United States Department of Agriculture

Natural Resources Conservation Service and Forest Service

In cooperation with Michigan Department of Agriculture, Michigan Agricultural Experiment Station, Michigan State University Extension, Michigan Technological University, the Soil Classifiers Association of Michigan, and Benzie and Manistee Counties

Soil Survey of Benzie and Manistee Counties, Michigan

How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

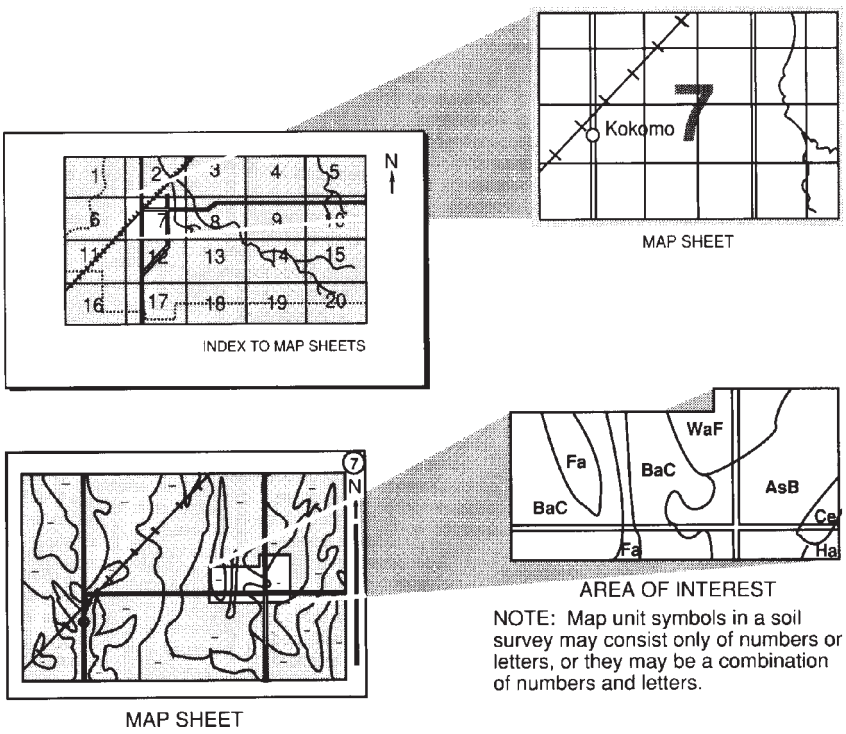
Detailed Soil Maps

The detailed soil maps 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 **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

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



National Cooperative Soil Survey

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. This survey was made cooperatively by the Natural Resources Conservation Service; the Forest Service; the Michigan Department of Agriculture; the Michigan Agricultural Experiment Station; Michigan State University, Cooperative Extension Service; Michigan Technological University; and the Soil Classifiers Association of Michigan. The survey is part of the technical assistance furnished to the Benzie County and Manistee County Soil and Water Conservation Districts and to Benzie and Manistee Counties.

Major fieldwork for this soil survey was completed in 2002. Soil names and descriptions were approved in 2004. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2002. The most current official data are available on the Internet.

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 Photo Caption

A view to the south from Benzie County to Manistee County. Parts of this lakeshore are in permanent easement and are open to the public.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys 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 surveys 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 surveys 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 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. Broad areas of soils are shown on the general soil map. The location of each map unit 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.

Garry Lee
State Conservationist
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Soil Survey of
Benzie and Manistee Counties, Michigan

By Martin L. Kroell III, Natural Resources Conservation Service

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United States Department of Agriculture, Natural Resources Conservation Service and Forest Service,
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Benzie and Manistee Counties are in the western part of the Lower Peninsula of Michigan (fig. 1). They are bordered on the north by Leelanau County, on the south by Mason and Lake Counties, on the east by Grand Traverse and Wexford Counties, and on the west by Lake Michigan.

The survey area has a total of 580,217 acres, or about 907 square miles. Benzie County has 223,187 acres, and Manistee County has 357,030 acres. In 2003, the population of Benzie County was 17,078 and the population of Manistee County was 25,317 (U.S. Department of Commerce, 2003). Beulah, the county seat of Benzie County, is approximately 180 miles from Lansing. Manistee, the county seat of Manistee County, is approximately 170 miles from Lansing.

About 56 percent of the land in Benzie County is forested, and 10 percent is used as cropland. About 8 percent of the county is water, and the rest of the acreage is used for urban development or other uses. About 62 percent of the land in Manistee County is forested, and 13 percent is used for crops. About 3 percent of Manistee County is water, and the rest of the acreage is used for urban development or other uses. The main economic enterprises in the survey area are forestry, cropland, orchards, recreation (fig. 2), and tourism (Michigan Department of Agriculture, 1997).

The first soil survey of the area was for Manistee County and was published by the U.S. Department of Agriculture in 1926 (Wheeting and Bergquist, 1926). The current survey provides new data about the soils, includes soil maps on an orthophotographic base, and contains more interpretive information.

General Nature of the Survey Area

This section provides general information about Benzie and Manistee Counties. It describes history and development, climate, agriculture, industry and transportation facilities, physiography, and lakes and streams.

Figure 1.—Location of the survey area in Michigan.

History and Development

Benzie County.—Benzie County was originally a territory of the Chippewa and Ottawa Indians. French fur trappers and traders were the first white men to visit the area. They were followed by the Jesuits and other missionaries. The noted Jesuit missionary Father Jacques Marquette died at what is now the Frankfort waterfront and was buried there (but was later exhumed and reburied at St. Ignace). In 1836, the land, which was valued at 8$^{1}/_{4}$ cents an acre, was transferred to the United States through a treaty with the Chippewa and Ottawa Indians.

Benzie County was created in 1869, and the county seat was eventually established in Beulah in 1916. Between 1870 and 1920, steam-powered sawmills and the associated logging were the principal economic and industrial activities in the county. Several railroad lines ran through the county and provided service to the mills. By the 1920s, the virgin timber had disappeared and, eventually, so did the lumber mills and the railroad lines. Through the 1900s, the county slowly grew as it became a resort and recreation destination and as the farming of fruit crops increased in the region.

Manistee County.—Early historic Indian tribes in the area included the Potawatomi and Ottawa tribes. The French arrived in the region in the 1600s as traders came in search of beaver pelts. The United States purchased the land from the Chippewa and Ottawa Indians through a treaty in 1836.

The first permanent white settlers arrived in 1841 and settled in buildings once used as an Indian reservation centered around Manistee Lake. The lumber in the area was marketed to Chicago; by 1873, the total mill output was around 300 million board feet per year. In 1881, a layer of solid rock salt was discovered almost 2,000 feet under Manistee. Wells were drilled, water was pumped down to the salt beds, and brine was pumped up. Scrap wood from the lumber mills was burned to evaporate the brine and create table salt. As the timber in the county was cleared, the land was used for agricultural crops and small villages were established.

Figure 2.—The design of this golf course incorporates areas of forestland. Benzonia sand is the dominant soil.

By the turn of the century, Manistee County had reached its industrial and agricultural peak. The virgin timber had been harvested and the agricultural land exhausted. Small factories replaced the large mills, and the remaining farmers switched to fruit crops.

A housing boom in the 1970s was the result of industrial expansion and a desire for homes in a rural setting. The region suffered from the national economic depression in the 1980s with the loss of manufacturing jobs. These jobs were eventually replaced with employment in the retail and service sectors.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Frankfort and Manistee in 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 the length of the growing season.

In winter, the average temperature is 24.6 degrees F at Frankfort and 25.4 degrees F at Manistee. The average daily minimum temperature is 19 degrees at Frankfort and 18.8 degrees at Manistee. The lowest temperature during the period of record at Frankfort, -15 degrees, occurred on January 17, 1982. The lowest temperature during the period of record at Manistee, -22 degrees, occurred on February 17, 1979.

In summer, the average temperature is 65.7 degrees at Frankfort and 67 degrees at Manistee. The average daily maximum temperature is 75 degrees at Frankfort and 77.7 degrees at Manistee. The highest temperature recorded at Frankfort, 95 degrees, occurred on August 16, 1988. The highest temperature recorded at Manistee, 99 degrees, occurred on July 26, 1955.

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 (40 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.

The average annual total precipitation at Frankfort is 35.13 inches. Of this total, 19.67 inches, or about 56 percent, usually falls in May through October. The growing season for most crops falls within this period.

The average annual total precipitation at Manistee is 33.27 inches. Of this total, 19.8 inches, or about 59 percent, usually falls in May through October. The growing season for most crops falls within this period.

The heaviest 1-day rainfall on record was 4.08 inches at Frankfort (August 17, 1995) and 3.9 inches at Manistee (June 26, 1969). Thunderstorms occur on about 37 days each year, and most occur between May and September.

The average seasonal snowfall is 115 inches at Frankfort and 57.4 inches at Manistee. In Frankfort, the greatest snow depth at any one time during the period of record was 48 inches recorded on February 3, 1994. In Manistee, the greatest snow depth at any one time during the period of record was 75 inches recorded on February 13, 1982. In Frankfort, on the average, 109 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 16 inches on December 22, 1989. In Manistee, on the average, 48 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 18 inches on December 18, 1963.

The average relative humidity in midafternoon is about 64 percent. Humidity is higher at night, and the average at dawn is about 81 percent. The sun shines 62 percent of the time possible in summer and 31 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, around 12 miles per hour, from November to April.

Agriculture

Farming has been slowly declining in the survey area (fig. 3). Early settlers cleared much of the hardwood areas and attempted to grow crops. These hardwood areas have mainly sandy soils that are unsuitable for growing many of the common crops. Much of the area is better suited to specialty crops than to row crops. Harsh changes in temperature in the spring are mitigated by Lake Michigan, and thus the western part of the survey area is ideal for growing orchard crops and specialty crops.

Figure 3.—Small pockets of farmland still remain scattered throughout the survey area.

In 2002, farmland made up 46,442 acres in Manistee County and 23,055 acres in Benzie County (USDA, National Agricultural Statistics Service). The major fruit crops were apples and tart cherries. Sweet cherries, peaches, and strawberries also are grown.

Vegetables are grown in some areas of Manistee and Benzie Counties. Dry beans, cucumbers for pickles, carrots, and asparagus are among the vegetables grown. Christmas tree plantations make up a significant acreage in the area (fig. 4). Dairy, livestock, grain crops, and hay also are important to the farming community.

Figure 4.—The production of Christmas trees is an important agricultural enterprise in the survey area. These trees are growing in an area of Benzonia sand.

Industry and Transportation Facilities

The major industrial activity in the survey area is the production of chemicals and salt. Many light industries manufacture a variety of goods, including auto parts, tools, oil, plastics, and paper.

Ports of Manistee and Elberta serve as links to other areas in the country and to foreign locations. The ports are points of export for goods produced in the area.

Three major highways, U.S. 31, M-55, and M-115, link the survey area with other parts of the state. Two railroad freight lines and one commercial airport also serve the area.

Physiography

Most of the landscape features in the survey area were formed by the complex action of the Lake Michigan lobe of the Wisconsin glacial ice sheet (fig. 5). This glacial action produced five dominant land features—moraines, till plains, outwash plains, lake plains, and drainageways. Some of the land features have been modified by wind and water.

Manistee County, south of the Manistee River, is covered by nearly level and gently rolling, sandy outwash plains with a few gently rolling to hilly, sandy morainic deposits.

The nearly level to steep Port Huron Moraine dominates the eastern part of the survey area from the southeast corner of Benzie County to the Manistee River.

A sandy, nearly level lake plain extends through the central part of Manistee County from just over the Benzie County line to the Manistee River, where it turns west and follows the river to the Lake Michigan shore. Some areas are partially covered by rolling dune formations or beach ridges.

The western part of the survey area is covered by a mixture of gently rolling to steep, sandy moraines and nearly level and gently rolling, fine and coarse textured till plains extending from the Manistee River to Crystal Lake in Benzie County. Some areas are covered by nearly level to gently rolling, sandy outwash plains and lake plains.

The central and eastern parts of Benzie County are dominated by nearly level and gently rolling, sandy outwash plains with a few gently rolling to steep, sandy morainic features.

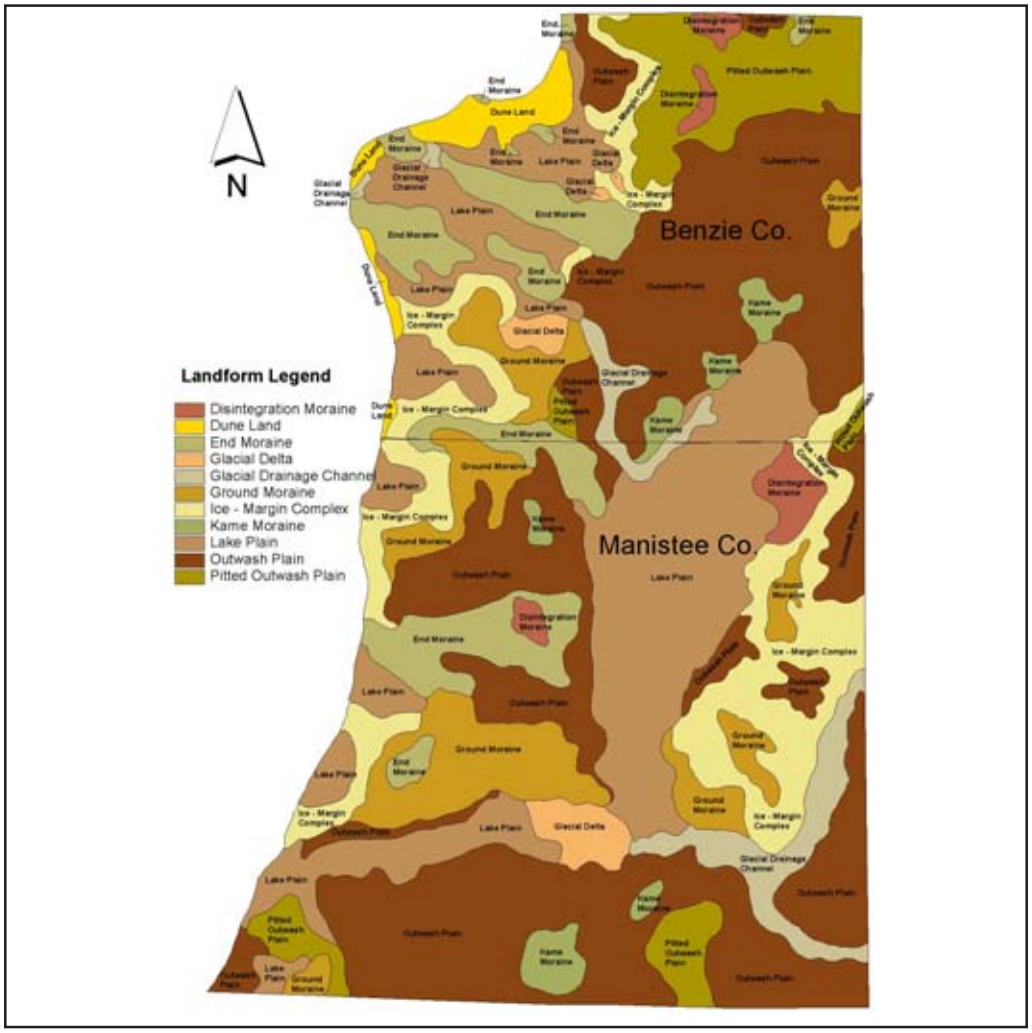

Figure 5.—Dominant landforms in Benzie and Manistee Counties.

