
864.						
Pits, quarries						
895D:						
Fayette	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Slope	0.04
	Water erosion	0.68	Shrink-swell	0.91	Too clayey	0.64
	Too acid	0.68				
	Too clayey	0.98				
Westville	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Slope	0.04
	Too acid	0.84	Shrink-swell	0.92		
	Water erosion	0.99				
936D2:						
Fayette	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
	Water erosion	0.68	Shrink-swell	0.87	Too clayey	0.57
	Too acid	0.68				
	Too clayey	0.98				
Hickory	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.04
	Too acid	0.88	Shrink-swell	0.95	Too clayey	0.57
	Too clayey	0.98			Rock fragments	0.88
936G:						
Fayette	Fair		Poor		Poor	
	Low content of organic matter	0.50	Slope	0.00	Slope	0.00
	Water erosion	0.68	Low strength	0.00	Too clayey	0.64
	Too acid	0.68	Shrink-swell	0.87		
	Too clayey	0.98				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
936G:						
Hickory	Fair		Poor		Poor	
	Low content of organic matter	0.12	Slope	0.00	Slope	0.00
	Too acid	0.54	Low strength	0.00	Too clayey	0.57
	Too clayey	0.98	Shrink-swell	0.95	Rock fragments	0.97
	Water erosion	0.99			Too acid	0.98
943D3:						
Seaton	Fair		Poor		Fair	
	Water erosion	0.68	Low strength	0.00	Slope	0.04
	Low content of organic matter	0.88				
	Too acid	0.88				
Timula	Fair		Fair		Fair	
	Low content of organic matter	0.12	Low strength	0.78	Slope	0.04
	Water erosion	0.37				
	Carbonate content	0.92				
957D2:						
Elco	Fair		Poor		Fair	
	Low content of organic matter	0.02	Low strength	0.00	Slope	0.04
	Water erosion	0.68	Shrink-swell	0.33	Too clayey	0.57
	Too acid	0.95	Depth to saturated zone	0.98	Depth to saturated zone	0.98
	Too clayey	0.98				
Atlas	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.50	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Too acid	0.99	Shrink-swell	0.12	Slope	0.04
	Water erosion	0.99				
957D3:						
Elco	Fair		Poor		Fair	
	Low content of organic matter	0.02	Low strength	0.00	Slope	0.04
	Water erosion	0.90	Shrink-swell	0.59	Too clayey	0.57
	Too clayey	0.98	Depth to saturated zone	0.98	Depth to saturated zone	0.98
	Too acid	0.99				
Atlas	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Low content of organic matter	0.12	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Too acid	0.88	Shrink-swell	0.12	Slope	0.04
	Water erosion	0.99				
1405A:						
Zook	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.12		
3074A:						
Radford	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Depth to saturated zone	0.14
	Water erosion	0.68	Depth to saturated zone	0.14		

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material: Rating class and limiting features	Value	Potential as source of roadfill: Rating class and limiting features	Value	Potential as source of topsoil: Rating class and limiting features	Value
3107+, 3107A:						
Sawmill	Fair		Poor		Poor	
	Too clayey	0.98	Low strength	0.00	Depth to saturated zone	0.00
			Depth to saturated zone	0.00	Too clayey	0.93
			Shrink-swell	0.89		
3405A:						
Zook	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Too clayey	0.00
			Shrink-swell	0.12		
3415A:						
Orion	Fair		Poor		Fair	
	Water erosion	0.90	Low strength	0.00	Depth to saturated zone	0.14
			Depth to saturated zone	0.14		
3451A:						
Lawson	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Depth to saturated zone	0.14
	Water erosion	0.68	Depth to saturated zone	0.14		
7428A:						
Coffeen	Fair		Fair		Fair	
	Water erosion	0.68	Depth to saturated zone	0.14	Depth to saturated zone	0.14
9017A:						
Keomah	Fair		Poor		Fair	
	Too clayey	0.02	Low strength	0.00	Too clayey	0.01
	Low content of organic matter	0.12	Depth to saturated zone	0.04	Depth to saturated zone	0.04
	Too acid	0.54	Shrink-swell	0.46	Too acid	0.98
	Water erosion	0.68				
9086B:						
Osco	Fair		Poor		Fair	
	Low content of organic matter	0.50	Low strength	0.00	Too clayey	0.64
			Shrink-swell	0.87		
	Too acid	0.84				
	Too clayey	0.98				
	Water erosion	0.99				
9279B:						
Rozetta	Fair		Poor		Fair	
	Low content of organic matter	0.24	Low strength	0.00	Too clayey	0.60
			Shrink-swell	0.87	Too acid	0.98
	Too acid	0.54				
	Water erosion	0.90				
	Too clayey	0.98				
9279C2:						
Rozetta	Fair		Poor		Fair	
	Low content of organic matter	0.24	Low strength	0.00	Too clayey	0.60
			Shrink-swell	0.87		
	Too acid	0.68				
	Water erosion	0.90				
	Too clayey	0.98				

Table 16.--Construction Materials--Continued

Map symbol and soil name	Potential as source of reclamation material		Potential as source of roadfill		Potential as source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9675B:						
Greenbush	Fair		Poor		Fair	
	Low content of organic matter	0.88	Low strength	0.00	Too clayey	0.70
	Too acid	0.97	Shrink-swell	0.91		
	Too clayey	0.98				
	Water erosion	0.99				

Table 17a.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2, 8D3:						
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.01	Depth to water	1.00
	Slope	0.02				
8F:						
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.05	Depth to water	1.00
	Slope	0.36				
8G:						
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.99	Piping	0.27	Depth to water	1.00
	Seepage	0.72				
17A:						
Keomah	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.30		
43A:						
Ipava	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
43B:						
Ipava	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Hard to pack	0.24		
45A:						
Denny	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.04	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	0.14		
51A:						
Muscatune	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.18		
61A:						
Atterberry	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.03		
68A, 68A+:						
Sable	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81A:						
Littleton	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.82	Cutbanks cave	0.10
86B:						
Osco	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.03	Depth to water	1.00
86B2:						
Osco	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.21	Depth to water	1.00
86C2:						
Osco	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.01	Depth to water	1.00
86C3:						
Osco	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00
86D2:						
Osco	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00
	Slope	0.02				
119D2:						
Elco	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Depth to saturated zone	0.68	Depth to water	1.00
	Slope	0.02				
			Piping	0.02		
119E2:						
Elco	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.96
	Slope	0.12			Depth to water	0.14
			Piping	0.05	Cutbanks cave	0.10
212D2:						
Thebes	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Piping	0.86	Depth to water	1.00
	Slope	0.02	Seepage	0.22		
212D3:						
Thebes	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Piping	0.76	Depth to water	1.00
	Slope	0.02	Seepage	0.22		
212F:						
Thebes	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Piping	0.83	Depth to water	1.00
	Slope	0.36	Seepage	0.22		
250D2:						
Velma	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.02	Depth to water	1.00
	Slope	0.02				
257A:						
Clarksdale	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
259C2:						
Assumption	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.98
			Piping	0.01	Depth to water	0.14
					Cutbanks cave	0.10
259D2:						
Assumption	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.98
	Slope	0.02			Depth to water	0.14
					Cutbanks cave	0.10
274C2:						
Seaton	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.90	Depth to water	1.00
274D:						
Seaton	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.88	Depth to water	1.00
	Slope	0.02				
275A:						
Joy	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.73	Cutbanks cave	0.10
278A:						
Stronghurst	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
279B, 279C2:						
Rozetta	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.01	Depth to water	1.00
279C3:						
Rozetta	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.63	Depth to water	1.00
280B:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.21	Depth to water	1.00
280C2:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.03	Depth to water	1.00
280D2:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.03	Depth to water	1.00
	Slope	0.02				
280D3:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.08	Depth to water	1.00
	Slope	0.02				
430B:						
Raddle	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Piping	1.00	Depth to water	1.00

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
505G:						
Dunbarton	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
	Slope	0.88	Hard to pack	0.51		
	Seepage	0.47				
549D2:						
Marseilles	Somewhat limited		Somewhat limited		Very limited	
	Depth to bedrock	0.19	Thin layer	0.93	Depth to water	1.00
	Slope	0.02	Hard to pack	0.01		
549F:						
Marseilles	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.36	Thin layer	0.70	Depth to water	1.00
	Depth to bedrock	0.04				
549G:						
Marseilles	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.99	Thin layer	0.70	Depth to water	1.00
	Depth to bedrock	0.04				
567C2:						
Elkhart	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.24	Depth to water	1.00
567D3:						
Elkhart	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.13	Depth to water	1.00
	Slope	0.02				
671B:						
Biggsville	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.89	Depth to water	1.00
671C2:						
Biggsville	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.66	Depth to water	1.00
675B:						
Greenbush	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.17	Depth to water	1.00
675C2:						
Greenbush	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.08	Depth to water	1.00
678B:						
Mannon	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.78	Depth to water	1.00
712A:						
Spaulding	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Ponding	1.00	Slow refill	0.28
			Depth to saturated zone	1.00	Cutbanks cave	0.10
802B:						
Orthents	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.04	Piping	0.50	Depth to water	1.00
835G.						
Earthen dam						

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
864. Pits, quarries						
895D:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.26	Depth to water	1.00
	Slope	0.02				
Westville	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.01	Depth to water	1.00
	Slope	0.02				
936D2:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.01	Depth to water	1.00
	Slope	0.02				
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.03	Depth to water	1.00
	Slope	0.02				
936G:						
Fayette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.97	Piping	0.05	Depth to water	1.00
	Seepage	0.72				
Hickory	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.97	Piping	0.04	Depth to water	1.00
	Seepage	0.72				
943D3:						
Seaton	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.89	Depth to water	1.00
	Slope	0.02				
Timula	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Piping	1.00	Depth to water	1.00
	Slope	0.02				
957D2:						
Elco	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.98
	Slope	0.02			Depth to water	0.14
					Cutbanks cave	0.10
Atlas	Somewhat limited		Very limited		Very limited	
	Slope	0.02	Depth to saturated zone	1.00	Depth to water	1.00
			Hard to pack	0.38		
957D3:						
Elco	Somewhat limited		Somewhat limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	0.68	Slow refill	0.96
	Slope	0.02			Depth to water	0.14
					Cutbanks cave	0.10
Atlas	Somewhat limited		Very limited		Very limited	
	Slope	0.02	Depth to saturated zone	1.00	Slow refill	1.00
					Cutbanks cave	0.10
			Hard to pack	0.35		

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1405A:						
Zook	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.02	Ponding	1.00	Slow refill	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
			Hard to pack	1.00		
3074A:						
Radford	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.40	Cutbanks cave	0.10
3107+:						
Sawmill	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
			Piping	0.02	Cutbanks cave	0.10
3107A:						
Sawmill	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
3405A:						
Zook	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.02	Depth to saturated zone	1.00	Slow refill	0.96
					Cutbanks cave	0.10
			Hard to pack	1.00		
3415A:						
Orion	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
					Slow refill	0.28
			Piping	1.00		
3451A:						
Lawson	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	0.75		
7428A:						
Coffeen	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Piping	1.00		
9017A:						
Keomah	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.30	Depth to saturated zone	1.00	Slow refill	0.70
					Cutbanks cave	0.10
9086B:						
Osco	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Piping	0.01	Depth to water	1.00
9279B:						
Rozetta	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00
9279C2:						
Rozetta	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00

Table 17a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9675B:						
Greenbush	Somewhat limited Seepage	0.72	Somewhat limited Piping	0.05	Very limited Depth to water	1.00

Table 17b.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8D2:						
Hickory	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Slope	1.00	Slope	0.96
			Water erosion	0.89	Cutbanks cave	0.10
8D3:						
Hickory	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Slope	1.00	Slope	0.96
			Water erosion	0.56	Cutbanks cave	0.10
8F:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Water erosion	0.89	Cutbanks cave	0.10
8G:						
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Cutbanks cave	0.10
17A:						
Keomah	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to	1.00
			Depth to	1.00	saturated zone	
			saturated zone		Cutbanks cave	0.10
43A:						
Ipava	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to	1.00
			Depth to	1.00	saturated zone	
			saturated zone		Cutbanks cave	0.10
43B:						
Ipava	Somewhat limited		Very limited		Very limited	
	Slope	0.25	Water erosion	1.00	Depth to	1.00
			Depth to	1.00	saturated zone	
			saturated zone		Cutbanks cave	0.10
			Slope	0.25		
45A:						
Denny	Not limited		Very limited		Very limited	
			Water erosion	1.00	Ponding	1.00
			Ponding	1.00	Depth to	1.00
			Depth to	1.00	saturated zone	
			saturated zone		Cutbanks cave	0.10
51A:						
Muscatune	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to	1.00
			Depth to	1.00	saturated zone	
			saturated zone		Cutbanks cave	0.10

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
61A:						
Atterberry	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
68A:						
Sable	Not limited		Very limited		Very limited	
			Water erosion	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
68A+:						
Sable	Not limited		Very limited		Very limited	
			Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Water erosion	0.56	Cutbanks cave	0.10
81A:						
Littleton	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
86B, 86B2:						
Osco	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10
86C2, 86C3:						
Osco	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.99	Cutbanks cave	0.10
86D2:						
Osco	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Depth to saturated zone	0.15
					Cutbanks cave	0.10
119D2:						
Elco	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Depth to saturated zone	0.99
			Slope	1.00	Slope	0.96
			Depth to saturated zone	1.00	Cutbanks cave	0.10
119E2:						
Elco	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00	Cutbanks cave	0.10

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
212D2, 212D3:						
Thebes	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Cutbanks cave	1.00
			Slope	1.00	Slope	0.96
212F:						
Thebes	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Cutbanks cave	1.00
250D2:						
Velma	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Slope	1.00	Slope	0.96
			Water erosion	0.89	Cutbanks cave	0.10
257A:						
Clarksdale	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00		
					Cutbanks cave	0.10
259C2:						
Assumption	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Depth to saturated zone	0.99
			Depth to saturated zone	1.00		
					Cutbanks cave	0.10
			Slope	0.99		
259D2:						
Assumption	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Depth to saturated zone	0.99
			Slope	1.00		
			Depth to saturated zone	1.00	Slope	0.96
					Cutbanks cave	0.10
274C2:						
Seaton	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Cutbanks cave	0.50
			Slope	0.99		
274D:						
Seaton	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.50
275A:						
Joy	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00		
					Cutbanks cave	0.10
278A:						
Stronghurst	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00		
					Cutbanks cave	0.10
279B:						
Rozetta	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25		
					Cutbanks cave	0.10