The northwestern part of Benzie County is covered by hilly and steep dunes and nearly level and gently rolling, sandy lake plains (fig. 6).

The elevation in the survey area ranges from 580 feet above sea level at the Lake Michigan shoreline to over 1,120 feet in eastern Marilla Township in Manistee County and in the Buck Hills in Benzie County.

Lakes and Streams

Benzie County.—Benzie County has about 16,960 acres of scattered lakes, reservoirs, and ponds. These water areas range from less than 5 acres to more than 9,000 acres. Some lakes are in marshes and exhibit all stages of filling by vegetation. Most of the lakes are in the northern half of the county. Among the larger ones are Crystal Lake, 9,711 acres; Big Platte Lake, 2,516 acres; Little Platte Lake, 805 acres; Upper Herring Lake, 540 acres; Lake Ann, 527 acres; and Lower Herring Lake, 450 acres (Michigan United Conservation Clubs).

Benzie County has two major drainage systems—the Betsie River and the Platte River. The Betsie River drains the southern part of the county (fig. 7). It flows

southwest where it enters the county in Colfax Township. It dips into the northern part of Manistee County and reenters Benzie County in Weldon Township, and then it flows to the northwest and empties into Lake Michigan at Frankfort. The Platte River drains the northern part of the county. It enters the county in Almira Township and flows in a large "S" shape in a generally westward direction. It fills Big Platte Lake before emptying into Lake Michigan.

Manistee County.—Manistee County has about 9,600 acres of scattered lakes, reservoirs, and ponds. These water areas range from less than 5 acres to more than 2,100 acres. Some lakes are in marshes and exhibit all stages of filling by vegetation. Most of the lakes are in the western half of the county. Among the larger ones are Portage Lake, 2,110 acres; Bear Lake, 1,744 acres; Manistee Lake, 1,048 acres;

Figure 6.—Beach grass in an area of Dune land-Quartzipsamments complex, undulating to hilly.

Tippy Dam Pond, 1,086 acres; Arcadia Lake, 242 acres; and Bar Lake, 240 acres (Michigan United Conservation Clubs).

Manistee County has two major drainage systems—the Manistee River and the Little Manistee River. The Manistee River drains the central part of the county. It flows to the southwest where it enters the county in Marilla Township. It turns west into the central part of Manistee County and is joined by the south-flowing Bear Creek before it empties into Lake Michigan at Manistee. The Little Manistee River drains the southern part of the county. It enters the county in Stronach Township and flows in a generally northeastern direction. It fills Manistee Lake before emptying into Lake Michigan.

Figure 7.—The Betsie River is part of the National Scenic River system.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their 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 of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil 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, 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. Some interpretations are modified 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 high water table within certain depths in most years, but they cannot predict that a high 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 and names of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of an improved 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.

Soil scientists were denied access to some areas of this soil survey during mapping. As a result, no current information is available for these areas, which are identified on the maps by the symbol 380.

Survey Procedures

The general procedures followed in making this survey are described in the National Soil Survey Handbook of the Natural Resources Conservation Service (USDA/NRCS, National Soil Survey Handbook). The Huron-Manistee National Forest

Ecological Classification System was used in conjunction with the handbook to prepare the soil survey on the Forest Service lands within the administrative boundary of the Huron-Manistee National Forest (Driscoll and others, 1984). The map units on the Forest Service lands were designed differently from those in other parts of the survey area.

The ecological classification system is an integrated system that includes evaluation and classification of landscape areas. Ecological units are mapped on aerial photographs, and interpretations are made from inventory maps for use in managing forestland and forest resources. In this survey, map symbols 210B through 282 identify map units within the Huron-Manistee National Forest.

Procedures for Map Units 1 through 139E

The soil survey maps made for conservation planning prior to the start of the project were among the references used. Before the actual fieldwork was begun, preliminary boundaries of slopes and landforms were plotted stereoscopically on 1:12,000 leaf-off aerial photographs. USGS topographic maps at a scale of 1:24,000 were used to help the soil scientists relate land and image features.

A reconnaissance was made by pickup truck before the soil scientists traversed the surface on foot. In areas where the soil pattern is very complex, traverses and random observations were spaced as closely as 200 yards. In areas where the soil pattern is relatively simple, traverses were about one-fourth mile apart.

As they traversed the surface, the soil scientists divided the landscape into segments. For example, a hillside was separated from a swale and a gently sloping ridgtop from a very steep side slope.

Observations of such items as landforms, blown-down trees, vegetation, and roadbanks were made without regard to spacing. Soil boundaries were determined on the basis of soil examinations, observations of the landscape and vegetation, and photo interpretation. The soil material was examined with the aid of a hand auger or a spade to a depth of about 7 feet. The pedons described as typical were observed and studied in pits that were dug with shovels, mattocks, and digging bars.

Notes were taken on the composition of map units during the first years of the project. These notes were supplemented with additional notes as mapping progressed and as the composition of individual map units was determined.

Samples for chemical and physical analyses were taken from representative sites of some soils in the survey area (USDA/NRCS, 1996). The analyses were made by the National Soil Survey Laboratory, Lincoln, Nebraska. The results of the studies can be obtained on request from the laboratory or from the State office of the Natural Resources Conservation Service in East Lansing, Michigan.

After the completion of soil mapping on aerial photographs, map unit delineations were transferred by hand to another set of the same photographs. Cultural features were recorded from observations of the maps and the landscape.

Procedures for Map Units 210B through 282

Before ecological units were mapped, information on the climate, geology, soils, hydrology, and vegetation in the survey area was collected. Research techniques were used in mid and late successional stands to collect information on vegetative and soil components in areas of uplands. Samples were not collected in early successional aspen stands, young stands, plantations, or stands disturbed by recent harvest or fires. The results of the research were used in developing ecological map units that are defined on the basis of both abiotic and biotic landscape characteristics. Abiotic landscape characteristics are those that are generally stable over time, such as climate and landforms. Biotic characteristics are those that are generally unstable over time, such as vegetation.

A pre-mapping reconnaissance was conducted in the survey area before actual field inventory was begun. Important results of the reconnaissance activities include a

listing of the expected ecological units that would be mapped in the area, the definition of features differentiating the units, and a set of specific sites in the Huron-Manistee National Forest where detailed data had been collected and analyzed in the laboratory for quality control.

Following reconnaissance, the mapping personnel traversed the landscape, evaluated the components of the current ecosystems, determined and observed ecological unit boundaries in the field, and delineated preliminary map units on aerial photographs. During field mapping, stereo images, photo-tones, and photo colors were used to delineate landscape features on the aerial photographs. Some important characteristics used by the field personnel to evaluate the context of an area included water table levels, soil texture and color, drainage systems, geologic indicators, and interpretation of vegetative species groups.

Mappers typically inventoried 300 to 500 acres per day. They performed detailed evaluations and recorded notes on 10 to 15 specific sites. These sites were strategically selected for the examination of landscape features and the collection of data on overstory, understory, ground flora, forest floor, soil, substratum, and ground water for documenting ecological units. Profiles of sandy soils were described to a depth of 15 feet. The presence of textural bands has been shown to have a significant influence on tree growth and species composition (Hannah and Zahner, 1970; Host and others, 1988). Thus, recording the presence, absence, or intensity of deep-lying textural bands was an important part of the sampling and inventory scheme. The collected data are a permanent part of the forest records available at the Huron-Manistee National Forest supervisor's office.

Following field inventory, the final boundaries of the ecological units were drawn on the aerial photographs. The completed photography was checked for line closure and for matching of delineations across photographs.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. These broad areas are called associations. Each association on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one association can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Level to Undulating, Moderately Well Drained, Somewhat Poorly Drained, and Very Poorly Drained Soils

1. Covert-Pipestone-Adrian Association

Level to undulating, moderately well drained, somewhat poorly drained, and very poorly drained, sandy and mucky soils on outwash plains, lake plains, and moraines

Setting

Landform: Outwash plains, lake plains, and moraines
Slope range: 0 to 6 percent

Composition

Extent of the association: 18 percent of the survey area
Extent of the soils in the association:
- Covert soils—40 percent
- Pipestone soils—30 percent
- Adrian soils—15 percent
- Soils of minor extent—15 percent

Soil Properties and Qualities

Covert
Drainage class: Moderately well drained
Position on the landform: Flats, knolls
Parent material: Sandy sediments
Texture of the surface layer: Sand
Slope: Level to undulating

Pipestone
Drainage class: Somewhat poorly drained
Position on the landform: Low flats, low knolls, swales
Parent material: Sandy sediments
Texture of the surface layer: Sand
Slope: Level and nearly level

Adrian
Drainage class: Very poorly drained
Position on the landform: Swales, depressions, drainageways
Parent material: Organic materials over sandy sediments
Texture of the surface layer: Muck
Slope: Level and nearly level

Soils of Minor Extent

- The excessively drained Kaleva and Benona soils and the well drained Spinks soils; on knolls
- The very poorly drained Houghton and poorly drained Dair soils in landscape positions similar to those of the Adrian soils

Use and Management

Major use: Forestland
Major management concerns: Equipment limitations, seedling mortality, windthrow hazard

Level and Nearly Level, Very Poorly Drained Soils

2. Adrian-Houghton Association

Level and nearly level, very poorly drained, mucky soils on outwash plains, lake plains, moraines, till plains, and flood plains

Setting

Landform: Outwash plains, lake plains, moraines, till plains, and flood plains
Slope range: 0 to 2 percent

Composition

Extent of the association: 3 percent of the survey area
Extent of the soils in the association:
Adrian soils—50 percent
Houghton soils—30 percent
Soils of minor extent—20 percent

Soil Properties and Qualities

Adrian
Drainage class: Very poorly drained
Position on the landform: Swales, depressions, drainageways
Parent material: Organic materials over sandy sediments
Texture of the surface layer: Muck
Slope: Level and nearly level

Houghton
Drainage class: Very poorly drained
Position on the landform: Swales, depressions, drainageways

Parent material: More than 51 inches of organic material
Texture of the surface layer: Muck
Slope: Level and nearly level

Soils of Minor Extent

- The very poorly drained Glendora and Gorvan soils and the poorly drained Dair soils; in landscape positions similar to those of the Adrian and Houghton soils
- The somewhat poorly drained Pipestone and moderately well drained Covert soils on low knolls

Use and Management

Major use: Forestland
Major management concerns: Equipment limitations, seedling mortality, windthrow hazard

Level to Rolling, Excessively Drained Soils

3. Kaleva-Grattan Association

Level to rolling, excessively drained, sandy soils on lake plains, outwash plains, and moraines

Setting

Landform: Lake plains, outwash plains, and moraines
Slope range: 0 to 18 percent

Composition

Extent of the association: 25 percent of the survey area
Extent of the soils in the association:
Kaleva soils—50 percent
Grattan soils—40 percent
Soils of minor extent—10 percent

Soil Properties and Qualities

Kaleva
Drainage class: Excessively drained
Position on the landform: Flats and knolls
Parent material: Sandy sediments
Texture of the surface layer: Sand
Slope: Level to rolling

Grattan
Drainage class: Excessively drained
Position on the landform: Flats and knolls
Parent material: Sandy sediments
Texture of the surface layer: Sand
Slope: Level to rolling

Soils of Minor Extent

- The poorly drained Dair soils in depressions and drainageways
- The moderately well drained Covert and somewhat poorly drained Pipestone soils in the slightly lower positions

- The excessively drained Benona and well drained Spinks soils in landscape positions similar to those of the Kaleva and Grattan soils

Use and Management

Major uses: Cropland, pasture, forestland
Major management concerns: Erosion, equipment limitations, seedling mortality

Level to Very Steep, Excessively Drained Soils

4. Kaleva-Benona Association

Level to very steep, excessively drained, sandy soils on lake plains, outwash plains, and moraines

Setting

Landform: Lake plains, outwash plains, and moraines
Slope range: 0 to 70 percent

Composition

Extent of the association: 10 percent of the survey area
Extent of the soils in the association:
Kaleva soils—45 percent
Benona soils—40 percent
Soils of minor extent—15 percent

Soil Properties and Qualities

Kaleva
Drainage class: Excessively drained
Position on the landform: Flats and knolls
Parent material: Sandy sediments
Texture of the surface layer: Sand
Slope: Level to steep

Benona
Drainage class: Excessively drained
Position on the landform: Flats and knolls
Parent material: Sandy sediments
Texture of the surface layer: Sand
Slope: Level to very steep

Soils of Minor Extent

- The moderately well drained Covert and somewhat poorly drained Pipestone soils in the slightly lower positions
- The well drained Spinks soils in positions similar to those of the Kaleva and Benona soils

Use and Management

Major uses: Forestland, cropland, pasture
Major management concerns: Equipment limitations, seedling mortality, erosion

5. Nordhouse Association

Level to very steep, excessively drained, sandy soils on lake plains and dunes

Setting

Landform: Lake plains and dunes
Slope range: 0 to 70 percent

Composition

Extent of the association: 2 percent of the survey area
Extent of the soils in the association:
Nordhouse soils—85 percent
Soils of minor extent—15 percent

Soil Properties and Qualities

Nordhouse
Drainage class: Excessively drained
Position on the landform: Flats and hills
Parent material: Sandy sediments
Texture of the surface layer: Sand
Slope: Level to very steep

Soils of Minor Extent

- The moderately well drained Platteriver and somewhat poorly drained Pipestone soils in the slightly lower positions
- The poorly drained Dair and very poorly drained Adrian soils in depressions and swales
- The excessively drained Coloma soils in positions similar to those of the Nordhouse soils

Use and Management

Major use: Forestland
Major management concerns: Equipment limitations, seedling mortality

Level to Very Steep, Moderately Well Drained and Well Drained Soils

6. Fern-Spinks-Tekenink Association

Level to very steep, moderately well drained and well drained, sandy and loamy soils on moraines, till plains, and outwash plains

Setting

Landform: Moraines, till plains, and outwash plains
Slope range: 0 to 70 percent

Composition

Extent of the association: 8 percent of the survey area

Extent of the soils in the association:
Fern soils—40 percent
Spinks soils—35 percent
Tekenink soils—15 percent
Soils of minor extent—10 percent

Soil Properties and Qualities

Fern
Drainage class: Moderately well drained
Position on the landform: Flats and hills
Parent material: Sandy material over loamy deposits
Texture of the surface layer: Sand
Slope: Level to rolling

Spinks
Drainage class: Well drained
Position on the landform: Flats and hills
Parent material: Sandy material
Texture of the surface layer: Sand
Slope: Level to very steep

Tekenink
Drainage class: Well drained
Position on the landform: Flats and hills
Parent material: Sandy and loamy material
Texture of the surface layer: Loamy fine sand
Slope: Level to steep

Soils of Minor Extent

- The somewhat poorly drained Capac and poorly drained Parkhill soils in depressions and drainageways
- The well drained Mollineaux, Boyer, and Shavenaugh soils in landscape positions similar to or slightly higher than those of the major soils
- The moderately well drained Marlette and Perrinton soils in landscape positions similar to those of the Fern soils

Use and Management

Major uses: Forestland, cropland
Major management concerns: Equipment limitations, erosion

Level to Very Steep, Somewhat Excessively Drained and Well Drained Soils

7. Coloma-Spinks Association

Level to very steep, somewhat excessively drained and well drained, sandy soils on moraines, deltas, stream terraces, and outwash plains

Setting

Landform: Moraines, deltas, stream terraces, and outwash plains
Slope range: 0 to 70 percent

Composition

Extent of the association: 11 percent of the survey area
Extent of the soils in the association:
Coloma soils—45 percent
Spinks soils—40 percent
Soils of minor extent—15 percent

Soil Properties and Qualities

Coloma
Drainage class: Somewhat excessively drained
Position on the landform: Flats and hills
Parent material: Sandy material
Texture of the surface layer: Sand
Slope: Level to very steep

Spinks
Drainage class: Well drained
Position on the landform: Flats and hills
Parent material: Sandy material
Texture of the surface layer: Sand
Slope: Level to very steep

Soils of Minor Extent

- The well drained Boyer and Shavenaugh soils in landscape positions similar to those of the Coloma and Spinks soils
- The poorly drained Dair soils in depressions and drainageways

Use and Management

Major uses: Forestland, cropland
Major management concerns: Equipment limitations, erosion

Level to Very Steep, Moderately Well Drained to Excessively Drained Soils

8. Plainfield-Udipsamments Association

Level to very steep, moderately well drained to excessively drained, sandy soils on outwash plains, moraines, and lake plains

Setting

Landform: Outwash plains, moraines, and lake plains
Slope range: 0 to 70 percent

Composition

Extent of the association: 18 percent of the survey area
Extent of the soils in the association:
Plainfield soils—45 percent
Udipsamments—45 percent
Soils of minor extent—10 percent

Soil Properties and Qualities

Plainfield
Drainage class: Excessively drained
Position on the landform: Flats and hills
Parent material: Sandy material
Texture of the surface layer: Sand
Slope: Level to very steep

Udipsamments
Drainage class: Moderately well drained to excessively drained
Position on the landform: Flats and hills
Parent material: Sandy material
Texture of the surface layer: Sand
Slope: Level to very steep

Soils of Minor Extent

- The very poorly drained Haplosaprists and the poorly drained and somewhat poorly drained Endoaquods in depressions and drainageways

Use and Management

Major use: Forestland
Major management concerns: Equipment limitations, seedling mortality

9. Haplorthods Association

Level to very steep, moderately well drained to excessively drained, sandy soils on outwash plains, moraines, and till plains

Setting

Landform: Outwash plains, moraines, and till plains
Slope range: 0 to 70 percent

Composition

Extent of the association: 5 percent of the survey area
Extent of the soils in the association:
Haplorthods—90 percent
Soils of minor extent—10 percent

Soil Properties and Qualities

Haplorthods
Drainage class: Moderately well drained to excessively drained
Position on the landform: Flats and hills
Parent material: Sandy material
Texture of the surface layer: Sand
Slope: Level to very steep

Soils of Minor Extent

- The very poorly drained Haplosaprists and the poorly drained and somewhat poorly drained Endoaquods in depressions and drainageways

- The excessively drained Kaleva and Benona soils in landscape positions similar to those of the Haplorthods

Use and Management

Major use: Forestland
Major management concerns: Equipment limitations, seedling mortality

Detailed Soil Map Units

The map units delineated on the detailed soil maps for this survey area represent the soils or miscellaneous areas in the survey area. These soils or miscellaneous areas are listed as individual components in the map unit descriptions. 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 provided in the tables described under the headings “Use and Management of the Soils” and “Soil Properties.”

A map unit delineation on the soil maps represents an area on the landscape. It is identified by differences in the properties and taxonomic classification of components and by the percentage of each component in the map unit.

Components that are dissimilar, or contrasting, are identified in the map unit descriptions. Dissimilar components are those that have properties and behavioral characteristics divergent enough from those of the major components to affect use or to require different management. 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.

Components that are similar to the major components (noncontrasting) are not identified in the map unit descriptions. Similar components are those that have properties and behavioral characteristics similar enough to those of the major components that they do not affect use or require different management.

The presence of multiple 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 segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol is used for each map unit on the soil maps. This symbol precedes the map unit name in the map unit descriptions. Each description includes general information about the unit and gives the principal hazards and limitations to be considered in 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 or of the underlying layers, 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 or of the underlying layers. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. The name of a soil phase commonly indicates a feature that affects use or management. For example, Kaleva sand, 0 to 6 percent slopes, is a phase of the Kaleva 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. Ithaca loam, 0 to 3 percent slopes, is an example.

Some map units are made up of two or more dominant components. These map units are complexes or undifferentiated groups.

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. Milnichol-Dair complex, 0 to 3 percent slopes, is an example.

An *undifferentiated group* is made up of two or more components that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the components in a mapped area are not uniform. An area can be made up of only one of the dominant components, or it can be made up of all of them. Histosols and Aquents, ponded, is an undifferentiated group in this survey area.

This survey includes miscellaneous areas. Such areas have little or no soil material and support little or no vegetation. Pits, sand and gravel, is an example.

Michigan soil management groups are given in the descriptions. These groups are based on the dominant texture, the drainage class, and the major management concerns (Mokma, 1982). Additional information is available from the Michigan State University Extension.

Table 4 provides a complete listing of the detailed soil map units in the survey area. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

1—Beaches

Map Unit Composition

Major components:

Beaches—100 percent (fig. 8)

Use and Management

- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: None assigned
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not applicable

3A—Psamments, moderately wet-Beaches complex, nearly level

Setting

Landform: Outwash plains, beaches, lake plains

Map Unit Composition

Major components:

Psamments, moderately wet, and similar soils—45 to 65 percent
Beaches—25 to 45 percent

Figure 8.—Sandy beaches and the lake bluff south of Frankfort.

Minor components:
Shavenaugh and similar soils—0 to 10 percent
Goodharbor and similar soils—0 to 10 percent

Typical Profile

Psamments, moderately wet
A—0 to 2 inches; very dark grayish brown loamy sand
C—2 to 80 inches; pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.5 feet (April)
Ponding: None

Use and Management

- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: None assigned
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Psamments, moderately wet—not hydric; Beaches—not applicable

5F—Udorthents-Udipsamments complex, very steep

Setting

Landform: Moraines, till plains, lake plains

Map Unit Composition

Major components:
Udorthents and similar soils—45 to 65 percent
Udipsamments and similar soils—25 to 45 percent
Minor components:
Filer and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Udorthents
AC—0 to 80 inches; variable

Udipsamments
AC—0 to 80 inches; sand

Soil Properties and Qualities

Parent material: Udorthents—loamy and clayey material; Udipsamments—sandy material
Slope: 35 to 70 percent
Surface runoff class: Udorthents—very high; Udipsamments—low
Potential for frost action: Udorthents—moderate; Udipsamments—low
Depth to restrictive feature: More than 80 inches
Drainage class: Udorthents—well drained; Udipsamments—excessively drained
Available water capacity: Udorthents—not rated; Udipsamments—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Udorthents—not rated; Udipsamments—low
Permeability: Udorthents—not rated; Udipsamments—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

- Onsite investigation is needed to determine the suitability for specific uses (fig. 9).

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Udorthents—not hydric; Udipsamments—not hydric

10B—Perrinton loam, 2 to 6 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Perrinton and similar soils—85 to 100 percent

Figure 9.—An area of Udorthents-Udipsamments complex, very steep, south of Arcadia. Areas of this map unit are unstable because of the fluctuating lake levels and strong winter storms.

Minor components:
Ithaca and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 10 percent
Coloma and similar soils—0 to 5 percent
Fern and similar soils—0 to 5 percent

Typical Profile

Perrinton
Ap—0 to 9 inches; dark brown loam
B/E—9 to 13 inches; reddish brown clay loam and light brown fine sandy loam
Bt—13 to 28 inches; reddish brown, mottled clay
BC—28 to 38 inches; reddish brown clay
C—38 to 80 inches; reddish brown clay

Soil Properties and Qualities

Parent material: Loamy and clayey till
Slope: 2 to 6 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 7.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Slow
Flooding: None
Depth to seasonal high water table: 2.5 to 5.0 feet (January, February, March, April, May, October, November, December)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, nutrient loss, soil compaction, restricted permeability

Pastureland
Major management concerns: Soil compaction, water erosion

Forestland
Major management concerns: Clayey textures, soil rutting

Building site development
Major management concerns: Shrinking and swelling, seasonal wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: 1.5a
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

10C—Perrinton loam, 6 to 12 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Perrinton and similar soils—90 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Fern and similar soils—0 to 10 percent

Typical Profile

Perrinton
Ap—0 to 9 inches; dark brown loam
B/E—9 to 13 inches; reddish brown clay loam and light brown fine sandy loam
Bt—13 to 28 inches; reddish brown, mottled clay
BC—28 to 38 inches; reddish brown clay
C—38 to 80 inches; reddish brown clay

Soil Properties and Qualities

Parent material: Loamy and clayey till
Slope: 6 to 12 percent
Surface runoff class: Very high
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 7.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Slow
Flooding: None

Depth to seasonal high water table: 2.5 to 5.0 feet (January, February, March, April, May, October, November, December)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, nutrient loss, soil compaction, restricted permeability

Pastureland
Major management concerns: Soil compaction, water erosion

Forestland
Major management concerns: Clayey textures, soil rutting

Building site development
Major management concerns: Shrinking and swelling, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Slope, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: 1.5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

11A—Ithaca loam, 0 to 3 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Ithaca and similar soils—90 to 100 percent
Minor components:
Milnichol and similar soils—0 to 10 percent
Perrinton and similar soils—0 to 10 percent

Typical Profile

Ithaca
Ap—0 to 9 inches; very dark grayish brown loam
E/B—9 to 11 inches; brown, mottled fine sandy loam and brown, mottled clay loam
Bt1—11 to 20 inches; brown, mottled clay
Bt2—20 to 25 inches; reddish brown clay loam
Bt3—25 to 31 inches; brown clay loam
BC—31 to 80 inches; light brown clay loam

Soil Properties and Qualities

Parent material: Loamy and clayey till
Slope: 0 to 3 percent
Surface runoff class: High

Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 10.1 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Slow
Flooding: None
Depth to seasonal high water table: 0.5 foot to 2.0 feet (January, February, March, April, May, October, November, December)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, nutrient loss, soil compaction, restricted permeability, severe wetness

Pastureland
Major management concerns: Soil compaction, water erosion, seasonal wetness

Forestland
Major management concerns: Clayey textures, seedling mortality, soil rutting

Building site development
Major management concerns: Shrinking and swelling, seasonal wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 2w
Michigan soil management group: 1.5b
Prime farmland category: Prime farmland where drained
Hydric soil status: Not hydric

13B—Marlette fine sandy loam, 2 to 6 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Marlette and similar soils—85 to 100 percent
Minor components:
Capac and similar soils—0 to 10 percent
Fern and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Marlette
Ap—0 to 7 inches; very dark grayish brown fine sandy loam
E/B—7 to 13 inches; light brownish gray and dark brown sandy loam

Bt—13 to 27 inches; brown, mottled clay loam
C—27 to 80 inches; brown, mottled clay loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 0 to 6 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 2.0 to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, soil blowing, nutrient loss, restricted permeability

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: None

Building site development
Major management concerns: Seasonal wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: 2.5a
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

13C—Marlette fine sandy loam, 6 to 12 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Marlette and similar soils—90 to 100 percent
Minor components:
Fern and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Marlette
Ap—0 to 7 inches; very dark grayish brown fine sandy loam
E/B—7 to 13 inches; light brownish gray and dark brown sandy loam
Bt—13 to 27 inches; brown, mottled clay loam
C—27 to 80 inches; brown, mottled clay loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 6 to 12 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 9.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 2.0 to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, soil blowing, nutrient loss, restricted permeability

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: None

Building site development
Major management concerns: Slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Slope, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: 2.5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

14A—Capac loam, 0 to 3 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Capac and similar soils—90 to 100 percent

Minor components:
Milnichol and similar soils—0 to 10 percent

Typical Profile

Capac
Ap—0 to 5 inches; very dark grayish brown loam
B/E—5 to 8 inches; brown and pinkish gray, mottled clay loam
Bt—8 to 18 inches; brown, mottled clay loam
C—18 to 80 inches; brown, mottled clay loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 0 to 3 percent
Surface runoff class: Medium
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 9.0 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (January, February, March, April, May, October, November, December)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, nutrient loss, soil compaction, restricted permeability, severe wetness

Pastureland
Major management concerns: Soil compaction, water erosion, seasonal wetness

Forestland
Major management concerns: Clayey textures, seedling mortality, soil rutting

Building site development
Major management concerns: Shrinking and swelling, seasonal wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 2w
Michigan soil management group: 2.5b
Prime farmland category: Prime farmland where drained
Hydric soil status: Not hydric

15—Parkhill loam

Setting

Landform: Till plains

Map Unit Composition

Major components:
Parkhill and similar soils—90 to 100 percent
Minor components:
Capac and similar soils—0 to 10 percent
Dair and similar soils—0 to 5 percent