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279C2, 279C3:						
Rozetta	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.99	Cutbanks cave	0.10
280B:						
Fayette	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Cutbanks cave	0.10
			Slope	0.25		
280C2:						
Fayette	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Cutbanks cave	0.10
			Slope	0.99		
280D2, 280D3:						
Fayette	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.10
430B:						
Raddle	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Cutbanks cave	0.10
			Slope	0.25		
505G:						
Dunbarton	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00	Slope	1.00
			Depth to bedrock	1.00	Cutbanks cave	0.10
549D2:						
Marseilles	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
	Depth to bedrock	0.71	Slope	1.00	Depth to bedrock	0.71
			Depth to bedrock	0.71	Cutbanks cave	0.10
549F, 549G:						
Marseilles	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
	Depth to bedrock	0.10	Slope	1.00	Cutbanks cave	0.10
			Depth to bedrock	0.10	Depth to bedrock	0.10
567C2:						
Elkhart	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Cutbanks cave	0.50
			Slope	0.99	Depth to saturated zone	0.16
567D3:						
Elkhart	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.50
					Depth to saturated zone	0.16
671B:						
Biggsville	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
671C2:						
Biggsville	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.99	Cutbanks cave	0.10
675B:						
Greenbush	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10
675C2:						
Greenbush	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.99	Cutbanks cave	0.10
678B:						
Mannon	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10
712A:						
Spaulding	Not limited		Very limited		Very limited	
			Water erosion	1.00	Ponding	1.00
			Ponding	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
802B:						
Orthents	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.36	Water erosion	1.00	Cutbanks cave	0.10
835G.						
Earthen dam						
864.						
Pits, quarries						
895D:						
Fayette	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.10
Westville	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.10
936D2:						
Fayette	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.10
Hickory	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Slope	1.00	Slope	0.96
			Water erosion	0.89	Cutbanks cave	0.10

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
936G:						
Fayette	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Cutbanks cave	0.10
Hickory	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Slope	1.00
			Slope	1.00	Cutbanks cave	0.10
943D3:						
Seaton	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.50
Timula	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Slope	0.96
			Slope	1.00	Cutbanks cave	0.50
957D2, 957D3:						
Elco	Very limited		Very limited		Somewhat limited	
	Slope	1.00	Water erosion	1.00	Depth to saturated zone	0.99
			Slope	1.00		
			Depth to saturated zone	1.00	Slope	0.96
					Cutbanks cave	0.10
Atlas	Very limited		Very limited		Very limited	
	Slope	1.00	Water erosion	1.00	Depth to saturated zone	1.00
			Slope	1.00		
			Depth to saturated zone	1.00	Slope	0.96
					Cutbanks cave	0.10
					Too clayey	0.02
1405A:						
Zook	Not limited		Very limited		Very limited	
			Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00	Flooding	1.00
					Depth to saturated zone	1.00
			Water erosion	0.56		
					Cutbanks cave	0.10
					Too clayey	0.01
3074A:						
Radford	Not limited		Very limited		Very limited	
			Water erosion	1.00	Flooding	1.00
			Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Cutbanks cave	0.10
3107+:						
Sawmill	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Flooding	1.00
					Depth to saturated zone	1.00
			Water erosion	0.89		
					Cutbanks cave	0.10
3107A:						
Sawmill	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Flooding	1.00
					Depth to saturated zone	1.00
			Water erosion	0.56		
					Cutbanks cave	0.10

Table 17b.--Water Management--Continued

Map symbol and soil name	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3405A:						
Zook	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Flooding	1.00
			Water erosion	0.56	Depth to saturated zone	1.00
					Cutbanks cave	0.10
					Too clayey	0.01
3415A:						
Orion	Not limited		Very limited		Very limited	
			Water erosion	1.00	Flooding	1.00
			Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Cutbanks cave	1.00
3451A:						
Lawson	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	Flooding	1.00
			Water erosion	0.89	Depth to saturated zone	1.00
					Cutbanks cave	0.10
7428A:						
Coffeen	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
9017A:						
Keomah	Not limited		Very limited		Very limited	
			Water erosion	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00	Cutbanks cave	0.10
9086B:						
Osco	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10
9279B:						
Rozetta	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10
9279C2:						
Rozetta	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.99	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.99	Cutbanks cave	0.10
9675B:						
Greenbush	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.25	Water erosion	1.00	Depth to saturated zone	0.15
			Slope	0.25	Cutbanks cave	0.10

Table 18.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated. The representative values for USDA texture and Unified and AASHTO classifications are designated with an asterisk. Representative values are indicative of conditions that occur most commonly)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
8D2:												
Hickory---------	0-6	Silt loam*	CL*, CL-ML, ML	A-6*, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	6-51	Clay loam*, silty clay loam, gravelly clay loam	CL*	A-6*, A-7	0-1	0-5	85-100	70-100	65-95	50-80	30-50	15-30
	51-60	Loam*, clay loam, gravelly clay loam	CL-ML*, CL, SC, SC-SM	A-6*, A-4, A-2	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
8D3:												
Hickory---------	0-5	Clay loam*	CL*	A-6*, A-7	0	0-5	95-100	90-100	80-100	65-80	30-50	15-30
	5-30	Clay loam*, silty clay loam, gravelly clay loam	CL*	A-6*, A-7	0-1	0-5	85-100	70-100	65-95	50-85	30-50	15-30
	30-40	Clay loam*, loam, gravelly clay loam	CL*, SC	A-6*, A-4	0-1	0-5	85-100	70-100	65-95	50-85	30-50	8-30
	40-60	Loam*, clay loam, gravelly clay loam	CL-ML*, CL, SC, SC-SM	A-6*, A-4, A-2	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
8F:												
Hickory---------	0-12	Silt loam*	CL*, ML, CL-ML	A-4*, A-6	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	12-53	Clay loam*, silty clay loam, gravelly clay loam	CL*	A-6*, A-7	0-1	0-5	85-100	70-100	65-95	50-85	30-50	15-30
	53-58	Loam*, sandy loam, gravelly clay loam	CL-ML*, SC, SC-SM, CL	A-6*, A-4, A-2	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
	58-63	Loam*, sandy loam, gravelly clay loam	CL-ML*, SC, CL, SC-SM	A-6*, A-4, A-2	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
8G:												
Hickory---------	0-4	Silt loam*	CL*, CL-ML, ML	A-6*, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	4-12	Loam*	CL*, ML, CL-ML	A-6*, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	12-40	Clay loam*, silty clay loam, gravelly clay loam	CL*	A-6*, A-7	0-1	0-5	85-100	70-100	65-95	50-85	30-50	15-30
	40-58	Loam*, gravelly clay loam	CL*, CL-ML, SC, SC-SM	A-6*, A-2, A-4	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
	58-63	Loam*, sandy loam, gravelly clay loam	CL-ML*, SC, SC-SM, CL	A-6*, A-2, A-4	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
17A:												
Keomah----------	0-11	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	10-15
	11-18	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	10-20
	18-33	Silty clay loam*, silty clay	CL*, CH	A-7-6*	0	0	100	100	100	95-100	45-55	25-30
	33-51	Silty clay loam*	CL*, ML	A-7-6*, A-6	0	0	100	100	100	95-100	35-45	15-25
	51-89	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	100	100	100	95-100	25-35	5-15
43A:												
Ipava----------	0-20	Silt loam*	ML*, CL	A-6*	0	0	100	100	95-100	90-100	25-40	10-20
	20-40	Silty clay loam*, silty clay	CH*, CL	A-7*	0	0	100	100	95-100	90-100	45-70	25-40
	40-60	Silt loam*, silty clay loam	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
43B:												
Ipava----------	0-17	Silt loam*	ML*, CL	A-6*	0	0	100	100	95-100	90-100	25-40	10-20
	17-58	Silty clay loam*, silty clay	CH*, CL	A-7*	0	0	100	100	95-100	90-100	45-70	25-40
	58-60	Silt loam*, silty clay loam	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
45A:												
Denny----------	0-9	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	95-100	30-40	8-15
	9-22	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	95-100	95-100	25-40	5-15
	22-45	Silty clay loam*, silty clay	CH*, CL	A-7-6*, A-6	0	0	100	100	95-100	95-100	35-60	15-35
	45-60	Silty clay loam*, silt loam	CL*	A-6*	0	0	100	100	95-100	95-100	25-40	11-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
51A:												
Muscatune-------	0-16	Silt loam*	CL*, CL-ML, ML	A-4*, A-6	0	0	100	100	97-100	95-100	24-37	4-14
	16-22	Silty clay loam*, silt loam	CL*, ML	A-6*	0	0	100	100	97-100	95-100	35-40	14-20
	22-46	Silty clay loam*	CL*, ML	A-7-6*, A-6	0	0	100	100	97-100	95-100	37-46	16-24
	46-60	Silt loam*, silty clay loam	CL*, ML	A-6*, A-4	0	0	100	100	96-100	93-100	24-37	7-18
61A:												
Atterberry------	0-9	Silt loam*	CL*, ML, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	24-37	6-16
	9-17	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	24-37	7-18
	17-48	Silty clay loam*, silt loam	CL*, ML	A-7-6*, A-6	0	0	100	100	95-100	95-100	37-46	16-25
	48-60	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	95-100	95-100	24-37	7-18
68A:												
Sable----------	0-17	Silty clay loam*	CH*, CL, MH, ML	A-7-6*	0	0	100	100	95-100	95-100	41-65	15-35
	17-23	Silty clay loam*	CH*, CL, MH, ML	A-7-6*	0	0	100	100	95-100	95-100	41-65	15-35
	23-60	Silty clay loam*, silt loam	CL*, CH	A-7-6*	0	0	100	100	95-100	95-100	40-55	20-35
68A+:												
Sable----------	0-13	Silt loam*	CL*	A-6*, A-7	0	0	100	100	95-100	95-100	30-45	10-20
	13-24	Silty clay loam*	CH*, CL, ML, MH	A-7-6*	0	0	100	100	95-100	95-100	41-65	15-35
	24-50	Silty clay loam*, silt loam	CH*, CL	A-7-6*	0	0	100	100	95-100	95-100	40-55	20-35
	50-60	Silt loam*, silty clay loam	CL*	A-6*	0	0	100	100	95-100	95-100	30-40	10-20
81A:												
Littleton-------	0-9	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	7-20
	9-32	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	7-20
	32-60	Silt loam*	CL*, CL-ML	A-6*, A-4, A-7	0	0	100	100	95-100	80-100	20-45	5-20
86B:												
Osco----------	0-14	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	100	95-100	35-45	7-20
	14-55	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	100	95-100	40-50	15-25
	55-60	Silt loam*, silty clay loam	CL*, ML	A-6*, A-4	0	0	100	100	100	95-100	35-45	7-25

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
86B2:												
Osco	0-8	Silt loam*	CL*, ML	A-6*	0	0	100	100	97-100	95-100	29-37	10-16
	8-42	Silty clay loam*, silt loam	CL*, ML	A-7-6*, A-6	0	0	100	100	97-100	95-100	37-46	16-24
	42-51	Silt loam*, silty clay loam	CL*, ML	A-6*, A-4	0	0	100	100	97-100	95-100	24-37	7-17
	51-60	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	96-100	93-100	24-37	7-18
86C2:												
Osco	0-9	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	95-100	95-100	35-45	10-20
	9-34	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	95-100	95-100	40-50	15-25
	34-60	Silt loam*, silty clay loam	CL*, ML	A-6*, A-4	0	0	100	100	95-100	95-100	35-45	15-25
86C3:												
Osco	0-7	Silty clay loam*	CL*	A-7-6*	0	0	100	100	100	95-100	40-50	15-25
	7-30	Silty clay loam*, silt loam	CL*, ML	A-7-6*, A-6	0	0	100	100	100	95-100	40-50	15-25
	30-60	Silt loam*, silty clay loam	CL*, ML	A-6*, A-7-6	0	0	100	100	100	95-100	35-45	15-25
86D2:												
Osco	0-8	Silt loam*, silty clay loam	CL*	A-6*	0	0	100	100	100	95-100	40-50	15-25
	8-51	Silty clay loam*	CL*	A-7-6*	0	0	100	100	100	95-100	40-50	15-25
	51-60	Silt loam*, silty clay loam	CL*	A-6*, A-7-6	0	0	100	100	100	95-100	35-45	15-25
119D2:												
Elco	0-6	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	25-40	5-15
	6-28	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	95-100	85-100	25-45	10-30
	28-60	Silty clay loam*, loam, clay	CL*	A-7*, A-6	0	0	100	90-100	80-100	60-95	25-50	10-30
119E2:												
Elco	0-2	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-15
	2-9	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-15
	9-32	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	95-100	85-100	25-45	10-30
	32-60	Silty clay loam*, clay loam, clay	CL*	A-7*, A-6	0	0	100	90-100	85-95	75-95	25-45	10-30