Typical Profile

Parkhill
Ap—0 to 9 inches; very dark gray loam
Bg—9 to 20 inches; greenish gray, mottled clay loam
C1—20 to 29 inches; light brown, mottled clay loam
C2—29 to 80 inches; light brown, mottled clay loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 0 to 2 percent
Surface runoff class: Medium
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 10.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: June, July, August, September
Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land uses: Pastureland
Other uses: Forestland

Pastureland
Major management concerns: Soil compaction, water erosion, seasonal wetness

Forestland
Major management concerns: Clayey textures, seedling mortality, soil rutting, windthrow hazard, seasonal wetness, severe wetness

Building site development
Major management concerns: Ponding, severe wetness

Septic tank absorption fields
Major management concerns: Restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 2.5c

Prime farmland category: Prime farmland where drained
Hydric soil status: Hydric

18B—Fern-Spinks sands, 0 to 6 percent slopes

Setting

Landform: Moraines, stream terraces, lake terraces

Map Unit Composition

Major components:
Fern and similar soils—45 to 65 percent
Spinks and similar soils—35 to 55 percent
Minor components:
Perrinton and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Fern
Ap—0 to 9 inches; very dark brown sand
E—9 to 10 inches; brown sand
Bw—10 to 24 inches; brown sand
2B/E—24 to 29 inches; reddish brown and grayish brown, mottled clay loam
2Bt—29 to 42 inches; reddish brown clay loam
2BC—42 to 50 inches; brown clay loam
2C—50 to 80 inches; brown clay loam

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Fern—20 to 40 inches of sandy glaciofluvial deposits over loamy till; Spinks—sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Fern—very low; Spinks—negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Fern—moderately well drained; Spinks—well drained
Available water capacity: Fern—about 7.7 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Fern—moderate; Spinks—low
Permeability: Fern—moderate; Spinks—rapid
Flooding: None
Depth to seasonal high water table: Fern—2.0 to 6.5 feet (May); Spinks—more than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, nutrient loss, ground-water pollution; droughtiness in areas of the Spinks soil

Pastureland
Major management concerns: Water erosion; droughtiness in areas of the Spinks soil

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving; shrinking and swelling and seasonal wetness in areas of the Fern soil

Septic tank absorption fields
Major management concerns: Poor filtering capacity; restricted permeability and severe wetness in areas of the Fern soil

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Fern—4/2a; Spinks—4a
Prime farmland category: Not prime farmland
Hydric soil status: Fern—not hydric; Spinks—not hydric

18C—Fern-Spinks sands, 6 to 12 percent slopes

Setting

Landform: Moraines, stream terraces, lake terraces

Map Unit Composition

Major components:
Fern and similar soils—45 to 65 percent
Spinks and similar soils—35 to 55 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Perrinton and similar soils—0 to 10 percent

Typical Profile

Fern
Ap—0 to 9 inches; very dark brown sand
E—9 to 10 inches; brown sand
Bw—10 to 24 inches; brown sand
2B/E—24 to 29 inches; reddish brown and grayish brown, mottled clay loam
2Bt—29 to 42 inches; reddish brown clay loam
2BC—42 to 50 inches; brown clay loam
2C—50 to 80 inches; brown clay loam

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Fern—20 to 40 inches of sandy glaciofluvial deposits over loamy till; Spinks—sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Fern—low; Spinks—very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Fern—moderately well drained; Spinks—well drained
Available water capacity: Fern—about 7.7 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Fern—moderate; Spinks—low
Permeability: Fern—moderate; Spinks—rapid
Flooding: None
Depth to seasonal high water table: Fern—2.0 to 6.5 feet (May); Spinks—more than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Pastureland
Other uses: Forestland

Pastureland
Major management concerns: Water erosion; droughtiness in areas of the Spinks soil

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope; shrinking and swelling and seasonal wetness in areas of the Fern soil

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity; restricted permeability and severe wetness in areas of the Fern soil

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: Fern—4/2a; Spinks—4a
Prime farmland category: Not prime farmland
Hydric soil status: Fern—not hydric; Spinks—not hydric

21B—Coloma-Tatches complex, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Coloma and similar soils—45 to 55 percent
Tatches and similar soils—35 to 45 percent
Minor components:
Plainfield and similar soils—0 to 15 percent
Covert and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 10 percent

Typical Profile

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Tatches
A—0 to 4 inches; very dark gray sandy loam
Bw1—4 to 9 inches; strong brown sandy loam
Bw2—9 to 15 inches; strong brown sandy loam
Bw3—15 to 23 inches; reddish yellow sand
E—23 to 31 inches; light yellowish brown sand
E and Bt1—31 to 43 inches; pale brown sand with lamellae of yellowish brown loamy sand
E and Bt2—43 to 80 inches; light yellowish brown sand with lamellae of yellowish brown loamy sand

Soil Properties and Qualities

Parent material: Coloma—sandy glaciofluvial deposits; Tatches—11 to 25 inches of loamy alluvium over sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Coloma—somewhat excessively drained; Tatches—well drained
Available water capacity: Coloma—about 3.6 inches to a depth of 60 inches; Tatches—about 5.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Coloma—rapid; Tatches—moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Coloma—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: Coloma—5a; Tatches—5a
Prime farmland category: Not prime farmland
Hydric soil status: Coloma—not hydric; Tatches—not hydric

25—Gorvan-Houghton-Glendora complex, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Major components:
Gorvan and similar soils—30 to 40 percent
Houghton and similar soils—25 to 35 percent
Glendora and similar soils—15 to 25 percent
Minor components:
Adrian and similar soils—0 to 10 percent
Abscota and similar soils—0 to 5 percent
Dair and similar soils—0 to 5 percent
Aquents and similar soils—0 to 5 percent

Typical Profile

Gorvan
A1—0 to 4 inches; black mucky silt loam
A2—4 to 11 inches; dark reddish brown silt loam
Cg1—11 to 27 inches; dark gray, mottled silt loam
2Cg2—27 to 80 inches; grayish brown, mottled sand

Houghton
Oa1—0 to 12 inches; black muck
Oa2—12 to 26 inches; black muck
Oa3—26 to 80 inches; black muck

Glendora
A—0 to 6 inches; black mucky loamy sand
Cg1—6 to 9 inches; dark grayish brown loamy sand
Cg2—9 to 30 inches; grayish brown, mottled sand
Cg3—30 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Gorvan—silty and clayey alluvium over sandy glaciofluvial deposits; Houghton—more than 51 inches of organic material; Glendora—sandy alluvium
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Gorvan—high; Houghton—high; Glendora—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Gorvan—about 7.5 inches to a depth of 60 inches; Houghton—about 23.9 inches to a depth of 60 inches; Glendora—about 4.5 inches to a depth of 60 inches

Shrink-swell potential: Gorvan—moderate; Houghton—low; Glendora—low
Permeability: Gorvan—moderately slow; Houghton—moderately rapid; Glendora—rapid
Frequency of flooding: Frequent (March, April, May)
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: January, February, July, August, September, December
Depth and months of deepest ponding: 0.5 foot (March, April, May, June, October, November)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness, flooding; clayey textures in areas of the Gorvan soil; excess humus and low strength in areas of the Houghton soil

Building site development
Major management concerns: Cutbanks caving, ponding, flooding, severe wetness; low strength and subsidence in areas of the Houghton soil

Septic tank absorption fields
Major management concerns: Gorvan—flooding, restricted permeability; Houghton—flooding, low strength, subsidence; Glendora—flooding, poor filtering capacity

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: Gorvan—L-2c; Houghton—Mc; Glendora—L-4c
Prime farmland category: Not prime farmland
Hydric soil status: Gorvan—hydric; Houghton—hydric; Glendora—hydric

29B—Fogg-Benzonia sands, 0 to 6 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Fogg and similar soils—45 to 60 percent
Benzonia and similar soils—35 to 50 percent
Minor components:
Tekenink and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent
Kaleva and similar soils—0 to 10 percent

Typical Profile

Fogg
A—0 to 2 inches; black sand
E—2 to 7 inches; brown sand
Bhs—7 to 13 inches; dark reddish brown sand
Bs1—13 to 21 inches; brown sand
Bs2—21 to 34 inches; strong brown sand
E/B—34 to 43 inches; brown loamy fine sand and reddish brown sandy loam

B/E—43 to 48 inches; reddish brown sandy loam and loamy sand
Bt—48 to 55 inches; reddish brown sandy loam
E and Bt—55 to 80 inches; light brown sand with lamellae of reddish brown loamy sand

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Fogg—40 to 60 inches of sandy glaciofluvial deposits over loamy till over sandy glaciofluvial deposits; Benzonia—sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Fogg—well drained; Benzonia—somewhat excessively drained
Available water capacity: Fogg—about 6.1 inches to a depth of 60 inches; Benzonia—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Fogg—moderately rapid; Benzonia—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, nutrient loss; droughtiness in areas of the Benzonia soil

Pastureland
Major management concerns: Water erosion; droughtiness in areas of the Benzonia soil

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Fogg—5/2a; Benzonia—5a
Prime farmland category: Not prime farmland
Hydric soil status: Fogg—not hydric; Benzonia—not hydric

29C—Fogg-Benzonia sands, 6 to 12 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Fogg and similar soils—45 to 60 percent
Benzonia and similar soils—35 to 50 percent
Minor components:
Tekenink and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent
Kaleva and similar soils—0 to 10 percent

Typical Profile

Fogg
A—0 to 2 inches; black sand
E—2 to 7 inches; brown sand
Bhs—7 to 13 inches; dark reddish brown sand
Bs1—13 to 21 inches; brown sand
Bs2—21 to 34 inches; strong brown sand
E/B—34 to 43 inches; brown loamy fine sand and reddish brown sandy loam
B/E—43 to 48 inches; reddish brown sandy loam and loamy sand
Bt—48 to 55 inches; reddish brown sandy loam
E and Bt—55 to 80 inches; light brown sand with lamellae of reddish brown loamy sand

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Fogg—40 to 60 inches of sandy glaciofluvial deposits over loamy till over sandy glaciofluvial deposits; Benzonia—sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Fogg—well drained; Benzonia—somewhat excessively drained
Available water capacity: Fogg—about 6.1 inches to a depth of 60 inches; Benzonia—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Fogg—moderately rapid; Benzonia—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, nutrient loss; droughtiness in areas of the Benzonia soil

Pastureland
Major management concerns: Water erosion; droughtiness in areas of the Benzonia soil

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Fogg—5/2a; Benzonia—5a
Prime farmland category: Not prime farmland
Hydric soil status: Fogg—not hydric; Benzonia—not hydric

29D—Fogg-Benzonia sands, 12 to 18 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Fogg and similar soils—45 to 55 percent
Benzonia and similar soils—35 to 45 percent
Minor components:
Benona and similar soils—0 to 15 percent
Mollineaux and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Fogg
A—0 to 2 inches; black sand
E—2 to 7 inches; brown sand
Bhs—7 to 13 inches; dark reddish brown sand
Bs1—13 to 21 inches; brown sand
Bs2—21 to 34 inches; strong brown sand
E/B—34 to 43 inches; brown loamy fine sand and reddish brown sandy loam
B/E—43 to 48 inches; reddish brown sandy loam and loamy sand
Bt—48 to 55 inches; reddish brown sandy loam
E and Bt—55 to 80 inches; light brown sand with lamellae of reddish brown loamy sand

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Fogg—40 to 60 inches of sandy glaciofluvial deposits over loamy till over sandy glaciofluvial deposits; Benzonia—sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Fogg—well drained; Benzonia—somewhat excessively drained
Available water capacity: Fogg—about 6.1 inches to a depth of 60 inches; Benzonia—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Fogg—moderately rapid; Benzonia—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Fogg—5/2a; Benzonia—5a
Prime farmland category: Not prime farmland
Hydric soil status: Fogg—not hydric; Benzonia—not hydric

29E—Fogg-Benzonia sands, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Fogg and similar soils—45 to 55 percent
Benzonia and similar soils—35 to 45 percent
Minor components:
Mollineaux and similar soils—0 to 10 percent

Grattan and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Fogg
A—0 to 2 inches; black sand
E—2 to 7 inches; brown sand
Bhs—7 to 13 inches; dark reddish brown sand
Bs1—13 to 21 inches; brown sand
Bs2—21 to 34 inches; strong brown sand
E/B—34 to 43 inches; brown loamy fine sand and reddish brown sandy loam
B/E—43 to 48 inches; reddish brown sandy loam and loamy sand
Bt—48 to 55 inches; reddish brown sandy loam
E and Bt—55 to 80 inches; light brown sand with lamellae of reddish brown loamy sand

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Fogg—40 to 60 inches of sandy glaciofluvial deposits over loamy till over sandy glaciofluvial deposits; Benzonia—sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Fogg—well drained; Benzonia—somewhat excessively drained
Available water capacity: Fogg—about 6.1 inches to a depth of 60 inches; Benzonia—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Fogg—moderately rapid; Benzonia—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Fogg—5/2a; Benzonia—5a

Prime farmland category: Not prime farmland
Hydric soil status: Fogg—not hydric; Benzonia—not hydric

29F—Fogg-Benzonia sands, 35 to 50 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Fogg and similar soils—45 to 55 percent
Benzonia and similar soils—35 to 45 percent
Minor components:
Mollineaux and similar soils—0 to 10 percent
Grattan and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Fogg
A—0 to 2 inches; black sand
E—2 to 7 inches; brown sand
Bhs—7 to 13 inches; dark reddish brown sand
Bs1—13 to 21 inches; brown sand
Bs2—21 to 34 inches; strong brown sand
E/B—34 to 43 inches; brown loamy fine sand and reddish brown sandy loam
B/E—43 to 48 inches; reddish brown sandy loam and loamy sand
Bt—48 to 55 inches; reddish brown sandy loam
E and Bt—55 to 80 inches; light brown sand with lamellae of reddish brown loamy sand

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Fogg—40 to 60 inches of sandy glaciofluvial deposits over loamy till over sandy glaciofluvial deposits; Benzonia—sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Fogg—well drained; Benzonia—somewhat excessively drained
Available water capacity: Fogg—about 6.1 inches to a depth of 60 inches; Benzonia—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Fogg—moderately rapid; Benzonia—rapid
Flooding: None

Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Fogg—5/2a; Benzonia—5a
Prime farmland category: Not prime farmland
Hydric soil status: Fogg—not hydric; Benzonia—not hydric

32B—Fern sand, 0 to 6 percent slopes

Setting

Landform: Moraines, stream terraces, lake terraces

Map Unit Composition

Major components:
Fern and similar soils—85 to 100 percent
Minor components:
Marlette and similar soils—0 to 15 percent
Tekenink and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 10 percent

Typical Profile

Fern
Ap—0 to 9 inches; very dark brown sand
E—9 to 10 inches; brown sand
Bw—10 to 24 inches; brown sand
2B/E—24 to 29 inches; reddish brown and grayish brown, mottled clay loam
2Bt—29 to 42 inches; reddish brown clay loam
2BC—42 to 50 inches; brown clay loam
2C—50 to 80 inches; brown clay loam

Soil Properties and Qualities

Parent material: 20 to 40 inches of sandy glaciofluvial deposits over loamy till
Slope: 0 to 6 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 7.7 inches to a depth of 60 inches

Shrink-swell potential: Moderate
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 2.0 to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, nutrient loss, ground-water pollution

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: 4/2a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

32C—Fern sand, 6 to 12 percent slopes

Setting

Landform: Moraines, stream terraces, lake terraces

Map Unit Composition

Major components:
Fern and similar soils—85 to 100 percent
Minor components:
Marlette and similar soils—0 to 15 percent
Benzonia and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Fern
Ap—0 to 9 inches; very dark brown sand
E—9 to 10 inches; brown sand
Bw—10 to 24 inches; brown sand
2B/E—24 to 29 inches; reddish brown and grayish brown, mottled clay loam
2Bt—29 to 42 inches; reddish brown clay loam
2BC—42 to 50 inches; brown clay loam
2C—50 to 80 inches; brown clay loam

Soil Properties and Qualities

Parent material: 20 to 40 inches of sandy glaciofluvial deposits over loamy till
Slope: 6 to 12 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 7.7 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: 2.0 to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, nutrient loss, ground-water pollution

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, slope, seasonal wetness

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: 4/2a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

36B—Fern-Remus complex, 0 to 6 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Fern and similar soils—45 to 65 percent
Remus and similar soils—35 to 50 percent
Minor components:
Marlette and similar soils—0 to 15 percent
Coloma and similar soils—0 to 15 percent

Typical Profile

Fern
Ap—0 to 9 inches; very dark brown sand
E—9 to 10 inches; brown sand
Bw—10 to 24 inches; brown sand
2B/E—24 to 29 inches; reddish brown and grayish brown, mottled clay loam
2Bt—29 to 42 inches; reddish brown clay loam
2BC—42 to 50 inches; brown clay loam
2C—50 to 80 inches; brown clay loam

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Soil Properties and Qualities

Parent material: Fern—20 to 40 inches of sandy glaciofluvial deposits over loamy till; Remus—loamy till
Slope: 0 to 6 percent
Surface runoff class: Fern—very low; Remus—medium
Potential for frost action: Fern—low; Remus—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Fern—moderately well drained; Remus—well drained
Available water capacity: Fern—about 7.7 inches to a depth of 60 inches; Remus—about 10.0 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Fern—moderate; Remus—moderately slow
Flooding: None
Depth to seasonal high water table: Fern—2.0 to 6.5 feet (May); Remus—more than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Fern and Remus—water erosion, soil blowing; Fern—low content of organic matter, nutrient loss, ground-water pollution

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: Fern—sandy textures, seedling mortality

Building site development
Major management concerns: Fern and Remus—cutbanks caving; Fern—shrinking and swelling, seasonal wetness

Septic tank absorption fields
Major management concerns: Fern and Remus—restricted permeability; Fern—poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Fern—4/2a; Remus—3a
Prime farmland category: Not prime farmland
Hydric soil status: Fern—not hydric; Remus—not hydric

36C—Fern-Remus complex, 6 to 12 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Fern and similar soils—45 to 65 percent
Remus and similar soils—35 to 50 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Marlette and similar soils—0 to 15 percent

Typical Profile

Fern
Ap—0 to 9 inches; very dark brown sand
E—9 to 10 inches; brown sand
Bw—10 to 24 inches; brown sand
2B/E—24 to 29 inches; reddish brown and grayish brown, mottled clay loam
2Bt—29 to 42 inches; reddish brown clay loam
2BC—42 to 50 inches; brown clay loam
2C—50 to 80 inches; brown clay loam

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Soil Properties and Qualities

Parent material: Fern—20 to 40 inches of sandy glaciofluvial deposits over loamy till; Remus—loamy till
Slope: 6 to 12 percent
Surface runoff class: Fern—low; Remus—high
Potential for frost action: Fern—low; Remus—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Fern—moderately well drained; Remus—well drained
Available water capacity: Fern—about 7.7 inches to a depth of 60 inches; Remus—about 10.0 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Fern—moderate; Remus—moderately slow
Flooding: None
Depth to seasonal high water table: Fern—2.0 to 6.5 feet (May); Remus—more than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Fern and Remus—water erosion, soil blowing; Fern—low content of organic matter, nutrient loss, ground-water pollution

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: Fern—sandy textures, seedling mortality

Building site development
Major management concerns: Fern and Remus—cutbanks caving, slope; Fern—shrinking and swelling, seasonal wetness

Septic tank absorption fields
Major management concerns: Fern and Remus—slope, restricted permeability; Fern—severe wetness, poor filtering capacity

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: Fern—4/2a; Remus—3a
Prime farmland category: Not prime farmland
Hydric soil status: Fern—not hydric; Remus—not hydric

38B—Remus-Spinks complex, 0 to 6 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Remus and similar soils—45 to 55 percent
Spinks and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Benzonia and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand

E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Remus—loamy till; Spinks—sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Remus—medium; Spinks—negligible
Potential for frost action: Remus—moderate; Spinks—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Remus—about 10.0 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Remus—moderate; Spinks—low
Permeability: Remus—moderately slow; Spinks—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Remus and Spinks—water erosion, soil blowing; Spinks—low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: Spinks—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Remus—restricted permeability; Spinks—poor filtering capacity

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: Remus—3a; Spinks—4a
Prime farmland category: Prime farmland
Hydric soil status: Remus—not hydric; Spinks—not hydric

38C—Remus-Spinks complex, 6 to 12 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Remus and similar soils—45 to 55 percent
Spinks and similar soils—35 to 45 percent

Minor components:
Coloma and similar soils—0 to 15 percent
Tekenink and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 10 percent

Typical Profile

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Remus—loamy till; Spinks—sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Remus—high; Spinks—very low
Potential for frost action: Remus—moderate; Spinks—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Remus—about 10.0 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Remus—moderate; Spinks—low
Permeability: Remus—moderately slow; Spinks—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Remus and Spinks—water erosion, soil blowing; Spinks—low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Remus—water erosion; Spinks—water erosion, droughtiness

Forestland
Major management concerns: Spinks—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Remus—slope, restricted permeability; Spinks—slope, poor filtering capacity

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: Remus—3a; Spinks—4a
Prime farmland category: Not prime farmland
Hydric soil status: Remus—not hydric; Spinks—not hydric

38D—Remus-Spinks complex, 12 to 18 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Remus and similar soils—45 to 55 percent
Spinks and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Tekenink and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 10 percent

Typical Profile

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Remus—loamy till; Spinks—sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Remus—high; Spinks—very low
Potential for frost action: Remus—moderate; Spinks—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Remus—about 10.0 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Remus—moderate; Spinks—low
Permeability: Remus—moderately slow; Spinks—rapid

Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Remus and Spinks—erosion, slope; Spinks—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Remus—slope, restricted permeability; Spinks—slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: Remus—3a; Spinks—4a
Prime farmland category: Not prime farmland
Hydric soil status: Remus—not hydric; Spinks—not hydric

38E—Remus-Spinks complex, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Remus and similar soils—45 to 55 percent
Spinks and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Tekenink and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 10 percent

Typical Profile

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Remus—loamy till; Spinks—sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Remus—very high; Spinks—low
Potential for frost action: Remus—moderate; Spinks—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Remus—about 10.0 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Remus—moderate; Spinks—low
Permeability: Remus—moderately slow; Spinks—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Remus and Spinks—erosion, slope; Spinks—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Remus—slope, restricted permeability; Spinks—slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Remus—3a; Spinks—4a
Prime farmland category: Not prime farmland
Hydric soil status: Remus—not hydric; Spinks—not hydric

43B—Thompsonville fine sand, 0 to 6 percent slopes

Setting

Landform: Stream terraces, lake terraces, outwash plains, lake plains

Map Unit Composition

Major components:
Thompsonville and similar soils—85 to 95 percent
Minor components:
Covert and similar soils—5 to 15 percent
Grattan and similar soils—0 to 5 percent
Fern and similar soils—0 to 5 percent
Milnichol and similar soils—0 to 5 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Thompsonville
A—0 to 5 inches; very dark gray fine sand
E—5 to 15 inches; brown fine sand

Bs1—15 to 29 inches; dark brown fine sand
Bs2—29 to 37 inches; dark brown, mottled fine sand
Bs3—37 to 55 inches; brown, mottled sand
2B/E—55 to 72 inches; brown and pinkish gray, mottled silty clay loam
2C—72 to 80 inches; brown, mottled, stratified very fine sandy loam and silty clay loam

Soil Properties and Qualities

Parent material: 40 to 60 inches of sandy glaciofluvial deposits over loamy alluvium
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 5.2 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Slow
Flooding: None
Depth to seasonal high water table: 1.5 to 6.5 feet (April)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5/2a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

44B—Milnichol fine sand, 0 to 4 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Milnichol and similar soils—85 to 100 percent
Minor components:
Pipestone and similar soils—0 to 15 percent
Covert and similar soils—0 to 10 percent
Thompsonville and similar soils—0 to 10 percent

Typical Profile

Milnichol
A—0 to 2 inches; black fine sand
E—2 to 12 inches; gray, mottled fine sand
Bhs—12 to 15 inches; dark reddish brown, mottled fine sand
Bs1—15 to 25 inches; brown, mottled fine sand
Bs2—25 to 33 inches; strong brown, mottled fine sand
C1—33 to 47 inches; pale brown, mottled fine sand
2C2—47 to 50 inches; dark brown, mottled, stratified loamy fine sand and fine sandy loam
2C3—50 to 68 inches; brown, mottled silty clay loam
2C4—68 to 80 inches; grayish brown, mottled silt loam

Soil Properties and Qualities

Parent material: 40 to 60 inches of sandy glaciofluvial deposits over loamy alluvium
Slope: 0 to 4 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 5.6 inches to a depth of 60 inches
Shrink-swell potential: High
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, seasonal wetness

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: 5/2b
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

47B—Spinks-Coloma sands, 0 to 6 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Spinks and similar soils—45 to 55 percent
Coloma and similar soils—35 to 45 percent

Minor components:
Shavenaugh and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Spinks—well drained; Coloma—somewhat excessively drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Coloma—about 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Pastureland
Other uses: Forestland

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Spinks—4a; Coloma—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Coloma—not hydric

47C—Spinks-Coloma sands, 6 to 12 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 55 percent
Coloma and similar soils—35 to 45 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Spinks—well drained; Coloma—somewhat excessively drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Coloma—about 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Pastureland
Other uses: Forestland

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: Spinks—4a; Coloma—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Coloma—not hydric

47D—Spinks-Coloma sands, 12 to 18 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Spinks and similar soils—50 to 60 percent
Coloma and similar soils—30 to 45 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand

E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Spinks—well drained; Coloma—somewhat excessively drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Coloma—about 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: Spinks—4a; Coloma—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Coloma—not hydric

47E—Spinks-Coloma sands, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Coloma and similar soils—35 to 45 percent
Minor components:
Benona and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand

E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Spinks—well drained; Coloma—somewhat excessively drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Coloma—about 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: Spinks—4a; Coloma—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Coloma—not hydric

47F—Spinks-Coloma sands, 35 to 70 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Coloma and similar soils—35 to 45 percent

Minor components:
Benona and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Spinks—well drained; Coloma—somewhat excessively drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Coloma—about 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Spinks—4a; Coloma—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Coloma—not hydric

52C—Copemish sand, 3 to 12 percent slopes

Setting

Landform: Outwash plains, beach ridges

Map Unit Composition

Major components:
Copemish and similar soils—90 to 100 percent
Minor components:
Covert and similar soils—0 to 10 percent
Grattan and similar soils—0 to 5 percent
Saugatuck and similar soils—0 to 5 percent

Typical Profile

Copemish
A—0 to 2 inches; very dark gray sand
E1—2 to 7 inches; dark grayish brown sand
E2—7 to 11 inches; brown and dark yellowish brown sand
Bs1—11 to 28 inches; dark reddish brown and strong brown sand
Bs2—28 to 36 inches; yellowish brown and brownish yellow sand
C—36 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 3 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: 11 inches to ortstein
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, depth to ortstein

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a-h
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

52E—Copemish sand, 12 to 35 percent slopes

Setting

Landform: Beach ridges, dunes

Map Unit Composition

Major components:
Copemish and similar soils—85 to 100 percent
Minor components:
Grattan and similar soils—0 to 15 percent

Typical Profile

Copemish
A—0 to 2 inches; very dark gray sand
E1—2 to 7 inches; dark grayish brown sand
E2—7 to 11 inches; brown and dark yellowish brown sand
Bs1—11 to 28 inches; dark reddish brown and strong brown sand
Bs2—28 to 36 inches; yellowish brown and brownish yellow sand
C—36 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: 11 inches to ortstein
Drainage class: Well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, depth to ortstein

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a-h
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

53A—Saugatuck-Jebavy complex, 0 to 3 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Saugatuck and similar soils—45 to 55 percent
Jebavy and similar soils—35 to 45 percent
Minor components:
Pipestone and similar soils—0 to 10 percent
Dair and similar soils—0 to 10 percent
Covert and similar soils—0 to 5 percent

Typical Profile

Saugatuck
A—0 to 5 inches; black sand
E—5 to 8 inches; dark grayish brown sand
Bhsm1—8 to 11 inches; black sand
Bhsm2—11 to 15 inches; dark reddish brown sand
Bs1—15 to 22 inches; dark brown sand
Bs2—22 to 26 inches; strong brown sand
BC—26 to 55 inches; yellowish brown sand
C—55 to 80 inches; brown sand

Jebavy
A—0 to 4 inches; black sand
E1—4 to 15 inches; light brownish gray sand
E2—15 to 17 inches; brown sand
Bhsm1—17 to 26 inches; reddish black sand
Bhsm2—26 to 31 inches; dark reddish brown sand
C—31 to 80 inches; dark yellowish brown fine sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: Saugatuck—0 to 3 percent; Jebavy—0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: Saugatuck—8 to 11 inches to ortstein; Jebavy—17 to 26 inches to ortstein
Drainage class: Saugatuck—somewhat poorly drained; Jebavy—poorly drained
Available water capacity: Saugatuck—about 4.2 inches to a depth of 60 inches; Jebavy—about 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: Saugatuck—0.5 to 6.5 feet (April, May); Jebavy—at the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Saugatuck—all year; Jebavy—January, February, June, July, August, September, December
Depth and months of deepest ponding: Saugatuck—not ponded; Jebavy—0.5 foot (March, April, May, October, November)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Saugatuck—seedling mortality, seasonal wetness; Jebavy—seedling mortality, severe wetness, windthrow hazard