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
212D2:												
Thebes----------	0-7	Silt loam*	CL*, CL-ML, ML	A-6*, A-4	0	0	100	100	98-100	90-100	27-41	9-19
	7-34	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	98-100	88-100	35-47	17-25
	34-55	Loam*, sandy loam, silt loam	CL*, ML, SC-SM, SM	A-6*, A-2, A-4	0	0-5	100	95-100	80-90	45-75	24-40	9-21
	55-80	Stratified loamy sand to sandy loam*	SM*, SP-SM, SC-SM	A-2-4*, A-2	0	0-5	100	95-100	70-80	2-25	0-23	NP-6
212D3:												
Thebes----------	0-9	Silty clay loam*	CL*	A-7-6*, A-6	0	0	100	100	98-100	90-100	38-45	19-23
	9-34	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	98-100	88-100	35-47	17-25
	34-59	Loam*, sandy loam	CL*, CL-ML	A-6*, A-4	0	0	100	95-100	80-90	45-75	24-40	9-21
	59-80	Stratified sand to loamy sand*, loamy fine sand, loamy sand, fine sand	SM*, SC-SM, SP-SM	A-2-4*, A-3	0	0	100	95-100	70-90	2-25	0-23	NP-6
212F:												
Thebes----------	0-9	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	29-41	9-17
	9-31	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	95-100	88-100	35-47	17-25
	31-40	Loam*, sandy loam, clay loam	CL*, SC, SC-SM	A-6*, A-4	0	0	100	95-100	80-90	45-75	24-40	9-21
	40-60	Loamy sand*, sandy loam, sand	SM*, SC-SM, SP-SM	A-2-4*, A-2, A-3	0	0	100	95-100	70-90	2-25	0-23	NP-6
250D2:												
Velma----------	0-7	Silt loam*	CL*	A-4*, A-6	0	0	100	100	90-100	70-90	20-40	8-25
	7-45	Clay loam*, loam, silty clay loam	CL*	A-7*, A-6	0-1	0-5	100	85-100	80-95	55-75	30-50	15-30
	45-60	Clay loam*, loam, sandy loam	CL*, ML, SC, SM	A-4*, A-2, A-6	0-1	0-5	90-100	75-100	60-90	30-80	20-40	3-20
257A:												
Clarksdale------	0-8	Silt loam*	CL*	A-6*	0	0	100	100	95-100	90-100	25-40	10-20
	8-16	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	90-100	20-35	8-18
	16-47	Silty clay loam*, silty clay	CH*, CL	A-7*	0	0	100	100	95-100	90-100	40-65	25-40
	47-67	Silt loam*, silty clay loam	CL*	A-7-6*, A-6	0	0	100	100	95-100	90-100	25-45	10-25
	67-80	Silt loam*	CL*	A-6*	0	0	95-100	95-100	95-100	90-100	25-40	10-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
259C2:												
Assumption------	0-8	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	8-20
	8-24	Silty clay loam*, silt loam	CL*	A-6*, A-7	0	0	100	100	95-100	90-100	30-50	10-30
	24-60	Silty clay loam*, silt loam	CL*	A-6*, A-7	0	0-5	100	95-100	90-100	70-90	35-50	10-30
259D2:												
Assumption------	0-7	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	8-20
	7-28	Silty clay loam*, silt loam	CL*	A-6*, A-7	0	0	100	100	95-100	90-100	30-50	10-30
	28-60	Silty clay loam*, clay loam, clay	CL*	A-6*, A-7	0	0-5	100	95-100	90-100	70-90	35-50	20-35
274C2:												
Seaton----------	0-7	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	95-100	95-100	20-35	5-15
	7-47	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
	47-60	Silt loam*, silt	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
274D:												
Seaton----------	0-14	Silt loam*	CL*, ML, CL-ML	A-4*, A-6, A-7	0	0	100	100	95-100	95-100	20-45	2-20
	14-49	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
	49-60	Silt loam*, silt	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
275A:												
Joy----------	0-15	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	20-40	5-20
	15-51	Silt loam*	CL*	A-6*	0	0	100	100	95-100	95-100	25-40	10-20
	51-60	Silt loam*, loam, very fine sandy loam	CL*, SC, SC-SM, CL-ML	A-4*, A-6	0	0	100	100	90-100	40-100	20-35	5-15
278A:												
Stronghurst-----	0-8	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	95-100	95-100	25-35	5-15
	8-47	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	95-100	95-100	40-55	20-35
	47-60	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	25-40	5-20
279B:												
Rozetta---------	0-7	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	95-100	24-35	8-15
	7-11	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	95-100	95-100	20-30	5-15
	11-55	Silty clay loam*	CL*	A-7*, A-6	0	0	100	100	95-100	95-100	35-50	15-30
	55-60	Silt loam*, silty clay loam	CL*	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	7-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
279C2:												
Rozetta---------	0-8	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	95-100	24-35	8-15
	8-13	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	95-100	95-100	20-30	5-15
	13-56	Silty clay loam*	CL*	A-7*, A-6	0	0	100	100	95-100	95-100	35-50	15-30
	56-60	Silt loam*, silty clay loam	CL*	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	7-20
279C3:												
Rozetta---------	0-6	Silty clay loam*	CL*, ML	A-7*, A-6	0	0	100	100	95-100	95-100	35-45	10-20
	6-33	Silty clay loam*	CL*	A-7*, A-6	0	0	100	100	95-100	95-100	35-50	15-30
	33-60	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	25-40	7-20
280B:												
Fayette---------	0-9	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	5-15
	9-39	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	100	95-100	35-45	15-25
	39-60	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	30-40	10-20
280C2:												
Fayette---------	0-8	Silt loam*	CL*	A-6*, A-7	0	0	100	100	100	95-100	30-45	10-25
	8-64	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	100	95-100	35-45	15-25
	64-80	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	30-40	10-20
280D2:												
Fayette---------	0-6	Silt loam*	CL*	A-6*, A-7	0	0	100	100	100	95-100	30-45	10-25
	6-48	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	100	95-100	35-45	15-25
	48-60	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	30-40	10-20
280D3:												
Fayette---------	0-8	Silty clay loam*	CL*	A-7*, A-6	0	0	100	100	95-100	95-100	35-45	15-25
	8-36	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	95-100	95-100	35-45	15-25
	36-60	Silt loam*	CL*	A-6*	0	0	100	100	95-100	95-100	30-40	10-20
430B:												
Raddle----------	0-13	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	95-100	85-100	25-40	4-15
	13-60	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	90-100	80-100	20-35	4-15

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
505G:												
Dunbarton-------	0-2	Silt loam*	CL*	A-6*, A-4	0	0-7	85-100	75-100	75-100	60-95	25-35	7-15
	2-10	Silt loam*, silty clay loam	CL*, CH	A-6*, A-7	0	0-8	70-100	70-100	70-100	70-95	35-60	15-35
	10-16	Silty clay*, clay	CH*, CL	A-7*	0	0-8	70-100	70-100	70-100	70-95	45-90	25-60
	16-60	Unweathered bedrock*, weathered bedrock	---	---	---	---	---	---	---	---	---	---
549D2:												
Marseilles------	0-5	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	5-15
	5-27	Silty clay loam*, clay loam, silty clay	CL*, CH	A-7-6*, A-7	0-1	0-5	95-100	90-100	85-100	80-95	40-60	15-30
	27-60	Weathered bedrock*	---	---	---	---	---	---	---	---	---	---
549F:												
Marseilles------	0-10	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	5-15
	10-35	Silty clay loam*, silty clay, silty clay loam	CL*, CH	A-7-6*, A-7	0-1	0-5	95-100	90-100	85-100	80-95	40-60	15-30
	35-60	Weathered bedrock*	---	---	---	---	---	---	---	---	---	---
549G:												
Marseilles------	0-10	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	5-15
	10-35	Silty clay loam*, clay loam, silty clay	CL*, CH	A-7-6*	0-1	0-5	95-100	90-100	85-100	80-95	40-60	15-30
	35-60	Weathered bedrock*	---	---	---	---	---	---	---	---	---	---
567C2:												
Elkhart---------	0-8	Silt loam*	CL*	A-6*, A-7	0	0	100	100	100	95-100	25-35	8-15
	8-25	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	100	95-100	35-50	18-30
	25-60	Silt loam*, silt	CL*	A-6*, A-4	0	0	100	100	95-100	95-100	20-37	8-20
567D3:												
Elkhart---------	0-7	Silty clay loam*	CL*	A-7-6*, A-6	0	0	100	100	100	95-100	35-50	18-30
	7-21	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	100	95-100	35-50	18-30
	21-60	Silt loam*, silt	CL*	A-6*, A-4	0	0	100	100	95-100	95-100	20-37	8-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
671B:												
Biggsville------	0-13	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	100	95-100	25-40	7-18
	13-53	Silt loam*	CL*	A-6*, A-4	0	0	100	100	100	95-100	25-40	7-18
	53-80	Silt loam*	CL*	A-6*, A-4	0	0	100	100	100	90-100	25-40	7-17
671C2:												
Biggsville------	0-9	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	31-43	11-18
	9-60	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	27-37	12-17
675B:												
Greenbush-------	0-14	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	100	95-100	25-35	5-15
	14-60	Silty clay loam*, silt loam	CL*	A-6*, A-7	0	0	100	100	100	95-100	35-45	15-25
	60-80	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	30-40	11-20
675C2:												
Greenbush-------	0-6	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	100	95-100	25-35	5-15
	6-46	Silty clay loam*	CL*	A-6*, A-7	0	0	100	100	100	95-100	35-45	15-25
	46-60	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	30-40	11-20
678B:												
Mannon----------	0-7	Silt loam*	CL*	A-4*, A-6	0	0	100	100	100	95-100	25-40	7-18
	7-10	Silt loam*	CL*	A-6*, A-4	0	0	100	100	100	90-100	25-40	7-18
	10-59	Silt loam*	CL*	A-6*, A-4	0	0	100	100	100	95-100	25-40	8-20
	59-80	Silt loam*	CL*	A-6*, A-4	0	0	100	100	100	90-100	25-40	7-17
712A:												
Spaulding-------	0-22	Silty clay loam*	CL*, CH	A-7*	0	0	100	100	95-100	95-100	45-60	20-35
	22-38	Silty clay loam*, silt loam	CL*, CH	A-7*	0	0	100	100	95-100	95-100	40-60	20-35
	38-44	Silty clay loam*, silt loam	CL*, CH	A-7*, A-6	0	0	100	100	95-100	95-100	35-55	20-35
	44-80	Silt loam*	CL*	A-6*	0	0	100	100	95-100	95-100	30-40	10-20
802B:												
Orthents--------	0-6	Loam*	CL*	A-6*	0-1	0-5	95-100	90-100	85-95	60-90	20-40	10-20
	6-60	Loam*, silt loam, clay loam	CL*	A-6*	0-1	0-5	95-100	90-100	85-95	60-90	20-40	10-20
835G. Earthen dam												
864. Pits, quarries												

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
895D:												
Fayette---------	0-2	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	5-15
	2-14	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	5-15
	14-45	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	100	95-100	35-45	15-25
	45-60	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	30-40	10-20
Westville-------	0-5	Loam*	CL*, CL-ML	A-6*, A-4	0	0	100	95-100	85-100	60-90	29-43	12-18
	5-54	Clay loam*, sandy clay loam	CL*	A-7-6*, A-6	0	0-5	90-100	85-100	80-90	60-90	35-47	17-25
	54-60	Loam*, sandy loam, gravelly sandy loam	SC*, ML, SC-SM, CL	A-6*, A-2, A-4	0-2	0-5	90-100	80-100	60-90	30-70	24-33	9-15
936D2:												
Fayette---------	0-4	Silt loam*	CL*	A-6*, A-7	0	0	100	100	100	95-100	30-45	10-25
	4-8	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	30-40	10-20
	8-60	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	100	95-100	35-45	15-25
Hickory---------	0-8	Silt loam*	CL*	A-6*, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	8-12	Silt loam*	CL*	A-6*, A-4	0	0-5	95-100	90-100	75-100	55-100	20-35	3-15
	12-51	Clay loam*, silty clay loam, gravelly clay loam	CL*	A-6*, A-7	0-1	0-5	85-100	70-100	65-95	50-80	30-50	15-30
	51-60	Loam*, sandy loam, clay loam	CL-ML*, CL	A-6*, A-4	0-1	0-5	85-100	70-95	45-95	25-75	20-40	5-20
936G:												
Fayette---------	0-4	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	5-15
	4-10	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	5-15
	10-60	Silty clay loam*, silt loam	CL*	A-7*, A-6	0	0	100	100	100	95-100	35-45	15-25
Hickory---------	0-4	Silt loam*	CL*, CL-ML, ML	A-6*, A-4	0	0-5	95-100	90-100	90-100	75-95	20-35	3-15
	4-10	Silt loam*	CL*, CL-ML, ML	A-6*, A-4	0	0-5	95-100	90-100	90-100	75-95	20-35	3-15
	10-50	Clay loam*, silty clay loam, gravelly clay loam	CL*	A-6*, A-7	0-1	0-5	95-100	75-100	70-95	65-80	30-50	15-30
	50-60	Loam*, clay loam, sandy loam	CL-ML*, CL	A-6*, A-4	0-1	0-5	85-100	75-95	70-95	60-80	20-40	5-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
943D3:												
Seaton----------	0-4	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	95-100	95-100	20-35	5-15
	4-39	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
	39-60	Silt loam*, silt	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	90-100	25-40	5-20
Timula----------	0-23	Silt loam*	CL-ML*	A-4*	0	0	100	100	95-100	85-100	21-31	6-12
	23-60	Silt loam*, silt	CL-ML* , ML	A-4*	0	0	100	100	95-100	85-100	20-30	6-12
957D2:												
Elco----------	0-4	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	31-41	13-19
	4-7	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	95-100	29-38	13-19
	7-25	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	95-100	85-100	33-46	16-25
	25-60	Silty clay loam*, loam, clay	CL*	A-7-6*, A-6	0	0	100	90-100	80-100	60-95	37-56	18-33
Atlas----------	0-3	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	75-95	33-45	13-19
	3-5	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	75-95	29-37	12-17
	5-28	Clay*, silty clay, silty clay loam, clay loam	CH*	A-7-6*	0	0	100	95-100	90-100	75-95	45-57	25-33
	28-60	Clay*, silty clay, clay loam, silty clay loam	CH*	A-7-6*	0	0	100	95-100	90-100	75-95	48-57	27-33
957D3:												
Elco----------	0-7	Silty clay loam*	CL*	A-7-6*, A-6	0	0	100	100	95-100	85-100	36-45	17-23
	7-27	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	95-100	85-100	33-46	16-25
	27-39	Silty clay loam*, clay loam, silt loam	CL*	A-7-6*, A-6	0	0	100	90-100	85-95	75-95	33-46	16-25
	39-60	Clay loam*, silty clay loam, loam, silty clay	CL*	A-7-6*, A-6	0	0	100	90-100	80-100	60-95	37-56	18-33
Atlas----------	0-5	Silty clay loam*	CL*, CH	A-7-6*	0	0	100	100	95-100	75-95	42-53	21-29
	5-9	Silty clay loam*, silty clay, clay loam	CH*	A-7-6*	0	0	100	95-100	90-100	75-95	48-57	27-33
	9-39	Silty clay*, silty clay loam, clay loam	CH*	A-7-6*	0	0	100	95-100	90-100	75-95	48-57	27-33
	39-60	Clay loam*, silty clay loam, clay	CH*	A-7-6*	0	0	100	90-100	80-100	60-95	41-57	21-33