Building site development
Major management concerns: Saugatuck—cutbanks caving, seasonal wetness; Jebavy—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Saugatuck and Jebavy—poor filtering capacity, depth to ortstein, severe wetness; Jebavy—ponding

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: Saugatuck—5b-h; Jebavy—5c-h
Prime farmland category: Not prime farmland
Hydric soil status: Saugatuck—not hydric; Jebavy—hydric

54B—Kaleva sand, 0 to 6 percent slopes

Setting

Landform: Moraines, outwash plains, lake plains

Map Unit Composition

Major components:
Kaleva and similar soils—90 to 100 percent
Minor components:
Nessen and similar soils—0 to 5 percent
Benzonia and similar soils—0 to 5 percent
Grattan and similar soils—0 to 5 percent

Typical Profile

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand
C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid

Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

54C—Kaleva sand, 6 to 12 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Kaleva and similar soils—90 to 100 percent
Minor components:
Benzonia and similar soils—0 to 5 percent
Nessen and similar soils—0 to 5 percent
Grattan and similar soils—0 to 5 percent

Typical Profile

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand
C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent

Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

54D—Kaleva sand, 12 to 18 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Kaleva and similar soils—85 to 100 percent
Minor components:
Benzonia and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand

C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

54E—Kaleva sand, 18 to 35 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Kaleva and similar soils—85 to 100 percent
Minor components:
Benzonia and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand

C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

54F—Kaleva sand, 35 to 50 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Kaleva and similar soils—85 to 100 percent
Minor components:
Benzonia and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand

C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

55B—Brethren sand, 0 to 6 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Brethren and similar soils—85 to 100 percent
Minor components:
Covert and similar soils—0 to 15 percent
Kaleva and similar soils—0 to 10 percent
Saugatuck and similar soils—0 to 5 percent

Typical Profile

Brethren
A—0 to 4 inches; black sand
E—4 to 8 inches; brown sand
Bhs—8 to 10 inches; dark reddish brown sand
Bs—10 to 20 inches; strong brown sand

Bw—20 to 27 inches; yellowish brown sand
BC—27 to 43 inches; yellowish brown, mottled sand
C—43 to 80 inches; pale brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.5 to 6.5 feet (February, March, April, October, November)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss, ground-water pollution

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

57B—Grattan sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, lake plains, moraines

Map Unit Composition

Major components:
Grattan and similar soils—90 to 100 percent
Minor components:
Kaleva and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Grattan
A—0 to 4 inches; black sand
E—4 to 13 inches; pinkish gray sand
Bs1—13 to 18 inches; dark brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 53 inches; brownish yellow sand
C—53 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

57C—Grattan sand, 6 to 12 percent slopes

Setting

Landform: Moraines, outwash plains, lake plains

Map Unit Composition

Major components:
Grattan and similar soils—90 to 100 percent
Minor components:
Kaleva and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Grattan
A—0 to 4 inches; black sand
E—4 to 13 inches; pinkish gray sand
Bs1—13 to 18 inches; dark brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 53 inches; brownish yellow sand
C—53 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

57D—Grattan sand, 12 to 18 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Grattan and similar soils—90 to 100 percent
Minor components:
Benona and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Grattan
A—0 to 4 inches; black sand
E—4 to 13 inches; pinkish gray sand
Bs1—13 to 18 inches; dark brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 53 inches; brownish yellow sand
C—53 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

57E—Grattan sand, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Grattan and similar soils—90 to 100 percent
Minor components:
Benona and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Grattan
A—0 to 4 inches; black sand
E—4 to 13 inches; pinkish gray sand
Bs1—13 to 18 inches; dark brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 53 inches; brownish yellow sand
C—53 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

57F—Grattan sand, 35 to 50 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Grattan and similar soils—90 to 100 percent
Minor components:
Benona and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Grattan
A—0 to 4 inches; black sand
E—4 to 13 inches; pinkish gray sand
Bs1—13 to 18 inches; dark brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 53 inches; brownish yellow sand
C—53 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

58B—Covert sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Covert and similar soils—90 to 100 percent
Minor components:
Grattan and similar soils—0 to 10 percent
Pipestone and similar soils—0 to 10 percent
Saugatuck and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 10 percent

Typical Profile

Covert
A—0 to 1 inch; black sand
E—1 to 8 inches; brown sand
Bs1—8 to 18 inches; brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 29 inches; dark yellowish brown, mottled sand
C1—29 to 38 inches; yellowish brown sand
C2—38 to 47 inches; brown sand
C3—47 to 80 inches; pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a

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

59B—Pipestone sand, 0 to 4 percent slopes

Setting

Landform: Outwash plains, lake plains, beach ridges

Map Unit Composition

Major components:
Pipestone and similar soils—90 to 100 percent
Minor components:
Saugatuck and similar soils—0 to 10 percent
Dair and similar soils—0 to 10 percent
Covert and similar soils—0 to 10 percent

Typical Profile

Pipestone
A—0 to 2 inches; black sand
E—2 to 9 inches; brown sand
Bhs—9 to 12 inches; reddish brown and dark reddish brown, mottled sand
Bs—12 to 24 inches; brown, mottled sand
BC—24 to 32 inches; yellowish brown, mottled sand
C—32 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 4 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: 5b

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

60—Dair muck

Setting

Landform: Depressions and drainageways on outwash plains and lake plains

Map Unit Composition

Major components:
Dair and similar soils—90 to 100 percent
Minor components:
Adrian and similar soils—0 to 10 percent
Pipestone and similar soils—0 to 10 percent

Typical Profile

Dair
Oa—0 to 4 inches; black muck
A—4 to 7 inches; very dark gray mucky sandy loam
Bw—7 to 11 inches; brownish yellow, mottled sand
C—11 to 21 inches; light olive brown sand
Cg1—21 to 50 inches; grayish brown sand
Cg2—50 to 80 inches; dark grayish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 5.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: 5c
Prime farmland category: Not prime farmland
Hydric soil status: Hydric

63B—Coloma sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, stream terraces, deltas

Map Unit Composition

Major components:
Coloma and similar soils—90 to 100 percent
Minor components:
Benona and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 10 percent
Covert and similar soils—0 to 10 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

63C—Coloma sand, 6 to 12 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Coloma and similar soils—90 to 100 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent
Grattan and similar soils—0 to 10 percent
Covert and similar soils—0 to 10 percent

Typical Profile

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

63D—Coloma sand, 12 to 18 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Coloma and similar soils—90 to 100 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

63E—Coloma sand, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Coloma and similar soils—90 to 100 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained

Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

63F—Coloma sand, 35 to 70 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Coloma and similar soils—95 to 100 percent
Minor components:
Tekenink and similar soils—0 to 10 percent

Typical Profile

Coloma
A—0 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bw1—4 to 8 inches; strong brown sand
Bw2—8 to 15 inches; dark yellowish brown sand
Bw3—15 to 25 inches; yellowish brown sand
Bw4—25 to 40 inches; brownish yellow sand
E and Bt—40 to 80 inches; very pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.6 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

64B—Benona sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, moraines, lake plains

Map Unit Composition

Major components:
Benona and similar soils—85 to 100 percent
Minor components:
Benzonia and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent
Grattan and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 10 percent

Typical Profile

Benona
A—0 to 2 inches; black sand
E—2 to 6 inches; dark grayish brown sand
Bs1—6 to 9 inches; brown sand
Bs2—9 to 17 inches; strong brown sand
Bw—17 to 28 inches; brownish yellow sand
E´—28 to 46 inches; light yellowish brown sand
E and Bt—46 to 80 inches; pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained
Available water capacity: About 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

64C—Benona sand, 6 to 12 percent slopes

Setting

Landform: Moraines, lake plains, outwash plains

Map Unit Composition

Major components:
Benona and similar soils—85 to 100 percent
Minor components:
Benzonia and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent
Grattan and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 10 percent

Typical Profile

Benona
A—0 to 2 inches; black sand
E—2 to 6 inches; dark grayish brown sand
Bs1—6 to 9 inches; brown sand
Bs2—9 to 17 inches; strong brown sand
Bw—17 to 28 inches; brownish yellow sand

E´—28 to 46 inches; light yellowish brown sand
E and Bt—46 to 80 inches; pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

64D—Benona sand, 12 to 18 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Benona and similar soils—85 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Fogg and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Benona
A—0 to 2 inches; black sand
E—2 to 6 inches; dark grayish brown sand
Bs1—6 to 9 inches; brown sand
Bs2—9 to 17 inches; strong brown sand
Bw—17 to 28 inches; brownish yellow sand
E´—28 to 46 inches; light yellowish brown sand
E and Bt—46 to 80 inches; pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

64E—Benona sand, 18 to 35 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Benona and similar soils—90 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Fogg and similar soils—0 to 10 percent

Typical Profile

Benona
A—0 to 2 inches; black sand
E—2 to 6 inches; dark grayish brown sand
Bs1—6 to 9 inches; brown sand
Bs2—9 to 17 inches; strong brown sand
Bw—17 to 28 inches; brownish yellow sand
E´—28 to 46 inches; light yellowish brown sand
E and Bt—46 to 80 inches; pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

64F—Benona sand, 35 to 70 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Benona and similar soils—90 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Fogg and similar soils—0 to 10 percent

Typical Profile

Benona
A—0 to 2 inches; black sand
E—2 to 6 inches; dark grayish brown sand
Bs1—6 to 9 inches; brown sand
Bs2—9 to 17 inches; strong brown sand
Bw—17 to 28 inches; brownish yellow sand
E´—28 to 46 inches; light yellowish brown sand
E and Bt—46 to 80 inches; pale brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

67B—Plainfield sand, 0 to 6 percent slopes

Setting

Landform: Outwash plains, moraines, lake plains

Map Unit Composition

Major components:
Plainfield and similar soils—95 to 100 percent
Minor components:
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Plainfield
A—0 to 2 inches; black sand
Bw1—2 to 6 inches; brown sand
Bw2—6 to 19 inches; strong brown sand
BC—19 to 24 inches; yellowish brown sand
C—24 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

67C—Plainfield sand, 6 to 12 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Plainfield and similar soils—90 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Plainfield
A—0 to 2 inches; black sand
Bw1—2 to 6 inches; brown sand
Bw2—6 to 19 inches; strong brown sand
BC—19 to 24 inches; yellowish brown sand
C—24 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

67E—Plainfield sand, 12 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Plainfield and similar soils—90 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Plainfield
A—0 to 2 inches; black sand
Bw1—2 to 6 inches; brown sand
Bw2—6 to 19 inches; strong brown sand
BC—19 to 24 inches; yellowish brown sand
C—24 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

67F—Plainfield sand, 35 to 70 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Plainfield and similar soils—90 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Plainfield
A—0 to 2 inches; black sand
Bw1—2 to 6 inches; brown sand
Bw2—6 to 19 inches; strong brown sand
BC—19 to 24 inches; yellowish brown sand
C—24 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

73—Houghton-Adrian mucks

Setting

Landform: Flood plains, depressions on lake plains, outwash plains, moraines

Map Unit Composition

Major components:
Houghton and similar soils—50 to 70 percent
Adrian and similar soils—30 to 50 percent
Minor components:
Dair and similar soils—0 to 10 percent

Typical Profile

Houghton
Oa1—0 to 12 inches; black muck
Oa2—12 to 26 inches; black muck
Oa3—26 to 80 inches; black muck

Adrian
Oa1—0 to 7 inches; black muck
Oa2—7 to 20 inches; black muck
Oa3—20 to 35 inches; very dusky red muck
Cg—35 to 80 inches; weak red sand

Soil Properties and Qualities

Parent material: Houghton—more than 51 inches of organic material; Adrian—16 to 51 inches of organic material over sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Houghton—about 23.9 inches to a depth of 60 inches; Adrian—about 15.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Houghton—moderately rapid; Adrian—moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August, September
Depth and months of deepest ponding: 0.5 foot (January, February, March, April, May, June, October, November, December)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Ponding, severe wetness, low strength, subsidence; cutbanks caving in areas of the Adrian soil

Septic tank absorption fields
Major management concerns: Ponding, low strength, subsidence, severe wetness; poor filtering capacity in areas of the Adrian soil

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: Houghton—Mc; Adrian—M/4c
Prime farmland category: Not prime farmland
Hydric soil status: Houghton—hydric; Adrian—hydric

81—Lumley-Makinen complex

Setting

Landform: Depressions on lake plains, moraines, outwash plains

Map Unit Composition

Major components:
Lumley and similar soils—45 to 60 percent
Makinen and similar soils—35 to 55 percent
Minor components:
Saugatuck and similar soils—0 to 10 percent

Typical Profile

Lumley
Oi1—0 to 3 inches; dark yellowish brown peat
Oi2—3 to 6 inches; dark brown peat
Oa1—6 to 8 inches; black muck
Oa2—8 to 20 inches; dark brown muck
Oa3—20 to 45 inches; dark brown muck
Oa4—45 to 53 inches; very dark brown muck
Oa5—53 to 80 inches; very dark gray muck

Makinen
Oa1—0 to 4 inches; black muck
Oa2—4 to 14 inches; black muck
Oa3—14 to 22 inches; black muck
Oa4—22 to 31 inches; black muck
Cg—31 to 80 inches; dark grayish brown, mottled sand

Soil Properties and Qualities

Parent material: Lumley—more than 51 inches of acid organic material; Makinen—16 to 51 inches of organic material over sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Lumley—about 25.1 inches to a depth of 60 inches; Makinen—about 20.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: July, August
Depth and months of deepest ponding: 0.5 foot (January, February, March, April, May, June, September, October, November, December)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, excess humus, low strength

Building site development
Major management concerns: Ponding, severe wetness, low strength, subsidence; cutbanks caving in areas of the Makinen soil

Septic tank absorption fields
Major management concerns: Ponding, low strength, subsidence, severe wetness; poor filtering capacity in areas of the Makinen soil

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: Lumley—Mc-a; Makinen—M/4c-a
Prime farmland category: Not prime farmland
Hydric soil status: Lumley—hydric; Makinen—hydric

83—Histosols and Aquents, ponded

Setting

Landform: Marshes

Map Unit Composition

Major components:
Histosols and similar soils—0 to 100 percent
Aquents and similar soils—0 to 100 percent

Typical Profile

Histosols
Oa—0 to 45 inches; black and very dark gray muck
C—45 to 80 inches; gray sand

Aquents
AC—0 to 80 inches; variable

Soil Properties and Qualities

Parent material: Histosols—organic material underlain by mineral deposits; Aquents—sandy material underlain by loamy till, lacustrine sediments, or sandy deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Histosols—about 18.9 inches to a depth of 60 inches; Aquents—not rated
Shrink-swell potential: Histosols—low; Aquents—not rated
Permeability: Histosols—moderately rapid; Aquents—not rated
Flooding: None
Depth to seasonal high water table: At the surface all year
Ponding depth: 0.5 foot (all year)

Use and Management

Dominant land uses: Ponded marsh and forestland
- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: 8w

Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Histosols—hydric; Aquents—hydric

86D—Dune land-Quartzipsamments complex, undulating to hilly

Map Unit Composition

Major components:
Dune land—50 to 60 percent
Quartzipsamments and similar soils—40 to 50 percent
Minor components:
Nordhouse and similar soils—0 to 10 percent
Goodharbor and similar soils—0 to 10 percent
Platteriver and similar soils—0 to 10 percent

Typical Profile

Quartzipsamments
AC—0 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy eolian deposits
Slope: 6 to 18 percent
Surface runoff class: Dune land—not rated; Quartzipsamments—low
Potential for frost action: Dune land—not rated; Quartzipsamments—low
Depth to restrictive feature: More than 80 inches
Drainage class: Dune land—not rated; Quartzipsamments—excessively drained
Available water capacity: Dune land—not rated; Quartzipsamments—about 3.0 inches to a depth of 60 inches
Shrink-swell potential: Dune land—not rated; Quartzipsamments—low
Permeability: Dune land—not rated; Quartzipsamments—rapid
Flooding: None
Depth to seasonal high water table: Dune land—not rated; Quartzipsamments—more than 6.5 feet
Ponding: None

Use and Management

- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Dune land—not hydric; Quartzipsamments—not hydric

86F—Dune land-Quartzipsamments complex, hilly to very steep

Map Unit Composition

Major components:
Dune land—50 to 60 percent
Quartzipsamments and similar soils—40 to 50 percent

Minor components:
Nordhouse and similar soils—0 to 10 percent

Soil Properties and Qualities

Parent material: Sandy eolian deposits
Slope: 35 to 70 percent
Surface runoff class: Dune land—not rated; Quartzipsamments—low
Potential for frost action: Dune land—not rated; Quartzipsamments—low
Depth to restrictive feature: More than 80 inches
Drainage class: Dune land—not rated; Quartzipsamments—excessively drained
Available water capacity: Dune land—not rated; Quartzipsamments—about 3.0 inches to a depth of 60 inches
Shrink-swell potential: Dune land—not rated; Quartzipsamments—low
Permeability: Dune land—not rated; Quartzipsamments—rapid
Flooding: None
Depth to seasonal high water table: Dune land—not rated; Quartzipsamments—more than 6.5 feet
Ponding: None

Use and Management

- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: 8s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Dune land—not hydric; Quartzipsamments—not hydric

88B—Udipsamments, nearly level and undulating

Setting

Landform: Outwash plains, lake plains, moraines

Map Unit Composition

Major components:
Udipsamments and similar soils—100 percent

Typical Profile

Udipsamments
AC—0 to 80 inches; sand

Soil Properties and Qualities

Parent material: Sandy alluvium
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

- This map unit consists of disturbed sandy areas. Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

91—Pits, sand and gravel

Map Unit Composition

Major components:
Pits, sand and gravel—100 percent

Use and Management

Dominant land uses: Sand and gravel pits
- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: None assigned
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not applicable

96C—Goodharbor sand, 1 to 12 percent slopes

Setting

Landform: Beach ridges, dunes

Map Unit Composition

Major components:
Goodharbor and similar soils—85 to 100 percent
Minor components:
Nordhouse and similar soils—0 to 10 percent
Platteriver and similar soils—0 to 10 percent

Typical Profile

Goodharbor
A—0 to 1 inch; very dark gray sand
E—1 to 3 inches; grayish brown sand
Bw1—3 to 23 inches; brown sand
Bw2—23 to 40 inches; yellowish brown sand
C—40 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy eolian deposits
Slope: 1 to 12 percent

Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.7a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

100A—Dair-Pipestone complex, 0 to 2 percent slopes

Setting

Landform: Depressions on outwash plains and lake plains

Map Unit Composition

Major components:
Dair and similar soils—40 to 60 percent
Pipestone and similar soils—35 to 45 percent
Minor components:
Houghton and similar soils—0 to 10 percent
Covert and similar soils—0 to 10 percent

Typical Profile

Dair
Oa—0 to 4 inches; black muck
A—4 to 7 inches; very dark gray mucky sandy loam
Bw—7 to 11 inches; brownish yellow, mottled sand
C—11 to 21 inches; light olive brown sand
Cg1—21 to 50 inches; grayish brown sand
Cg2—50 to 80 inches; dark grayish brown sand

Pipestone
A—0 to 2 inches; black sand
E—2 to 9 inches; brown sand
Bhs—9 to 12 inches; reddish brown and dark reddish brown, mottled sand

Bs—12 to 24 inches; brown, mottled sand
BC—24 to 32 inches; yellowish brown, mottled sand
C—32 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Dair—very poorly drained; Pipestone—somewhat poorly drained
Available water capacity: Dair—about 5.3 inches to a depth of 60 inches; Pipestone—about 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: Dair—at the surface (January, February, March, April, May, June, September, October, November, December); Pipestone—0.5 foot to 6.5 feet (April, May)
Months in which ponding does not occur: Dair—January, February, June, July, August, September, December; Pipestone—all year
Depth and months of deepest ponding: Dair—0.5 foot (March, April, May, October, November); Pipestone—not ponded

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Dair—seedling mortality, windthrow hazard, severe wetness; Pipestone—seedling mortality, seasonal wetness

Building site development
Major management concerns: Dair—cutbanks caving, ponding, severe wetness; Pipestone—cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness; ponding in areas of the Dair soil

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: Dair—5c; Pipestone—5b
Prime farmland category: Not prime farmland
Hydric soil status: Dair—hydric; Pipestone—not hydric

102A—Thompsonville-Milnichol fine sands, 0 to 3 percent slopes

Setting

Landform: Stream terraces, lake terraces, outwash plains, lake plains

Map Unit Composition

Major components:
Thompsonville and similar soils—50 to 60 percent
Milnichol and similar soils—40 to 50 percent

Minor components:
Covert and similar soils—0 to 10 percent
Pipestone and similar soils—0 to 10 percent

Typical Profile

Thompsonville
A—0 to 5 inches; very dark gray fine sand
E—5 to 15 inches; brown fine sand
Bs1—15 to 29 inches; dark brown fine sand
Bs2—29 to 37 inches; dark brown, mottled fine sand
Bs3—37 to 55 inches; brown, mottled sand
2B/E—55 to 72 inches; brown and pinkish gray, mottled silty clay loam
2C—72 to 80 inches; brown, mottled, stratified very fine sandy loam and silty clay loam

Milnichol
A—0 to 2 inches; black fine sand
E—2 to 12 inches; gray, mottled fine sand
Bhs—12 to 15 inches; dark reddish brown, mottled fine sand
Bs1—15 to 25 inches; brown, mottled fine sand
Bs2—25 to 33 inches; strong brown, mottled fine sand
C1—33 to 47 inches; pale brown, mottled fine sand
2C2—47 to 50 inches; dark brown, mottled, stratified loamy fine sand and fine sandy loam
2C3—50 to 68 inches; brown, mottled silty clay loam
2C4—68 to 80 inches; grayish brown, mottled silt loam

Soil Properties and Qualities

Parent material: 40 to 60 inches of sandy glaciofluvial deposits over loamy alluvium
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Thompsonville—low; Milnichol—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Thompsonville—moderately well drained; Milnichol—somewhat poorly drained
Available water capacity: Thompsonville—about 5.2 inches to a depth of 60 inches; Milnichol—about 5.6 inches to a depth of 60 inches
Shrink-swell potential: Thompsonville—moderate; Milnichol—high
Permeability: Thompsonville—slow; Milnichol—moderately slow
Flooding: None
Depth to seasonal high water table: Thompsonville—1.5 to 6.5 feet (April); Milnichol—0.5 foot to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, severe wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: Thompsonville—5/2a; Milnichol—5/2b
Prime farmland category: Not prime farmland
Hydric soil status: Thompsonville—not hydric; Milnichol—not hydric

104B—Covert-Pipestone sands, 0 to 6 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Covert and similar soils—50 to 60 percent
Pipestone and similar soils—40 to 50 percent
Minor components:
Dair and similar soils—0 to 10 percent
Saugatuck and similar soils—0 to 10 percent

Typical Profile

Covert
A—0 to 1 inch; black sand
E—1 to 8 inches; brown sand
Bs1—8 to 18 inches; brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 29 inches; dark yellowish brown, mottled sand
C1—29 to 38 inches; yellowish brown sand
C2—38 to 47 inches; brown sand
C3—47 to 80 inches; pale brown sand

Pipestone
A—0 to 2 inches; black sand
E—2 to 9 inches; brown sand
Bhs—9 to 12 inches; reddish brown and dark reddish brown, mottled sand
Bs—12 to 24 inches; brown, mottled sand
BC—24 to 32 inches; yellowish brown, mottled sand
C—32 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: Covert—0 to 6 percent; Pipestone—0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Covert—low; Pipestone—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Covert—moderately well drained; Pipestone—somewhat poorly drained
Available water capacity: Covert—about 3.9 inches to a depth of 60 inches; Pipestone—about 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid

Flooding: None
Depth to seasonal high water table: Covert—2.0 to 6.5 feet (May); Pipestone—0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: Covert—5a; Pipestone—5b
Prime farmland category: Not prime farmland
Hydric soil status: Covert—not hydric; Pipestone—not hydric

106B—Covert-Dair complex, 0 to 6 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Covert and similar soils—50 to 55 percent
Dair and similar soils—45 to 50 percent
Minor components:
Pipestone and similar soils—0 to 10 percent
Houghton and similar soils—0 to 10 percent

Typical Profile

Covert
A—0 to 1 inch; black sand
E—1 to 8 inches; brown sand
Bs1—8 to 18 inches; brown sand
Bs2—18 to 25 inches; strong brown sand
BC—25 to 29 inches; dark yellowish brown, mottled sand
C1—29 to 38 inches; yellowish brown sand
C2—38 to 47 inches; brown sand
C3—47 to 80 inches; pale brown sand

Dair
Oa—0 to 4 inches; black muck
A—4 to 7 inches; very dark gray mucky sandy loam
Bw—7 to 11 inches; brownish yellow, mottled sand
C—11 to 21 inches; light olive brown sand
Cg1—21 to 50 inches; grayish brown sand
Cg2—50 to 80 inches; dark grayish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Covert—low; Dair—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Covert—moderately well drained; Dair—very poorly drained
Available water capacity: Covert—about 3.9 inches to a depth of 60 inches; Dair—about 5.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Covert—rapid; Dair—moderate
Flooding: None
Depth to seasonal high water table: Covert—2.0 to 6.5 feet (May); Dair—at the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: Covert—all year; Dair—January, February, June, July, August, September, December
Depth and months of deepest ponding: Covert—not ponded; Dair—0.5 foot (March, April, May, October, November)

Forestland
Major management concerns: Covert—sandy textures, seasonal wetness, seedling mortality; Dair—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Covert—cutbanks caving, seasonal wetness; Dair—cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness; ponding in areas of the Dair soil

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: Covert—5a; Dair—5c
Prime farmland category: Not prime farmland
Hydric soil status: Covert—not hydric; Dair—hydric

107B—Benzonia sand, 0 to 6 percent slopes

Setting

Landform: Lake plains, outwash plains, moraines

Map Unit Composition

Major components:
Benzonia and similar soils—90 to 100 percent
Minor components:
Benona and similar soils—0 to 10 percent
Kaleva and similar soils—0 to 10 percent
Nessen and similar soils—0 to 5 percent
Coloma and similar soils—0 to 5 percent

Typical Profile

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

107C—Benzonia sand, 6 to 12 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Benzonia and similar soils—90 to 100 percent

Minor components:
Benona and similar soils—0 to 10 percent
Kaleva and similar soils—0 to 10 percent
Coloma and similar soils—0 to 5 percent
Nessen and similar soils—0 to 5 percent

Typical Profile

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

107D—Benzonia sand, 12 to 18 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Benzonia and similar soils—85 to 100 percent
Minor components:
Benona and similar soils—0 to 10 percent
Coloma and similar soils—0 to 5 percent
Fogg and similar soils—0 to 5 percent

Typical Profile

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

107E—Benzonia sand, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Benzonia and similar soils—85 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent
Grattan and similar soils—0 to 5 percent
Fogg and similar soils—0 to 5 percent

Typical Profile

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

107F—Benzonia sand, 35 to 50 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Benzonia and similar soils—85 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Benona and similar soils—0 to 10 percent
Fogg and similar soils—0 to 5 percent
Grattan and similar soils—0 to 5 percent

Typical Profile

Benzonia
A—0 to 5 inches; black sand
E—5 to 11 inches; reddish gray sand
Bhs1—11 to 15 inches; dark reddish brown sand
Bhs2—15 to 20 inches; dark reddish brown sand
Bs1—20 to 27 inches; dark reddish brown sand
Bs2—27 to 35 inches; strong brown sand
E and Bt—35 to 80 inches; brown sand with lamellae of brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a

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

108A—Saugatuck sand, 0 to 3 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Saugatuck and similar soils—85 to 95 percent
Minor components:
Pipestone and similar soils—5 to 15 percent
Covert and similar soils—0 to 10 percent

Typical Profile

Saugatuck
A—0 to 5 inches; black sand
E—5 to 8 inches; dark grayish brown sand
Bhsm1—8 to 11 inches; black sand
Bhsm2—11 to 15 inches; dark reddish brown sand
Bs1—15 to 22 inches; dark brown sand
Bs2—22 to 26 inches; strong brown sand
BC—26 to 55 inches; yellowish brown sand
C—55 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: 8 inches to ortstein
Drainage class: Somewhat poorly drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: 5b-h

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

109B—Shavenaugh sand, 0 to 6 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Shavenaugh and similar soils—85 to 95 percent
Minor components:
Kaleva and similar soils—5 to 15 percent
Nessen and similar soils—0 to 15 percent
Boyer and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

109C—Shavenaugh sand, 6 to 12 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Shavenaugh and similar soils—85 to 95 percent
Minor components:
Kaleva and similar soils—5 to 15 percent
Nessen and similar soils—0 to 15 percent
Boyer and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