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
1405A:												
Zook----------	0-8	Silty clay loam*	CL*, CH	A-7-6*	0	0	100	100	95-100	95-100	45-65	20-35
	8-55	Silty clay*, silty clay loam	CH*	A-7-6*	0	0	100	100	95-100	95-100	60-85	35-55
	55-60	Silty clay loam*, silty clay, silt loam	CL*, CH, MH, ML	A-7-6*, A-6	0	0	100	100	95-100	95-100	35-80	10-50
3074A:												
Radford---------	0-12	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	95-100	85-100	28-36	5-15
	12-33	Silt loam*	CL*, ML	A-6*, A-4	0	0	100	100	95-100	85-100	28-36	5-15
	33-60	Silty clay loam*, silt loam, clay loam	CL*	A-6*, A-7	0	0	100	100	85-100	70-95	35-50	15-25
3107+:												
Sawmill---------	0-11	Silt loam*	CL*	A-6*	0	0	100	100	95-100	85-100	25-40	10-20
	11-36	Silty clay loam*	CL*	A-6*, A-7	0	0	100	100	95-100	85-100	30-50	15-30
	36-53	Silty clay loam*, clay loam, loam	CL*	A-6*, A-4, A-7	0	0	100	100	95-100	70-95	25-50	8-25
	53-60	Silty clay loam*, clay loam, silt loam	CL*	A-6*, A-4, A-7	0	0	100	100	85-100	70-95	20-50	8-30
3107A:												
Sawmill---------	0-26	Silty clay loam*	CL*	A-6*, A-7	0	0	100	100	95-100	85-100	30-50	15-30
	26-54	Silty clay loam*	CL*	A-6*, A-7	0	0	100	100	95-100	85-100	30-50	15-30
	54-60	Silty clay loam*, clay loam, loam	CL*	A-6*, A-4, A-7	0	0	100	100	85-100	70-95	25-50	8-25
3405A:												
Zook----------	0-8	Silty clay loam*	CL*, CH	A-7-6*	0	0	100	100	95-100	95-100	45-65	20-35
	8-55	Silty clay*, silty clay loam	CH*	A-7-6*	0	0	100	100	95-100	95-100	60-85	35-55
	55-60	Silty clay loam*, silty clay, silt loam	CL*, ML, MH, CH	A-7-6*, A-6	0	0	100	100	95-100	95-100	35-80	10-50

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
3415A:												
Orion----------	0-7	Silt loam*	CL*, CL-ML	A-4*, A-6	0	0	100	100	85-100	80-100	25-35	4-12
	7-22	Stratified very fine sand to silt loam*	CL-ML*, CL	A-4*	0	0	100	100	90-100	70-80	20-30	4-10
	22-60	Silt loam*, silty clay loam	CL*, CL-ML	A-6*, A-4	0	0	100	100	85-100	85-100	20-40	4-18
	60-80	Stratified sand to silt loam*	CL-ML*, CL	A-4*	0	0	80-100	80-100	80-100	80-100	20-30	4-10
3451A:												
Lawson----------	0-14	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	90-100	85-100	20-35	5-15
	14-33	Silt loam*, silty clay loam	CL*, CL-ML	A-4*	0	0	100	100	90-100	85-100	20-40	5-20
	33-80	Silt loam*, silty clay loam	CL*	A-6*, A-4	0	0	100	100	90-100	60-100	30-40	10-20
7428A:												
Coffeen---------	0-20	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	5-20
	20-32	Silt loam*	CL-ML*, CL, ML	A-4*	0	0	100	100	90-100	80-95	20-35	3-10
	32-60	Stratified sandy loam to silt loam*	CL-ML*, SC, ML, CL	A-4*, A-2-4	0	0	100	90-100	85-100	30-85	16-31	2-10
9017A:												
Keomah----------	0-9	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	5-15
	9-16	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	25-35	4-15
	16-49	Silty clay loam*, silty clay	CH*	A-7*	0	0	100	100	100	95-100	45-60	30-45
	49-80	Silty clay loam*, silt loam	CL*	A-6*, A-7	0	0	100	100	100	95-100	35-50	15-30
9086B:												
Osco----------	0-14	Silt loam*	CL*	A-6*, A-7-6	0	0	100	100	100	95-100	37-46	13-18
	14-55	Silty clay loam*, silt loam	CL*	A-7-6*, A-6	0	0	100	100	100	95-100	34-47	16-25
	55-60	Silt loam*, silty clay loam	CL*	A-6*, A-7	0	0	100	100	100	95-100	29-42	13-21
9279B:												
Rozetta---------	0-9	Silt loam*	CL*	A-6*, A-4	0	0	100	100	95-100	95-100	24-35	8-15
	9-66	Silty clay loam*	CL*	A-7*, A-6	0	0	100	100	95-100	95-100	35-50	15-30
	66-76	Silt loam*, silty clay loam	CL*	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	7-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
9279C2:												
Rozetta---------	0-7	Silt loam*	CL*	A-4*, A-6	0	0	100	100	95-100	95-100	24-35	8-15
	7-66	Silty clay loam*	CL*	A-7-6*, A-6	0	0	100	100	95-100	95-100	35-50	15-30
	66-70	Silt loam*, silty clay loam	CL*	A-6*, A-4	0	0	100	100	95-100	85-100	25-40	7-20
9675B:												
Greenbush-------	0-14	Silt loam*	CL*, CL-ML	A-6*, A-4	0	0	100	100	100	95-100	29-41	11-17
	14-60	Silty clay loam*	CL*	A-7-6*, A-6	0	0	100	100	100	95-100	37-47	18-25
	60-80	Silt loam*	CL*	A-6*	0	0	100	100	100	95-100	29-39	12-19

Table 19.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
8D2:														
Hickory----------	0-6	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-51	15-45	20-58	27-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	51-60	20-50	18-65	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.2	.28	.32			
8D3:														
Hickory----------	0-5	15-40	25-60	27-35	1.40-1.65	0.6-2	0.17-0.19	3.0-5.9	0.5-1.0	.28	.32	4	6	48
	5-30	15-45	20-60	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	30-40	15-45	20-60	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	40-60	20-50	20-65	15-30	1.50-1.75	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.28	.32			
8F:														
Hickory----------	0-12	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	12-53	15-45	20-61	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	53-58	30-45	23-55	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.28	.32			
	58-63	30-45	25-55	15-30	1.50-1.75	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.28	.32			
8G:														
Hickory----------	0-4	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	4-12	15-45	33-70	15-22	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
	12-40	15-45	20-58	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	40-58	30-45	23-55	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.28	.32			
	58-63	30-45	25-55	15-30	1.50-1.75	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.28	.32			
17A:														
Keomah----------	0-11	0-7	67-84	16-26	1.35-1.45	0.6-2	0.19-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	11-18	0-7	67-84	16-26	1.40-1.60	0.2-0.6	0.17-0.21	0.0-2.9	0.1-1.0	.49	.49			
	18-33	0-7	51-65	35-42	1.30-1.40	0.06-0.2	0.15-0.19	6.0-8.9	0.1-0.5	.37	.37			
	33-51	0-7	58-73	27-35	1.35-1.45	0.2-0.6	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
	51-89	0-7	66-85	15-27	1.40-1.60	0.6-2	0.19-0.22	0.0-2.9	0.0-0.2	.49	.49			
43A:														
Ipava----------	0-20	0-7	66-80	20-27	1.15-1.35	0.6-2	0.22-0.24	3.0-5.9	4.0-5.0	.28	.28	5	6	48
	20-40	0-7	50-65	35-43	1.25-1.50	0.2-0.6	0.11-0.20	6.0-8.9	0.5-1.0	.37	.37			
	40-60	0-7	63-80	20-30	1.30-1.55	0.2-0.6	0.20-0.22	3.0-5.9	0.0-0.5	.49	.49			
43B:														
Ipava----------	0-17	0-7	66-80	20-27	1.15-1.35	0.6-2	0.22-0.24	3.0-5.9	4.0-5.0	.28	.28	5	6	48
	17-58	0-7	50-65	35-43	1.25-1.50	0.2-0.6	0.11-0.20	6.0-8.9	0.5-1.0	.37	.37			
	58-60	0-7	63-80	20-30	1.30-1.55	0.2-0.6	0.20-0.22	3.0-5.9	0.0-0.5	.49	.49			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
45A:														
Denny----------	0-9	0-7	66-80	20-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	3.0-4.0	.37	.37	5	6	48
	9-22	0-7	71-85	15-22	1.25-1.45	0.2-0.6	0.18-0.20	0.0-2.9	0.0-0.5	.43	.43			
	22-45	0-7	48-65	35-45	1.20-1.40	0.06-0.2	0.11-0.22	6.0-8.9	0.0-1.0	.37	.37			
	45-60	0-7	58-75	25-35	1.40-1.60	0.2-0.6	0.20-0.22	3.0-5.9	0.0-0.2	.43	.43			
51A:														
Muscatune----------	0-16	2-7	66-83	24-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	3.5-5.0	.28	.28	5	6	48
	16-22	2-7	58-73	25-35	1.30-1.50	0.6-2	0.18-0.21	3.0-5.9	0.5-1.5	.37	.37			
	22-46	2-7	58-71	27-35	1.35-1.55	0.6-2	0.18-0.20	3.0-5.9	0.5-1.5	.37	.37			
	46-60	2-7	66-83	15-30	1.40-1.60	0.6-2	0.19-0.26	0.0-2.9	0.0-0.2	.49	.49			
61A:														
Atterberry----------	0-9	2-7	68-78	15-27	1.25-1.45	0.6-2	0.19-0.26	0.0-2.9	1.5-3.5	.37	.37	5	6	48
	9-17	2-7	69-83	15-27	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	0.1-1.0	.43	.43			
	17-48	2-7	60-74	25-35	1.35-1.55	0.6-2	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
	48-60	2-7	45-80	15-27	1.30-1.50	0.6-2	0.17-0.22	0.0-2.9	0.1-0.5	.49	.49			
68A:														
Sable----------	0-17	0-7	58-73	27-35	1.15-1.35	0.6-2	0.21-0.23	3.0-5.9	5.0-6.0	.24	.24	5	7	38
	17-23	0-7	58-73	27-35	1.20-1.40	0.6-2	0.18-0.20	3.0-5.9	2.0-4.0	.24	.24			
	23-60	0-7	58-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
68A+:														
Sable----------	0-13	0-7	66-80	20-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	13-24	0-7	58-73	27-35	1.20-1.40	0.6-2	0.18-0.20	3.0-5.9	4.0-6.0	.24	.24			
	24-50	0-7	58-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	50-60	0-7	66-80	20-28	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
81A:														
Littleton----------	0-9	2-15	58-80	18-27	1.20-1.45	0.6-2	0.20-0.24	0.0-2.9	3.0-4.0	.32	.32	5	6	48
	9-32	0-15	58-78	22-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.49	.49			
	32-60	10-20	58-72	18-27	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			
86B:														
Osco----------	0-14	0-7	67-80	20-26	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
	14-55	0-7	58-76	24-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	55-60	0-7	63-80	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
86B2:														
Osco----------	0-8	0-7	66-80	20-26	1.40-1.60	0.6-2	0.18-0.22	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	8-42	0-7	58-71	25-35	1.35-1.55	0.6-2	0.18-0.21	3.0-5.9	0.0-1.0	.37	.37			
	42-51	0-7	66-83	15-30	1.35-1.55	0.6-2	0.18-0.23	0.0-2.9	0.0-0.5	.49	.49			
	51-60	0-7	66-83	15-27	1.40-1.60	0.6-2	0.19-0.26	0.0-2.9	0.0-0.5	.49	.49			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
86C2:														
Osco----------	0-9	0-7	67-80	20-26	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	9-34	0-7	58-76	24-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	34-60	0-7	63-80	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
86C3:														
Osco----------	0-7	0-7	58-76	27-35	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	1.0-3.0	.37	.37	4	7	38
	7-30	0-7	58-76	24-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	30-60	0-7	66-83	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
86D2:														
Osco----------	0-8	0-7	67-80	20-27	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	8-51	0-7	58-76	24-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	51-60	0-7	63-80	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
119D2:														
Elco----------	0-6	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	6-28	0-7	58-77	23-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.37	.37			
	28-60	15-35	20-60	25-45	1.45-1.70	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.2	.28	.28			
119E2:														
Elco----------	0-2	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	2-9	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	0.0-0.5	.49	.49			
	9-32	0-7	58-77	23-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.37	.37			
	32-60	15-35	20-60	25-45	1.40-1.60	0.2-0.6	0.16-0.20	3.0-5.9	0.0-0.2	.37	.37			
212D2:														
Thebes----------	0-7	5-20	55-80	15-27	1.35-1.55	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	7-34	5-20	45-70	25-35	1.40-1.60	0.6-2	0.16-0.20	3.0-5.9	0.0-1.0	.37	.37			
	34-55	30-60	5-60	15-30	1.45-1.65	2-6	0.11-0.17	0.0-2.9	0.0-0.5	.32	.32			
	55-80	70-95	1-27	3-10	1.40-1.70	6-20	0.05-0.15	0.0-2.9	0.0-0.5	.28	.28			
212D3:														
Thebes----------	0-9	5-20	48-67	28-32	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	9-34	5-20	45-70	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	34-59	30-60	15-60	15-30	1.30-1.35	2-6	0.11-0.17	0.0-2.9	0.0-0.5	.32	.32			
	59-80	70-95	1-27	3-10	1.30-1.35	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			
212F:														
Thebes----------	0-9	5-20	55-80	15-25	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.43	.43	5	6	48
	9-31	5-20	45-70	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	31-40	30-60	15-60	15-30	1.30-1.35	2-6	0.11-0.17	0.0-2.9	0.0-0.5	.32	.32			
	40-60	70-90	1-27	3-10	1.30-1.35	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
250D2:														
Velma----------	0-7	15-45	28-65	20-27	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	7-45	15-45	20-50	25-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.2-1.0	.32	.32			
	45-60	20-50	20-60	15-30	1.50-1.70	0.6-2	0.06-0.09	0.0-2.9	0.2-0.5	.37	.37			
257A:														
Clarksdale----------	0-8	0-7	66-80	20-27	1.30-1.50	0.6-2	0.22-0.25	3.0-5.9	2.0-3.0	.37	.37	5	6	48
	8-16	0-7	66-85	15-27	1.25-1.50	0.2-0.6	0.20-0.22	0.0-2.9	0.0-1.0	.43	.43			
	16-47	0-7	48-65	35-45	1.30-1.50	0.2-0.6	0.11-0.20	6.0-8.9	0.0-0.5	.37	.37			
	47-67	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	3.0-5.9	0.0-0.5	.43	.43			
	67-80	0-7	66-82	18-27	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
259C2:														
Assumption----------	0-8	0-7	66-73	20-27	1.25-1.45	0.6-2	0.23-0.25	0.0-2.9	3.0-4.0	.28	.28	5	6	48
	8-24	0-7	58-66	25-35	1.20-1.40	0.6-2	0.18-0.22	3.0-5.9	0.0-1.0	.37	.37			
	24-60	20-30	25-50	25-45	1.40-1.60	0.06-0.6	0.16-0.20	3.0-8.9	0.0-0.5	.28	.28			
259D2:														
Assumption----------	0-7	0-7	66-80	20-27	1.25-1.45	0.6-2	0.23-0.25	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	7-28	0-7	58-75	25-35	1.20-1.40	0.6-2	0.18-0.22	3.0-5.9	0.0-1.0	.37	.37			
	28-60	20-30	25-50	30-45	1.45-1.65	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.5	.28	.28			
274C2:														
Seaton----------	0-7	1-7	71-84	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-47	1-7	66-81	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.5-1.0	.43	.43			
	47-60	1-7	68-89	10-25	1.20-1.50	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
274D:														
Seaton----------	0-14	1-7	71-90	10-22	1.10-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	14-49	1-7	66-82	18-27	1.20-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-1.0	.43	.43			
	49-60	1-7	68-90	10-25	1.20-1.50	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
275A:														
Joy----------	0-15	0-7	68-84	15-25	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.28	.28	5	6	48
	15-51	0-7	66-82	18-27	1.15-1.25	0.6-2	0.20-0.22	0.0-2.9	0.1-1.0	.43	.43			
	51-60	0-45	45-88	12-23	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.49	.49			
278A:														
Stronghurst---------	0-8	1-5	66-80	20-27	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	8-47	1-4	58-78	22-35	1.30-1.55	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	47-60	1-4	66-80	20-27	1.35-1.60	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
279B:														
Rozetta----------	0-7	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	7-11	0-7	66-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.1-1.0	.49	.49			
	11-55	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.0-0.5	.37	.37			
	55-60	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
279C2:														
Rozetta----------	0-8	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	8-13	0-7	66-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.0-0.5	.49	.49			
	13-56	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.2-0.5	.37	.37			
	56-60	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
279C3:														
Rozetta----------	0-6	0-7	58-72	27-35	1.30-1.45	0.6-2	0.18-0.22	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	6-33	0-7	58-73	27-35	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.2-0.5	.37	.37			
	33-60	0-7	66-84	15-27	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
280B:														
Fayette----------	0-9	0-7	66-85	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-39	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	39-60	0-7	67-78	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
280C2:														
Fayette----------	0-8	0-7	66-75	25-27	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43	5	6	48
	8-64	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	64-80	0-7	67-88	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
280D2:														
Fayette----------	0-6	0-7	66-75	25-27	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43	5	6	48
	6-48	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	48-60	0-7	67-78	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
280D3:														
Fayette----------	0-8	0-7	61-73	27-32	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	8-36	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	36-60	0-7	67-78	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
430B:														
Raddle----------	0-13	2-15	61-80	18-24	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	13-60	2-15	61-80	18-24	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.49	.49			
505G:														
Dunbarton----------	0-2	0-30	50-70	15-27	1.10-1.60	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	2	6	48
	2-10	0-25	45-65	24-40	1.05-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			
	10-16	0-20	20-50	40-80	1.25-1.55	0.06-0.2	0.09-0.13	6.0-8.9	0.0-0.2	.20	.28			
	16-60	---	---	---	---	0.06-2	---	---	---	---	---			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
549D2:														
Marseilles----------	0-5	0-25	58-80	20-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	3	6	48
	5-27	0-25	43-73	27-42	1.35-1.60	0.06-0.2	0.09-0.20	3.0-6.0	0.0-0.5	.37	.37			
	27-60	---	---	---	---	0.0015-0.2	---	---	---	---	---			
549F:														
Marseilles----------	0-10	0-15	58-80	20-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	3	6	48
	10-35	0-15	43-73	27-42	1.35-1.60	0.06-0.2	0.09-0.20	3.0-6.0	0.0-0.5	.37	.37			
	35-60	---	---	---	---	0.0015-0.2	---	---	---	---	---			
549G:														
Marseilles----------	0-10	0-15	58-80	20-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.32	.32	3	6	48
	10-35	0-25	43-73	27-42	1.35-1.60	0.06-0.2	0.09-0.20	3.0-6.0	0.0-0.5	.37	.37			
	35-60	---	---	---	---	0.0015-0.2	---	---	---	---	---			
567C2:														
Elkhart----------	0-8	0-7	66-80	20-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.28	.28	5	6	48
	8-25	0-7	58-75	25-35	1.25-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	25-60	0-7	66-85	10-27	1.35-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.1	.49	.49			
567D3:														
Elkhart----------	0-7	0-7	60-75	27-35	1.20-1.40	0.6-2	0.20-0.22	3.0-5.9	1.0-2.0	.43	.43	5	7	38
	7-21	0-7	58-75	25-35	1.25-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	21-60	0-7	66-85	10-27	1.35-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.1	.49	.49			
671B:														
Biggsville----------	0-13	0-7	66-82	18-27	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	3.0-5.0	.28	.28	5	6	48
	13-53	0-7	68-82	18-25	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.5-2.0	.43	.43			
	53-80	0-7	66-85	15-27	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
671C2:														
Biggsville----------	0-9	0-7	66-82	18-27	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	9-60	0-7	68-82	18-25	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.43	.43			
675B:														
Greenbush----------	0-14	0-7	68-82	18-25	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	14-60	0-7	58-74	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	60-80	0-7	66-82	18-27	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
675C2:														
Greenbush----------	0-6	0-7	68-82	18-25	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	1.0-3.0	.37	.37	5	6	48
	6-46	0-7	58-74	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	46-60	0-7	66-82	18-27	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
678B:														
Mannon----------	0-7	0-7	71-85	15-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	7-10	0-7	71-85	15-22	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.43	.43			
	10-59	0-7	66-82	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.2-1.0	.43	.43			
	59-80	0-7	69-84	16-24	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
712A:														
Spaulding----------	0-22	0-7	58-73	27-35	1.05-1.25	0.6-2	0.21-0.24	3.0-5.9	4.0-6.0	.24	.24	5	4L	86
	22-38	0-7	58-75	25-35	1.20-1.50	0.6-2	0.18-0.22	3.0-5.9	0.5-2.0	.37	.37			
	38-44	0-7	58-78	22-35	1.25-1.55	0.6-2	0.17-0.22	3.0-5.9	0.5-1.0	.37	.37			
	44-80	0-7	66-80	20-27	1.30-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
802B:														
Orthents----------	0-6	30-45	25-48	22-30	1.70-1.75	0.2-0.6	0.18-0.22	3.0-5.9	0.5-2.0	.43	.43	5	6	48
	6-60	30-45	25-55	22-30	1.70-1.80	0.2-0.6	0.16-0.20	3.0-5.9	0.2-1.0	.43	.43			
835G.														
Earthen dam														
864.														
Pits, quarries														
895D:														
Fayette----------	0-2	0-7	66-85	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	2-14	0-7	66-85	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
	14-45	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	45-60	0-7	67-78	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
Westville----------	0-5	30-50	30-55	14-27	1.20-1.40	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	5	5	56
	5-54	20-55	20-45	25-35	1.35-1.55	0.6-2	0.15-0.19	3.0-5.9	0.0-1.0	.37	.37			
	54-60	30-70	15-45	15-22	1.40-1.70	0.6-2	0.07-0.15	0.0-2.9	0.0-0.5	.24	.24			
936D2:														
Fayette----------	0-4	0-7	66-75	25-27	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43	5	6	48
	4-8	0-7	67-78	22-26	1.45-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
	8-60	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
Hickory----------	0-8	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	8-12	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.32	.37			
	12-51	15-45	20-58	27-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	51-60	20-50	18-65	15-32	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.2	.28	.32			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
936G:														
Fayette----------	0-4	0-7	66-85	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	2.0-3.0	.43	.43	5	6	48
	4-10	0-7	66-85	15-27	1.30-1.35	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
	10-60	0-7	58-75	25-35	1.30-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
Hickory----------	0-4	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	4-10	15-45	30-66	19-25	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
	10-50	15-45	20-58	24-35	1.45-1.65	0.6-2	0.15-0.19	3.0-5.9	0.0-0.5	.28	.32			
	50-60	30-45	25-55	15-30	1.50-1.70	0.6-2	0.11-0.19	0.0-2.9	0.0-0.5	.28	.32			
943D3:														
Seaton----------	0-4	0-7	71-84	11-22	1.10-1.20	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	4	5	56
	4-39	0-7	72-81	18-27	1.15-1.30	0.6-2	0.20-0.22	0.0-2.9	0.5-1.0	.43	.43			
	39-60	0-7	74-84	11-25	1.20-1.40	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
Timula----------	0-23	0-7	75-89	10-18	1.30-1.60	0.6-2	0.20-0.24	0.0-2.9	0.5-1.0	.55	.55	4	5	56
	23-60	0-7	75-89	10-18	1.40-1.60	0.6-2	0.18-0.20	0.0-2.9	0.0-0.5	.55	.55			
957D2:														
Elco----------	0-4	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	4-7	0-7	66-80	20-27	1.20-1.35	0.6-2	0.22-0.24	0.0-2.9	0.0-0.5	.49	.49			
	7-25	0-7	58-77	23-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.37	.37			
	25-60	10-35	20-60	25-45	1.45-1.70	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.2	.32	.32			
Atlas----------	0-3	5-30	43-75	20-27	1.30-1.50	0.2-0.6	0.20-0.25	3.0-5.9	1.0-3.0	.32	.32	3	6	48
	3-5	5-30	43-75	18-24	1.30-1.50	0.2-0.6	0.20-0.25	3.0-5.9	0.0-0.5	.37	.37			
	5-28	10-35	20-60	35-45	1.35-1.55	0.00-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.32	.32			
	28-60	10-35	20-60	38-45	1.35-1.55	0.00-0.06	0.07-0.19	6.0-8.9	0.0-1.0	.32	.32			
957D3:														
Elco----------	0-7	0-7	62-74	25-33	1.20-1.35	0.6-2	0.18-0.21	3.0-5.9	0.5-1.0	.37	.37	4	7	38
	7-27	0-7	61-75	23-35	1.25-1.45	0.6-2	0.18-0.21	3.0-5.9	0.0-0.5	.37	.37			
	27-39	10-35	30-65	23-35	1.40-1.60	0.2-0.6	0.16-0.20	3.0-5.9	0.0-0.5	.37	.37			
	39-60	15-35	20-60	25-45	1.45-1.70	0.06-0.6	0.14-0.20	6.0-8.9	0.0-0.5	.43	.43			
Atlas----------	0-5	10-35	20-60	30-40	1.35-1.55	0.06-0.2	0.11-0.16	6.0-8.9	0.5-1.0	.37	.37	2	6	48
	5-9	10-35	20-55	38-45	1.35-1.55	0.00-0.06	0.07-0.19	6.0-8.9	0.0-0.5	.37	.37			
	9-39	10-35	20-60	38-45	1.35-1.55	0.00-0.06	0.07-0.19	6.0-8.9	0.0-0.5	.32	.32			
	39-60	10-35	20-60	30-45	1.35-1.55	0.00-0.06	0.07-0.19	6.0-8.9	0.0-0.2	.37	.37			
1405A:														
Zook----------	0-8	0-15	45-65	35-40	1.30-1.35	0.2-0.6	0.21-0.23	6.0-8.9	4.0-5.0	.28	.28	5	7	38
	8-55	0-15	40-64	36-45	1.30-1.45	0.06-0.2	0.11-0.13	6.0-8.9	2.0-4.0	.28	.28			
	55-60	0-15	40-80	20-45	1.30-1.45	0.06-0.6	0.11-0.22	6.0-8.9	0.0-1.0	.32	.32			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3074A:														
Radford----------	0-12	0-15	58-82	18-27	1.40-1.60	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	12-33	0-15	58-82	18-27	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
	33-60	0-22	35-71	24-35	1.35-1.55	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.32	.32			
3107+:														
Sawmill----------	0-11	0-15	58-82	18-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	4.0-5.0	.32	.32	5	6	48
	11-36	2-9	59-71	27-35	1.20-1.40	0.6-2	0.21-0.23	3.0-5.9	1.0-3.0	.28	.28			
	36-53	3-25	45-72	25-35	1.30-1.45	0.6-2	0.17-0.20	3.0-5.9	0.0-2.0	.32	.32			
	53-60	5-25	40-77	18-35	1.35-1.50	0.6-2	0.15-0.19	3.0-5.9	0.0-1.0	.28	.28			
3107A:														
Sawmill----------	0-26	2-9	56-71	27-35	1.20-1.40	0.6-2	0.21-0.23	3.0-5.9	4.0-5.0	.28	.28	5	7	38
	26-54	3-10	55-70	27-35	1.20-1.40	0.6-2	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32			
	54-60	5-25	40-70	25-35	1.30-1.45	0.6-2	0.17-0.20	3.0-5.9	0.0-2.0	.32	.32			
3405A:														
Zook----------	0-8	0-15	45-65	35-40	1.30-1.35	0.2-0.6	0.21-0.23	6.0-8.9	4.0-5.0	.28	.28	5	7	38
	8-55	0-15	40-64	36-45	1.30-1.45	0.06-0.2	0.11-0.13	6.0-8.9	2.0-4.0	.28	.28			
	55-60	0-15	40-80	20-45	1.30-1.45	0.06-0.6	0.11-0.22	6.0-8.9	0.0-1.0	.32	.32			
3415A:														
Orion----------	0-7	1-15	67-89	10-18	1.20-1.30	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	7-22	2-15	67-88	10-18	1.20-1.30	0.6-2	0.20-0.22	0.0-2.9	1.0-3.0	.28	.28			
	22-60	2-15	55-88	10-30	1.25-1.45	0.6-2	0.18-0.22	0.0-2.9	3.0-8.0	.32	.32			
	60-80	2-15	67-88	10-18	1.20-1.40	0.6-2	0.18-0.22	0.0-2.9	0.0-0.5	.28	.28			
3451A:														
Lawson----------	0-14	0-15	58-90	10-27	1.20-1.55	0.6-2	0.22-0.24	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-33	0-15	55-90	10-30	1.20-1.55	0.6-2	0.18-0.22	0.0-2.9	2.0-4.0	.32	.32			
	33-80	5-40	30-77	18-30	1.55-1.65	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.49	.49			
7428A:														
Coffeen----------	0-20	1-15	58-84	15-27	1.35-1.55	0.6-2	0.22-0.25	0.0-2.9	2.0-3.0	.32	.32	5	6	48
	20-32	1-15	67-89	10-18	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
	32-60	15-65	20-80	5-15	1.50-1.70	0.6-6	0.11-0.19	0.0-2.9	0.0-2.0	.37	.37			
9017A:														
Keomah----------	0-9	0-7	67-84	16-26	1.30-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-16	0-7	67-84	16-26	1.35-1.45	0.2-0.6	0.18-0.20	0.0-2.9	0.2-1.0	.49	.49			
	16-49	0-7	51-65	35-42	1.30-1.45	0.06-0.6	0.18-0.20	6.0-8.9	0.0-0.5	.37	.37			
	49-80	0-7	55-76	24-38	1.40-1.55	0.2-2	0.18-0.20	3.0-5.9	0.0-0.5	.43	.43			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
9086B:														
Osco----------	0-14	0-7	67-80	20-26	1.25-1.30	0.6-2	0.22-0.24	3.0-5.9	3.0-4.0	.28	.28	5	6	48
	14-55	0-7	58-76	24-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.0-1.0	.37	.37			
	55-60	0-7	63-80	20-30	1.35-1.40	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			
9279B:														
Rozetta----------	0-9	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	9-66	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.2-0.5	.37	.37			
	66-76	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
9279C2:														
Rozetta----------	0-7	0-7	66-85	15-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	7-66	0-7	58-73	27-35	1.35-1.55	0.6-2	0.18-0.22	3.0-5.9	0.2-0.5	.37	.37			
	66-70	0-7	63-80	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.2-0.5	.49	.49			
9675B:														
Greenbush----------	0-14	0-7	68-82	18-25	1.25-1.30	0.6-2	0.21-0.23	0.0-2.9	2.0-3.0	.37	.37	5	6	48
	14-60	0-7	58-74	26-35	1.30-1.35	0.6-2	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	60-80	0-7	66-82	18-27	1.35-1.45	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.49	.49			

Table 20.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Calcium carbonate
	In	pH	meq/100 g	Pct
8D2:				
Hickory---------	0-6	4.5-7.3	14-19	0
	6-51	4.5-7.3	16-22	0
	51-60	5.1-8.4	9-19	0-25
8D3:				
Hickory---------	0-5	4.5-7.3	17-23	0
	5-30	4.5-7.3	16-22	0
	30-40	4.5-7.8	16-22	0
	40-60	5.6-8.4	5-15	0-25
8F:				
Hickory---------	0-12	4.5-7.3	14-19	0
	12-53	4.5-7.3	16-22	0
	53-58	5.1-7.8	9-19	0-15
	58-63	5.6-8.4	5-15	0-25
8G:				
Hickory---------	0-4	4.5-7.3	14-19	0
	4-12	4.5-7.3	9-14	0
	12-40	4.5-7.3	16-22	0
	40-58	5.1-7.8	9-19	0-15
	58-63	5.6-8.4	5-15	0-25
17A:				
Keomah----------	0-11	5.1-7.3	10-26	0
	11-18	5.1-7.3	9-24	0
	18-33	5.1-6.5	28-41	0
	33-51	5.6-7.3	16-29	0
	51-89	6.1-7.3	8-18	0-15
43A:				
Ipava-----------	0-20	5.6-7.3	20-27	0
	20-40	5.6-7.8	22-27	0
	40-60	6.1-8.4	12-19	0
43B:				
Ipava-----------	0-17	5.6-7.3	20-27	0
	17-58	5.6-7.8	22-27	0
	58-60	6.1-8.4	12-19	0
45A:				
Denny-----------	0-9	5.6-7.3	18-24	0
	9-22	5.6-6.5	9-15	0
	22-45	5.6-6.5	21-29	0
	45-60	5.6-7.8	15-21	0
51A:				
Muscatune-------	0-16	6.1-7.3	16-32	0
	16-22	5.6-7.3	16-27	0
	22-46	5.6-7.3	17-31	0
	46-60	6.6-7.8	9-22	0-15
61A:				
Atterberry------	0-9	6.1-7.3	11-28	0
	9-17	5.6-6.5	9-24	0
	17-48	5.1-6.0	16-29	0
	48-60	5.6-7.3	9-23	0-8

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Calcium carbonate
	In	pH	meq/100 g	Pct
68A:				
Sable----------	0-17	5.6-7.3	26-33	0
	17-23	5.6-7.3	20-30	0
	23-60	5.6-7.8	15-23	0
68A+:				
Sable----------	0-13	5.6-7.3	16-24	0
	13-24	5.6-7.3	20-30	0
	24-50	5.6-7.8	15-23	0
	50-60	6.6-8.4	12-18	0-30
81A:				
Littleton-------	0-9	5.6-7.8	11-28	0
	9-32	5.6-7.8	11-29	0
	32-60	5.6-7.8	11-23	0
86B:				
Osco----------	0-14	5.1-7.3	18-25	0
	14-55	5.1-6.5	15-23	0
	55-60	5.6-7.3	12-18	0-15
86B2:				
Osco----------	0-8	5.1-7.3	18-25	0
	8-42	5.1-6.5	15-23	0
	42-51	5.1-6.5	12-18	0
	51-60	5.6-7.8	12-18	0-15
86C2:				
Osco----------	0-9	5.1-7.3	18-25	0
	9-34	5.1-6.5	15-23	0
	34-60	5.6-7.3	12-18	0-15
86C3:				
Osco----------	0-7	5.1-7.3	18-25	0
	7-30	5.1-6.5	15-23	0
	30-60	5.6-7.3	12-18	0-15
86D2:				
Osco----------	0-8	5.1-7.3	18-25	0
	8-51	5.1-6.5	15-23	0
	51-60	5.6-7.3	12-18	0-15
119D2:				
Elco----------	0-6	5.6-7.3	14-22	0
	6-28	5.1-7.8	14-22	0
	28-60	5.1-7.8	15-27	0
119E2:				
Elco----------	0-2	5.6-7.3	14-22	0
	2-9	5.6-7.3	14-22	0
	9-32	5.1-7.8	14-22	0
	32-60	5.1-7.8	15-27	0
212D2:				
Thebes----------	0-7	5.1-7.3	15-20	0
	7-34	4.5-6.0	15-20	0
	34-55	5.1-6.5	15-20	0
	55-80	5.1-7.3	5-10	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Calcium carbonate
	In	pH	meq/100 g	Pct
212D3:				
Thebes----------	0-9	5.1-7.3	15-20	0
	9-34	4.5-6.0	15-20	0
	34-59	5.1-6.5	15-20	0
	59-80	5.1-7.3	5-10	0
212F:				
Thebes----------	0-9	5.1-7.3	15-20	0
	9-31	4.5-6.0	15-20	0
	31-40	5.1-6.5	15-20	0
	40-60	5.1-7.3	5-10	0
250D2:				
Velma----------	0-7	5.1-7.3	18-24	0
	7-45	4.5-7.3	15-23	0
	45-60	7.4-8.4	12-19	5-30
257A:				
Clarksdale------	0-8	5.1-7.3	10-22	0
	8-16	5.1-7.3	9-18	0
	16-47	5.1-7.3	21-28	0
	47-67	6.1-8.4	12-19	0-15
	67-80	6.1-8.4	12-18	0-15
259C2:				
Assumption------	0-8	5.6-7.3	18-24	0
	8-24	5.1-7.3	15-23	0
	24-60	5.1-7.3	15-22	0
259D2:				
Assumption------	0-7	5.6-7.3	18-24	0
	7-28	5.1-7.3	15-23	0
	28-60	5.1-7.3	18-28	0
274C2:				
Seaton----------	0-7	5.6-7.3	10-17	0
	7-47	4.5-7.3	11-16	0
	47-60	5.6-8.4	6-15	0-35
274D:				
Seaton----------	0-14	5.6-7.3	10-17	0
	14-49	4.5-7.3	11-16	0
	49-60	5.6-8.4	6-15	0-35
275A:				
Joy----------	0-15	5.6-7.3	13-23	0
	15-51	5.1-7.3	11-28	0
	51-60	6.1-8.4	7-14	0-30
278A:				
Stronghurst-----	0-8	5.1-7.3	14-22	0
	8-47	5.1-7.3	17-23	0
	47-60	5.6-7.8	12-17	0-15
279B:				
Rozetta---------	0-7	5.1-7.3	10-22	0
	7-11	4.5-7.3	7-17	0
	11-55	4.5-6.0	16-22	0
	55-60	5.6-7.8	12-17	0-15

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Calcium carbonate
	In	pH	meq/100 g	Pct
279C2:				
Rozetta---------	0-8	5.1-7.3	10-22	0
	8-13	4.5-7.3	7-17	0
	13-56	4.5-6.0	16-22	0
	56-60	5.6-7.8	12-17	0-15
279C3:				
Rozetta---------	0-6	5.1-7.3	7-17	0
	6-33	4.5-6.0	16-22	0
	33-60	5.6-7.8	12-17	0-15
280B:				
Fayette---------	0-9	5.1-7.3	15-20	0
	9-39	4.5-6.0	15-20	0
	39-60	5.1-7.8	15-20	0-15
280C2:				
Fayette---------	0-8	5.1-7.3	18-25	0
	8-64	4.5-6.0	15-20	0
	64-80	5.1-7.8	15-20	0-15
280D2:				
Fayette---------	0-6	5.1-7.3	18-25	0
	6-48	4.5-6.0	15-20	0
	48-60	5.1-7.8	15-20	0-15
280D3:				
Fayette---------	0-8	5.1-7.3	25-30	0
	8-36	4.5-6.0	15-20	0
	36-60	5.1-7.8	15-20	0-15
430B:				
Raddle----------	0-13	5.6-7.3	12-18	0
	13-60	5.6-7.3	12-18	0
505G:				
Dunbarton-------	0-2	5.6-7.3	10-22	0
	2-10	5.6-7.8	7-17	0
	10-16	6.6-7.8	28-36	0
	16-60	---	---	---
549D2:				
Marseilles------	0-5	5.1-6.5	14-22	0
	5-27	4.5-6.5	16-27	0
	27-60	---	---	---
549F:				
Marseilles------	0-10	5.1-6.5	14-22	0
	10-35	4.5-6.5	16-27	0
	35-60	---	---	---
549G:				
Marseilles------	0-10	5.1-6.5	14-22	0
	10-35	4.5-6.5	16-27	0
	35-60	---	---	---
567C2:				
Elkhart---------	0-8	5.6-7.8	18-27	0
	8-25	5.6-8.4	15-22	0-20
	25-60	7.4-8.4	12-21	10-40

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Calcium carbonate
	In	pH	meq/100 g	Pct
567D3:				
Elkhart---------	0-7	5.6-7.8	18-27	0
	7-21	5.6-8.4	15-22	0-20
	21-60	7.4-8.4	12-21	10-40
671B:				
Biggsville------	0-13	5.1-8.4	19-29	0
	13-53	5.6-7.3	14-22	0
	53-80	5.6-8.4	11-20	0-35
671C2:				
Biggsville------	0-9	5.1-8.4	19-29	0
	9-60	5.6-7.3	14-22	0
675B:				
Greenbush-------	0-14	5.1-7.3	20-25	0
	14-60	4.5-7.3	25-30	0
	60-80	5.6-7.3	20-25	0
675C2:				
Greenbush-------	0-6	5.1-7.3	20-25	0
	6-46	4.5-7.3	25-30	0
	46-60	5.6-7.3	20-25	0
678B:				
Mannon----------	0-7	5.6-7.3	10-18	0
	7-10	5.6-7.3	10-16	0
	10-59	5.1-7.3	10-18	0
	59-80	5.6-8.4	10-15	0-30
712A:				
Spaulding-------	0-22	7.4-8.4	24-33	10-40
	22-38	7.4-8.4	17-25	5-40
	38-44	7.4-8.4	14-23	5-40
	44-80	7.4-8.4	12-17	10-40
802B:				
Orthents--------	0-6	5.6-7.8	10-25	0-10
	6-60	5.6-7.8	10-20	0-20
835G.				
Earthen dam				
864.				
Pits, quarries				
895D:				
Fayette---------	0-2	5.1-7.3	15-20	0
	2-14	5.1-7.3	15-20	0
	14-45	4.5-6.0	15-20	0
	45-60	5.1-7.8	15-20	0-15
Westville-------	0-5	5.1-6.5	13-22	0
	5-54	5.1-7.3	15-23	0
	54-60	6.6-8.4	9-14	0-30
936D2:				
Fayette---------	0-4	5.1-7.3	18-25	0
	4-8	5.1-7.3	15-20	0
	8-60	4.5-6.0	15-20	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Calcium carbonate
	In	pH	meq/100 g	Pct
936D2:				
Hickory---------	0-8	4.5-7.3	14-19	0
	8-12	4.5-7.3	14-19	0
	12-51	4.5-7.3	16-22	0
	51-60	5.1-8.4	9-19	0-15
936G:				
Fayette---------	0-4	5.1-7.3	15-20	0
	4-10	5.1-7.3	15-20	0
	10-60	4.5-6.0	15-20	0
Hickory---------	0-4	4.5-7.3	14-19	0
	4-10	4.5-7.3	14-19	0
	10-50	4.5-7.3	16-22	0
	50-60	5.1-8.4	9-19	0-15
943D3:				
Seaton----------	0-4	5.6-7.3	10-17	0
	4-39	4.5-7.3	11-16	0
	39-60	5.6-8.4	6-15	0-25
Timula----------	0-23	6.1-7.8	8-15	0-5
	23-60	7.4-8.4	6-12	5-35
957D2:				
Elco----------	0-4	5.6-7.3	14-22	0
	4-7	5.6-7.3	14-22	0
	7-25	5.1-7.3	14-22	0
	25-60	5.1-7.8	15-27	0
Atlas----------	0-3	4.5-7.3	14-22	0
	3-5	4.5-7.3	14-22	0
	5-28	4.5-7.3	21-29	0
	28-60	4.5-7.8	18-29	0-25
957D3:				
Elco----------	0-7	5.6-7.3	16-22	0
	7-27	5.1-7.8	14-22	0
	27-39	5.1-7.8	14-21	0
	39-60	5.1-7.8	15-27	0-10
Atlas----------	0-5	4.5-7.3	19-28	0
	5-9	4.5-7.3	21-29	0
	9-39	4.5-7.8	18-29	0-25
	39-60	4.5-7.8	18-29	0-25
1405A:				
Zook----------	0-8	5.6-7.3	36-41	0
	8-55	5.6-7.8	36-41	0
	55-60	5.6-7.8	30-36	0
3074A:				
Radford---------	0-12	5.6-7.8	15-24	0
	12-33	6.1-7.8	11-20	0
	33-60	6.1-7.8	14-23	0-20
3107+:				
Sawmill---------	0-11	6.1-7.8	19-26	0
	11-36	6.1-7.8	17-27	0
	36-53	6.1-7.8	16-25	0-10
	53-60	6.1-8.4	11-22	0-30

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Calcium carbonate
	In	pH	meq/100 g	Pct
3107A:				
Sawmill---------	0-26	6.1-7.8	24-31	0
	26-54	6.1-7.8	17-27	0
	54-60	6.1-7.8	16-25	0-10
3405A:				
Zook----------	0-8	5.6-7.3	36-41	0
	8-55	5.6-7.8	36-41	0
	55-60	5.6-7.8	30-36	0
3415A:				
Orion----------	0-7	5.6-7.8	7-20	0
	7-22	5.6-7.8	7-20	0
	22-60	5.6-7.8	10-35	0
	60-80	5.6-7.8	5-15	0
3451A:				
Lawson----------	0-14	6.1-7.8	11-28	0
	14-33	6.1-7.8	11-29	0
	33-80	6.1-7.8	11-23	0
7428A:				
Coffeen---------	0-20	5.6-7.8	13-22	0
	20-32	5.6-7.3	6-15	0
	32-60	5.6-7.3	3-13	0
9017A:				
Keomah----------	0-9	4.5-7.3	15-20	0
	9-16	4.5-7.3	15-20	0
	16-49	4.5-5.5	25-30	0
	49-80	5.1-7.3	15-20	0
9086B:				
Osco----------	0-14	5.1-7.3	18-25	0
	14-55	5.1-7.3	15-23	0
	55-60	5.6-7.3	12-18	0
9279B:				
Rozetta---------	0-9	5.1-7.3	10-22	0
	9-66	4.5-6.0	16-22	0
	66-76	5.6-7.8	12-17	0-15
9279C2:				
Rozetta---------	0-7	5.1-7.3	10-22	0
	7-66	4.5-6.0	16-22	0
	66-70	5.6-7.8	12-17	0-15
9675B:				
Greenbush-------	0-14	5.1-7.3	20-25	0
	14-60	4.5-7.3	25-30	0
	60-80	5.6-7.3	20-25	0

Table 21.--Water Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Kind of water table	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
8D2, 8D3, 8F, 8G:										
Hickory--------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
17A:										
Keomah----------	C									
		Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	---
43A, 43B:										
Ipava-----------	B									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	---
45A:										
Denny-----------	D									
		Jan-May	0.0	>6.0	Apparent	0.0-1.0	Brief	Frequent	---	---
51A:										
Muscatune-------	B									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	---
61A:										
Atterberry------	B									
		Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	---
68A, 68A+:										
Sable-----------	B/D									
		Jan-May	0.0	>6.0	Apparent	0.0-0.5	Brief	Occasional	---	---
81A:										
Littleton-------	B									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	---
86B, 86B2, 86C2, 86C3, 86D2:										
Osco-----------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---
119D2, 119E2:										
Elco----------	B									
		Feb-Apr	2.0-3.5	2.8-4.5	Perched	---	---	---	---	---
212D2, 212D3, 212F:										
Thebes---------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
250D2:										
Velma-----------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
257A:										
Clarksdale------	C									
		Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	---
259C2, 259D2:										
Assumption------	B									
		Feb-Apr	2.0-3.5	2.8-4.5	Perched	---	---	---	---	---

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Kind of water table	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
274C2, 274D:										
Seaton----------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
275A:										
Joy----------	B									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	---	---
278A:										
Stronghurst-----	B									
		Jan-May	0.5-2.0	>6.0	Apparent	---	---	---	---	---
279B, 279C2, 279C3:										
Rozetta--------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---
280B, 280C2, 280D2, 280D3:										
Fayette--------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
430B:										
Raddle----------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
505G:										
Dunbarton-------	D									
		All months	>6.0	>6.0	---	---	---	---	---	---
549D2, 549F, 549G:										
Marseilles-----	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
567C2, 567D3:										
Elkhart---------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---
671B, 671C2:										
Biggsville------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---
675B, 675C2:										
Greenbush-------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---
678B:										
Mannon----------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---
712A:										
Spaulding-------	B/D									
		Jan-May	0.0-1.0	>6.0	Apparent	0.0-0.5	Brief	Frequent	---	---
802B:										
Orthents--------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
835G.										
Earthen dam										

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Kind of water table	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
864.										
Pits, quarries										
895D:										
Fayette---------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
Westville-------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
936D2, 936G:										
Fayette---------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
Hickory---------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
943D3:										
Seaton----------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
Timula----------	B									
		All months	>6.0	>6.0	---	---	---	---	---	---
957D2, 957D3:										
Elco----------	B									
		Feb-Apr	2.0-3.5	2.8-4.5	Perched	---	---	---	---	---
Atlas----------	D									
		Jan-May	0.5-2.0	2.0-4.0	Perched	---	---	---	---	---
1405A:										
Zook----------	C/D									
		Jan-Jun	0.0-1.0	>6.0	Apparent	0.0-0.5	Long	Frequent	Long	Frequent
		November	---	---	---	---	Long	Frequent	Long	Frequent
		December	---	---	---	---	Long	Frequent	Long	Frequent
3074A:										
Radford---------	B									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	Brief	Frequent
		June	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent
3107+, 3107A:										
Sawmill---------	B/D									
		Jan-May	0.0-2.0	>6.0	Apparent	---	---	---	Brief	Frequent
		June	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent
3405A:										
Zook----------	C/D									
		Jan-May	0.0-1.0	>6.0	Apparent	---	---	---	Brief	Frequent
		June	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent

Table 21.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Kind of water table	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
3415A:										
Orion----------	C									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	Brief	Frequent
		June	---	---	---	---	---	---	Brief	Frequent
		November	---	---	---	---	---	---	Brief	Frequent
		December	---	---	---	---	---	---	Brief	Frequent
3451A:										
Lawson----------	B									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	None	Brief	Frequent
		June	---	---	---	---	---	None	Brief	Frequent
		November	---	---	---	---	---	None	Brief	Frequent
		December	---	---	---	---	---	None	Brief	Frequent
7428A:										
Coffeen---------	B									
		Jan-May	1.0-2.0	>6.0	Apparent	---	---	---	Very brief	Rare
		June	---	---	---	---	---	---	Very brief	Rare
		November	---	---	---	---	---	---	Very brief	Rare
		December	---	---	---	---	---	---	Very brief	Rare
9017A:										
Keomah----------	C									
		Jan-May	0.5-2.0	>6.0	Apparent	---	---	None	---	---
9086B:										
Osco----------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---
9279B, 9279C2:										
Rozetta---------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	None	---	---
9675B:										
Greenbush-------	B									
		Feb-Apr	4.0-6.0	>6.0	Apparent	---	---	---	---	---

Table 22.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
8D2, 8D3, 8F, 8G:					
Hickory	---	---	Moderate	Moderate	Moderate
17A:					
Keomah	---	---	High	High	Moderate
43A, 43B:					
Ipava	---	---	High	High	Moderate
45A:					
Denny	---	---	High	High	Moderate
51A:					
Muscatune	---	---	High	High	Moderate
61A:					
Atterberry	---	---	High	High	Moderate
68A, 68A+:					
Sable	---	---	High	High	Low
81A:					
Littleton	---	---	High	High	Low
86B, 86B2, 86C2, 86C3, 86D2:					
Osco	---	---	High	Moderate	Moderate
119D2, 119E2:					
Elco	---	---	High	High	Moderate
212D2, 212D3, 212F:					
Thebes	---	---	High	Moderate	Moderate
250D2:					
Velma	---	---	High	High	High
257A:					
Clarksdale	---	---	High	High	Moderate
259C2, 259D2:					
Assumption	---	---	High	High	Moderate
274C2, 274D:					
Seaton	---	---	High	Low	Moderate
275A:					
Joy	---	---	High	High	Moderate
278A:					
Stronghurst	---	---	High	High	Moderate
279B, 279C2, 279C3:					
Rozetta	---	---	High	Moderate	Moderate
280B, 280C2, 280D2, 280D3:					
Fayette	---	---	High	Moderate	Moderate

Table 22.--Soil Features--Continued

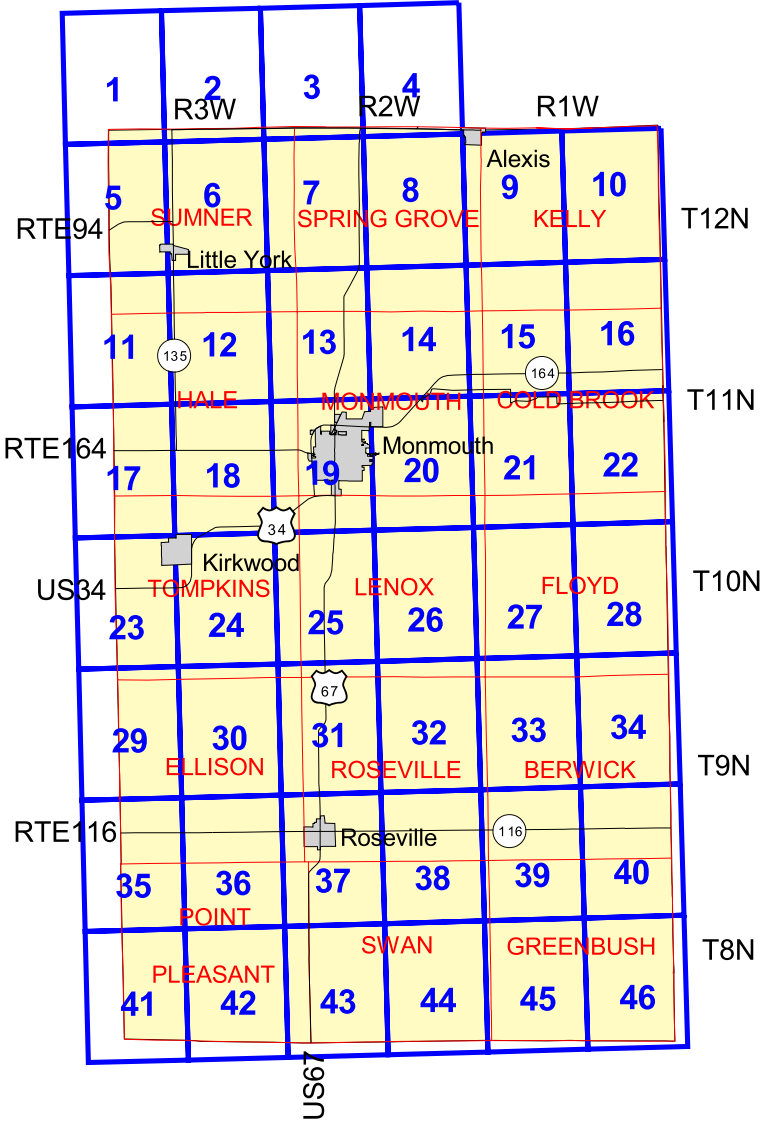
Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In			
430B:					
Raddle	---	---	High	Moderate	Moderate
505G:					
Dunbarton	Bedrock (lithic)	12-20	Moderate	Moderate	Low
549D2, 549F, 549G:					
Marseilles	Bedrock (paralithic)	20-40	High	High	Moderate
567C2, 567D3:					
Elkhart	---	---	High	Moderate	Moderate
671B, 671C2:					
Biggsville	---	---	High	Low	Moderate
675B, 675C2:					
Greenbush	---	---	High	Moderate	Moderate
678B:					
Mannon	---	---	High	Moderate	Moderate
712A:					
Spaulding	---	---	High	High	Low
802B:					
Orthents	---	---	Moderate	Moderate	Moderate
835G.					
Earthen dam					
864.					
Pits, quarries					
895D:					
Fayette	---	---	High	Moderate	Moderate
Westville	---	---	Moderate	Moderate	Moderate
936D2, 936G:					
Fayette	---	---	High	Moderate	Moderate
Hickory	---	---	Moderate	Moderate	Moderate
943D3:					
Seaton	---	---	High	Low	Moderate
Timula	---	---	High	Low	Low
957D2, 957D3:					
Elco	---	---	High	High	Moderate
Atlas	---	---	High	High	Moderate
1405A:					
Zook	---	---	High	High	Moderate
3074A:					
Radford	---	---	High	High	Moderate
3107+, 3107A:					
Sawmill	---	---	High	High	Low

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer		Potential for frost action	Risk of corrosion	
	Kind	Depth to top		Uncoated steel	Concrete
		In			
3405A:					
Zook	---	---	High	High	Moderate
3415A:					
Orion	---	---	High	High	Low
3451A:					
Lawson	---	---	High	Moderate	Low
7428A:					
Coffeen	---	---	High	High	Moderate
9017A:					
Keomah	---	---	High	High	Moderate
9086B:					
Osco	---	---	High	Moderate	Moderate
9279B, 9279C2:					
Rozetta	---	---	High	Moderate	Moderate
9675B:					
Greenbush	---	---	High	Moderate	Moderate

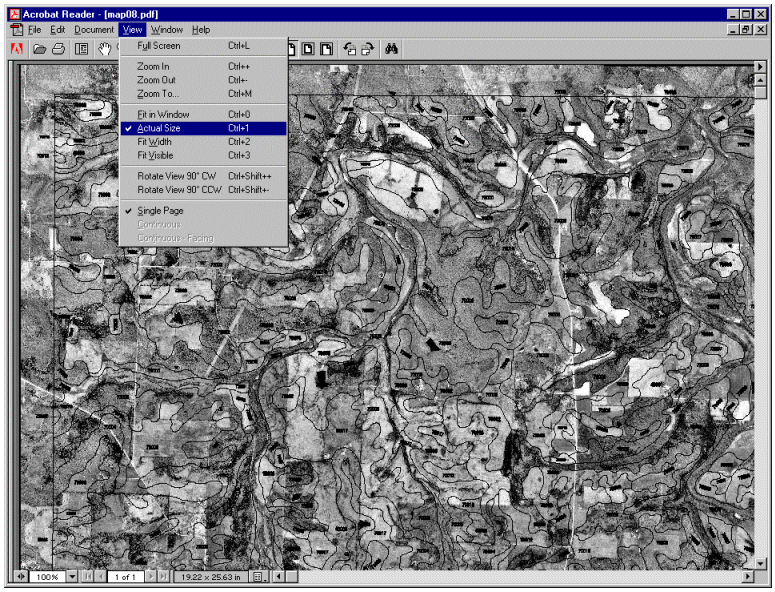
Warren County, Illinois
Index to atlas sheets

Click on a blue number to view soil map of area

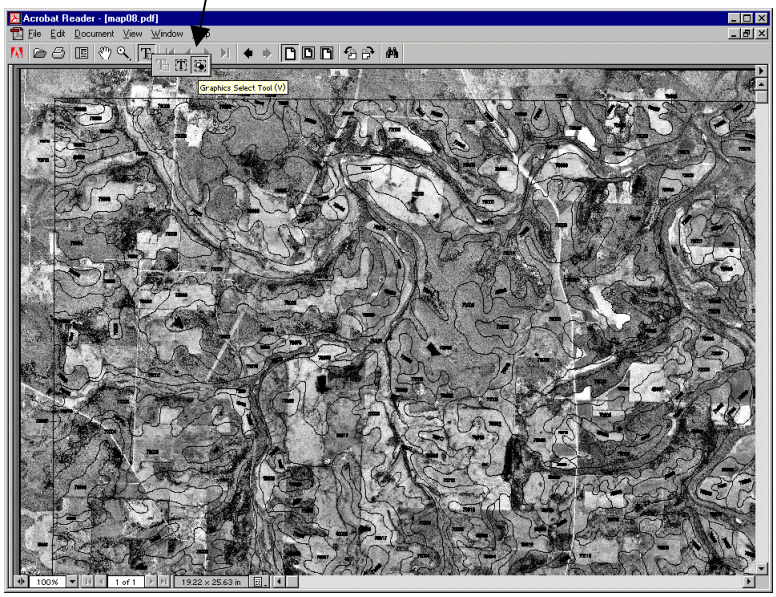


Printing Soil Survey Maps

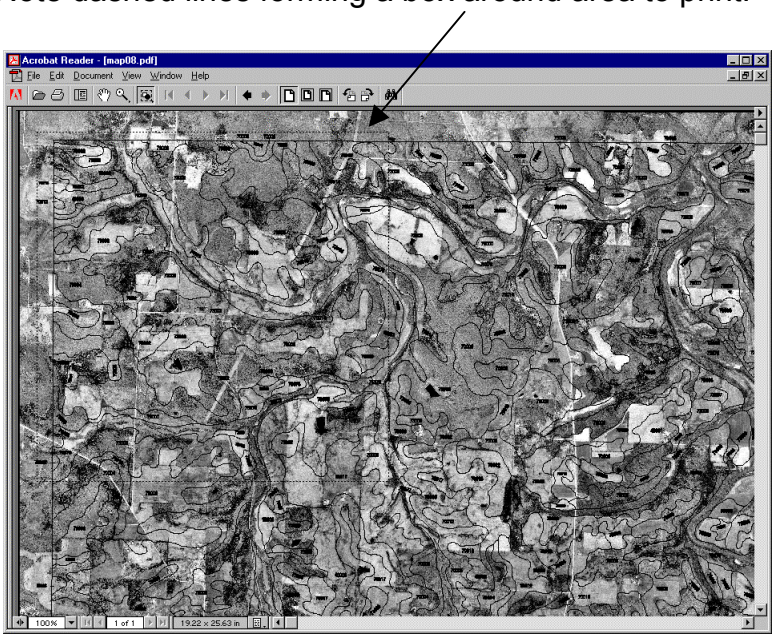
The soil survey maps were made at a scale of 1:12000 and were designed to be used at that scale. To print the maps at 1:12000 scale, set the view to Actual Size from the View pull down menu.



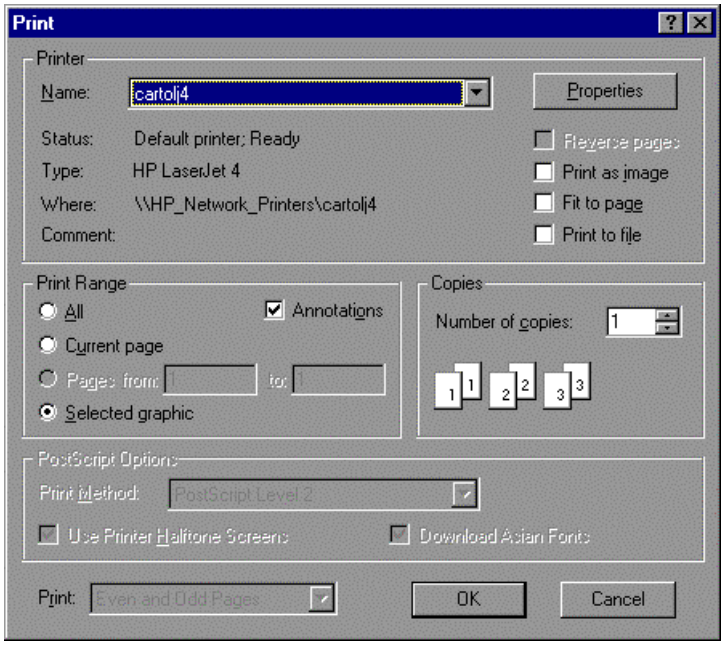
Using the pan tool, go to the area you would like to print. Select the Graphic Selection Tool by holding down the Text Selection Tool button and clicking on the Graphic Selection Tool button.



Then using the Graphic Selection Tool drag a box around the area you would like to print. Note dashed lines forming a box around area to print.



Select File Print. The Print Range will be set to Selected graphic. Click OK and the map will be sent to the printer.



U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

DESCRIPTION SYMBOL

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation, (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access areas
- Field sheet matchline & neatline
- Previously published survey

OTHER BOUNDARY (label)

- Airport, airfield — Davis airstrip
- Cemetery — St Johns Cemetery
- City / county Park — Central Park

STATE COORDINATE TICK

- LAND DIVISION CORNERS (section and land grants)
- GEOGRAPHIC COORDINATE TICK

TRANSPORTATION

- Divided roads
- Other roads
- Trails

ROAD EMBLEMS & DESIGNATIONS

- Interstate — 79, 79 340
- Federal — 410, 410 224
- State — 92, 92 347

County, farm, or ranch — 376

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPELINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad
- Single side slope (showing actual feature location)

DAMS

- Medium or small — W

LANDFORM FEATURES

- Prominent hill or peak
- Soil sample site — S

* Cultural features for use in Illinois

DESCRIPTION SYMBOL

CULTURAL FEATURES (cont.)

MISCELLANEOUS CULTURAL FEATURES

- Farmland, house (omit in urban areas)
- Church
- School
- Other Religion (label) — Mt Carmel
- Located object (label) — Ranger Station
- Tank (label) — Petroleum
- Lookout Tower
- Oil and / or Natural Gas Wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end

DRAINAGE AND IRRIGATION

- Double line canal (label) — CANAL
- Perennial drainage and/or irrigation ditch
- Intermittent drainage and/or irrigation ditch

SMALL LAKES, PONDS, AND RESERVOIRS

- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD, FRIC, LOW

MISCELLANEOUS WATER FEATURES

- Spring
- Well, artesian
- Well, irrigation

DESCRIPTION SYMBOL

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS — DAM, W, Fe, BcC, M-W, LEVEE

LANDFORM FEATURES

ESCARPMENTS

- Bedrock
- Other than bedrock

SHORT STEEP SLOPE

GULLY

DEPRESSION, closed

SINKHOLE

EXCAVATIONS

PITS

- Borrow pit
- Gravel pit
- Mine or quarry

LANDFILL

MISCELLANEOUS SURFACE FEATURES

- Blowout
- Clay spot
- Gravelly spot
- Lava flow
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

RECOMMENDED AD HOC SOIL SYMBOLS

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Descriptions of Special Features

Name	Description	Label
Blowout	A small saucer-, cup-, or trough-shaped hollow or depression formed by wind erosion on a preexisting sand deposit. Typically 0.2 acre to 2.0 acres.	BLO
Borrow pit	An open excavation from which soil and underlying material have been removed, usually for construction purposes. Typically 0.2 acre to 2.0 acres.	BPI
Calcareous spot	An area in which the soil contains carbonates in the surface layer. The surface layer of the named soils in the surrounding map unit is noncalcareous. Typically 0.5 acre to 2.0 acres.	CSP
Clay spot	A spot where the surface layer is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser. Typically 0.2 acre to 2.0 acres.	CLA
Depression, closed	A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage. Typically 0.2 acre to 2.0 acres.	DEP
Disturbed soil spot	An area in which the soil has been removed and materials redeposited as a result of human activity. Typically 0.25 acre to 2.0 acres.	DSS
Dumps	Areas of nonsoil material that support little or no vegetation. Typically 0.5 acre to 2.0 acres.	DMP
Escarpment, bedrock	A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.	ESB
Escarpment, nonbedrock	A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.	ESO
Glacial till spot	An exposure of glacial till at the surface of the earth. Typically 0.25 acre to 2.0 acres.	GLA
Gravel pit	An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel. Typically 0.2 acre to 2.0 acres.	GPI
Gravelly spot	A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments. Typically 0.2 acre to 2.0 acres.	GRA

Name	Description	Label
Gray spot	A spot in which the surface layer is gray in areas where the subsurface layer of the named soils in the surrounding map unit are darker. Typically 0.25 acre to 2.0 acres.	GSP
Gully	A small channel with steep sides cut by running water through which water ordinarily runs only after a rain or after melting of snow or ice. It generally is an obstacle to wheeled vehicles and is too deep to be obliterated by ordinary tillage.	GUL
Iron bog	An accumulation of iron in the form of nodules, concretions, or soft masses on the surface or near the surface of soils. Typically 0.2 acre to 2.0 acres.	BFE
Landfill	An area of accumulated waste products of human habitation, either above or below natural ground level. Typically 0.2 acre to 2.0 acres.	LDF
Levee	An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.	LVS
Marsh or swamp	A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Typically 0.2 acre to 2.0 acres.	MAR
Mine or quarry	An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines. Typically 0.2 acre to 2.0 acres.	MPI
Mine subsided area	An area that is lower than the soils in the surrounding map unit because of subsurface coal mining. Typically 0.25 acre to 3.0 acres.	MSA
Miscellaneous water	A small, constructed body of water that is used for industrial, sanitary, or mining applications and that contains water most of the year. Typically 0.2 acre to 2.0 acres.	MIS
Muck spot	An area that occurs within an area of poorly drained or very poorly drained soil and that has a histic epipedon or an organic surface layer. The symbol is used only in map units consisting of mineral soil. Typically 0.2 acre to 2.0 acres.	MUC
Oil brine spot	An area of soil that has been severely damaged by the accumulation of oil brine, with or without liquid oily wastes. The area is typically barren but may have a vegetative cover of salt-tolerant plants. Typically 0.2 acre to 2.0 acres.	OBS
Perennial water	A small, natural or constructed lake, pond, or pit that contains water most of the year. Typically 0.2 acre to 2.0 acres.	WAT

Name	Description	Label
Rock outcrop	An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit. Typically 0.2 acre to 2.0 acres.	ROC
Saline spot	An area where the surface layer has an electrical conductivity of 8 mmhos/cm-l more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm-l or less. Typically 0.2 acre to 2.0 acres.	SAL
Sandy spot	A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer. Typically 0.2 acre to 2.0 acres.	SAN
Severely eroded spot	An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,” “very severely eroded,” or “gullied” is part of the map unit name. Typically 0.2 acre to 2.0 acres.	ERO
Short steep slope	A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.	SLP
Sinkhole	A closed depression formed either by solution of the surficial rock or by collapse of underlying caves. Typically 0.2 acre to 2.0 acres.	SNK
Slide or slip	A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces. Typically 0.2 acre to 2.0 acres.	SLI
Sodic spot	An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less. Typically 0.2 acre to 2.0 acres.	SOD
Spoil area	A pile of earthy materials, either smoothed or uneven, resulting from human activity. Typically 0.2 acre to 2.0 acres.	SPO
Stony spot	A spot where 0.01 to 0.1 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones. Typically 0.2 acre to 2.0 acres.	STN
Unclassified water	A small, natural or manmade lake, pond, or pit that contains water, of an unspecified nature, most of the year. Typically 0.2 acre to 2.0 acres.	UWT

Name	Description	Label
Very stony spot	A spot where 0.1 to 3.0 percent of the surface cover is rock fragments that are more than 10 inches in diameter in areas where the surface cover of the surrounding soil is less than 0.01 percent stones. Typically 0.2 acre to 2.0 acres.	STV
Wet depression	A shallow, concave area within an area of poorly drained or very poorly drained soils in which water is ponded for intermittent periods. The concave area is saturated for appreciably longer periods of time than the surrounding soil. Typically 0.2 acre to 2.0 acres.	WDP
Wet spot	A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit. Typically 0.2 acres to 2.0 acres.	WET