109D—Shavenaugh sand, 12 to 18 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Shavenaugh and similar soils—85 to 95 percent
Minor components:
Nessen and similar soils—0 to 15 percent
Boyer and similar soils—0 to 15 percent
Kaleva and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

109E—Shavenaugh sand, 18 to 35 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Shavenaugh and similar soils—85 to 95 percent
Minor components:
Nessen and similar soils—0 to 15 percent
Boyer and similar soils—0 to 15 percent
Kaleva and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 4.4 inches to a depth of 60 inches

Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

109F—Shavenaugh sand, 35 to 50 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Shavenaugh and similar soils—85 to 95 percent
Minor components:
Nessen and similar soils—0 to 15 percent
Boyer and similar soils—0 to 15 percent
Kaleva and similar soils—0 to 15 percent
Grattan and similar soils—0 to 10 percent

Typical Profile

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

110B—Healylake sand, 0 to 6 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Healylake and similar soils—85 to 100 percent
Minor components:
Covert and similar soils—0 to 15 percent
Saugatuck and similar soils—0 to 10 percent

Typical Profile

Healylake
A—0 to 4 inches; black sand
E—4 to 9 inches; brown sand
Bhs—9 to 11 inches; reddish black sand
Bs1—11 to 14 inches; yellowish red sand
Bs2—14 to 26 inches; strong brown sand
BC—26 to 39 inches; brownish yellow sand
C1—39 to 63 inches; yellow sand
C2—63 to 80 inches; yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: 9 inches to ortstein

Drainage class: Moderately well drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.0 to 6.5 feet (April)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to ortstein, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a-h
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

111D—Onekama fine sandy loam, 12 to 18 percent slopes

Setting

Landform: Till plains, moraines

Map Unit Composition

Major components:
Onekama and similar soils—85 to 100 percent
Minor components:
Mollineaux and similar soils—0 to 15 percent
Remus and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Onekama
A—0 to 6 inches; very dark grayish brown fine sandy loam
E/B—6 to 13 inches; brown fine sandy loam and dark reddish brown clay loam
Bt1—13 to 20 inches; reddish brown clay loam
Bt2—20 to 31 inches; reddish brown clay loam
BC—31 to 80 inches; reddish brown clay loam

Soil Properties and Qualities

Parent material: Loamy and clayey till
Slope: 12 to 18 percent
Surface runoff class: Very high
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Available water capacity: About 9.2 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Pastureland
Other uses: Forestland

Pastureland
Major management concerns: Water erosion

Forestland
Major management concerns: Erosion, slope

Building site development
Major management concerns: Shrinking and swelling, slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: 1.5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

111E—Onekama fine sandy loam, 18 to 35 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Onekama and similar soils—85 to 100 percent
Minor components:
Mollineaux and similar soils—0 to 15 percent
Coloma and similar soils—0 to 10 percent
Remus and similar soils—0 to 10 percent

Typical Profile

Onekama
A—0 to 6 inches; very dark grayish brown fine sandy loam
E/B—6 to 13 inches; brown fine sandy loam and dark reddish brown clay loam
Bt1—13 to 20 inches; reddish brown clay loam
Bt2—20 to 31 inches; reddish brown clay loam
BC—31 to 80 inches; reddish brown clay loam

Soil Properties and Qualities

Parent material: Loamy and clayey till
Slope: 18 to 35 percent
Surface runoff class: Very high
Potential for frost action: Moderate

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 9.2 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, clayey textures, soil rutting, slope

Building site development
Major management concerns: Shrinking and swelling, slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: 1.5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

111F—Onekama fine sandy loam, 35 to 50 percent slopes

Setting

Landform: Moraines, till plains

Map Unit Composition

Major components:
Onekama and similar soils—85 to 100 percent
Minor components:
Mollineaux and similar soils—0 to 15 percent
Coloma and similar soils—0 to 10 percent
Remus and similar soils—0 to 10 percent

Typical Profile

Onekama
A—0 to 6 inches; very dark grayish brown fine sandy loam
E/B—6 to 13 inches; brown fine sandy loam and dark reddish brown clay loam
Bt1—13 to 20 inches; reddish brown clay loam
Bt2—20 to 31 inches; reddish brown clay loam
BC—31 to 80 inches; reddish brown clay loam

Soil Properties and Qualities

Parent material: Loamy and clayey till
Slope: 35 to 50 percent
Surface runoff class: Very high
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained

Available water capacity: About 9.2 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, clayey textures, soil rutting, slope

Building site development
Major management concerns: Shrinking and swelling, slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: 1.5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

114B—Nordhouse-Platteriver-Dair complex, 0 to 6 percent slopes

Setting

Landform: Beach ridges, lake plains, dunes

Map Unit Composition

Major components:
Nordhouse and similar soils—40 to 50 percent
Platteriver and similar soils—30 to 35 percent
Dair and similar soils—20 to 30 percent

Typical Profile

Nordhouse
A—0 to 3 inches; very dark gray sand
E—3 to 11 inches; brown sand
Bs—11 to 40 inches; dark brown sand
C1—40 to 60 inches; yellowish brown sand
C2—60 to 80 inches; light yellowish brown sand

Platteriver
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 14 inches; pinkish gray sand
Bw1—14 to 20 inches; brown sand
Bw2—20 to 29 inches; strong brown, mottled sand
C—29 to 80 inches; light yellowish brown, mottled sand

Dair
Oa—0 to 4 inches; black muck
A—4 to 7 inches; very dark gray mucky sandy loam
Bw—7 to 11 inches; brownish yellow, mottled sand
C—11 to 21 inches; light olive brown sand
Cg1—21 to 50 inches; grayish brown sand
Cg2—50 to 80 inches; dark grayish brown sand

Soil Properties and Qualities

Parent material: Nordhouse—sandy eolian deposits; Platteriver—sandy glaciofluvial deposits; Dair—sandy glaciofluvial deposits
Slope: Nordhouse—0 to 6 percent; Platteriver—0 to 6 percent; Dair—0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Nordhouse—low; Platteriver—low; Dair—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Nordhouse—excessively drained; Platteriver—moderately well drained; Dair—very poorly drained
Available water capacity: Nordhouse—about 4.0 inches to a depth of 60 inches; Platteriver—about 3.7 inches to a depth of 60 inches; Dair—about 5.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Nordhouse—rapid; Platteriver—rapid; Dair—moderate
Flooding: None
Depth to seasonal high water table: Nordhouse—more than 6.5 feet; Platteriver—1.5 to 6.5 feet (April); Dair—at the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: Nordhouse and Platteriver—all year; Dair—January, February, June, July, August, September, December
Depth and months of deepest ponding: Nordhouse and Platteriver—not ponded; Dair—0.5 foot (March, April, May, October, November)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Nordhouse and Platteriver—sandy textures, seedling mortality; Dair—windthrow hazard, seedling mortality, severe wetness

Building site development
Major management concerns: Nordhouse—cutbanks caving; Platteriver—seasonal wetness, cutbanks caving; Dair—ponding, cutbanks caving, severe wetness

Septic tank absorption fields
Major management concerns: Nordhouse—poor filtering capacity; Platteriver—seasonal wetness, poor filtering capacity; Dair—ponding, poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: Nordhouse—5.7a; Platteriver—5a; Dair—5c
Prime farmland category: Not prime farmland
Hydric soil status: Nordhouse—not hydric; Platteriver—not hydric; Dair—hydric

115B—Nordhouse sand, 0 to 6 percent slopes

Setting

Landform: Beach ridges, lake plains, dunes

Map Unit Composition

Major components:
Nordhouse and similar soils—95 to 100 percent
Minor components:
Platteriver and similar soils—0 to 5 percent
Dair and similar soils—0 to 5 percent

Typical Profile

Nordhouse
A—0 to 3 inches; very dark gray sand
E—3 to 11 inches; brown sand
Bs—11 to 40 inches; dark brown sand
C1—40 to 60 inches; yellowish brown sand
C2—60 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy eolian deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5.7a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

115D—Nordhouse sand, 6 to 18 percent slopes

Setting

Landform: Beach ridges, dunes

Map Unit Composition

Major components:
Nordhouse and similar soils—95 to 100 percent
Minor components:
Platteriver and similar soils—0 to 5 percent
Dair and similar soils—0 to 5 percent

Typical Profile

Nordhouse
A—0 to 3 inches; very dark gray sand
E—3 to 11 inches; brown sand
Bs—11 to 40 inches; dark brown sand
C1—40 to 60 inches; yellowish brown sand
C2—60 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy eolian deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.7a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

115F—Nordhouse sand, 18 to 70 percent slopes

Setting

Landform: Beach ridges, dunes

Map Unit Composition

Major components:
Nordhouse and similar soils—100 percent

Typical Profile

Nordhouse
A—0 to 3 inches; very dark gray sand
E—3 to 11 inches; brown sand
Bs—11 to 40 inches; dark brown sand
C1—40 to 60 inches; yellowish brown sand
C2—60 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy eolian deposits
Slope: 18 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.7a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

118B—Spinks-Shavenaugh sands, 0 to 6 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Shavenaugh and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Boyer and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Spinks—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Shavenaugh—not hydric

118C—Spinks-Shavenaugh sands, 6 to 12 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Shavenaugh and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Boyer and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches;
Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: Spinks—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Shavenaugh—not hydric

118D—Spinks-Shavenaugh sands, 12 to 18 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Shavenaugh and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Boyer and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: Spinks—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Shavenaugh—not hydric

118E—Spinks-Shavenaugh sands, 18 to 35 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 55 percent
Shavenaugh and similar soils—35 to 45 percent

Minor components:
Coloma and similar soils—0 to 10 percent
Boyer and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: Spinks—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Shavenaugh—not hydric

118F—Spinks-Shavenaugh sands, 35 to 50 percent slopes

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Shavenaugh and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Boyer and similar soils—0 to 10 percent
Tekenink and similar soils—0 to 10 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Spinks—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Shavenaugh—not hydric

119—Madaus muck

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Madaus and similar soils—85 to 100 percent
Minor components:
Dair and similar soils—0 to 15 percent
Houghton and similar soils—0 to 10 percent

Typical Profile

Madaus
Oa—0 to 12 inches; black muck
Lca1—12 to 34 inches; light gray, mottled marly silt loam
Lca2—34 to 38 inches; light gray marly silt loam
2C1—38 to 62 inches; brown sand
3C2—62 to 80 inches; reddish brown clay

Soil Properties and Qualities

Parent material: Less than 16 inches of organic material over silty marl over sandy glaciofluvial deposits over clayey lacustrine deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 11.6 inches to a depth of 60 inches
Shrink-swell potential: High
Permeability: Slow
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: M/mc
Prime farmland category: Not prime farmland
Hydric soil status: Hydric

120B—Boyer-Shavenaugh complex, 0 to 6 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Boyer and similar soils—50 to 65 percent
Shavenaugh and similar soils—35 to 50 percent
Minor components:
Nessen and similar soils—0 to 5 percent
Covert and similar soils—0 to 5 percent
Coloma and similar soils—0 to 5 percent

Typical Profile

Boyer
A—0 to 3 inches; black fine sandy loam
E—3 to 4 inches; dark grayish brown gravelly sandy loam
Bt1—4 to 14 inches; dark yellowish brown gravelly sandy loam
Bt2—14 to 30 inches; dark brown gravelly sandy loam
2C1—30 to 45 inches; brown very gravelly sand
2C2—45 to 80 inches; pale brown and light yellowish brown gravelly sand and sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Boyer—loamy alluvium over sandy and gravelly glaciofluvial deposits; Shavenaugh—sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Boyer—low; Shavenaugh—negligible
Potential for frost action: Boyer—moderate; Shavenaugh—low
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Available water capacity: Boyer—about 5.7 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Boyer—moderate; Shavenaugh—low
Permeability: Boyer—moderate; Shavenaugh—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, soil blowing, droughtiness, nutrient loss, ground-water pollution; nutrient loss and low content of organic matter in areas of the Shavenaugh soil

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Boyer—rock fragments; Shavenaugh—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Boyer—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Boyer—not hydric; Shavenaugh—not hydric

120C—Boyer-Shavenaugh complex, 6 to 12 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Boyer and similar soils—50 to 65 percent
Shavenaugh and similar soils—35 to 50 percent
Minor components:
Nessen and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Boyer
A—0 to 3 inches; black fine sandy loam
E—3 to 4 inches; dark grayish brown gravelly sandy loam

Bt1—4 to 14 inches; dark yellowish brown gravelly sandy loam
Bt2—14 to 30 inches; dark brown gravelly sandy loam
2C1—30 to 45 inches; brown very gravelly sand
2C2—45 to 80 inches; pale brown and light yellowish brown gravelly sand and sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Boyer—loamy alluvium over sandy and gravelly glaciofluvial deposits; Shavenaugh—sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Boyer—medium; Shavenaugh—very low
Potential for frost action: Boyer—moderate; Shavenaugh—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Boyer—about 5.7 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Boyer—moderate; Shavenaugh—low
Permeability: Boyer—moderate; Shavenaugh—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, soil blowing, droughtiness, nutrient loss; ground-water pollution in areas of the Boyer soil; low content of organic matter in areas of the Shavenaugh soil

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Boyer—rock fragments; Shavenaugh—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: Boyer—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Boyer—not hydric; Shavenaugh—not hydric

120D—Boyer-Shavenaugh complex, 12 to 18 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Boyer and similar soils—50 to 65 percent
Shavenaugh and similar soils—35 to 50 percent
Minor components:
Nessen and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Boyer
A—0 to 3 inches; black fine sandy loam
E—3 to 4 inches; dark grayish brown gravelly sandy loam
Bt1—4 to 14 inches; dark yellowish brown gravelly sandy loam
Bt2—14 to 30 inches; dark brown gravelly sandy loam
2C1—30 to 45 inches; brown very gravelly sand
2C2—45 to 80 inches; pale brown and light yellowish brown gravelly sand and sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Boyer—loamy alluvium over sandy and gravelly glaciofluvial deposits; Shavenaugh—sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Boyer—medium; Shavenaugh—very low
Potential for frost action: Boyer—moderate; Shavenaugh—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Boyer—about 5.7 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Boyer—moderate; Shavenaugh—low
Permeability: Boyer—moderate; Shavenaugh—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Boyer—erosion, slope, rock fragments; Shavenaugh—erosion, slope, sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: Boyer—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Boyer—not hydric; Shavenaugh—not hydric

120E—Boyer-Shavenaugh complex, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Boyer and similar soils—50 to 65 percent
Shavenaugh and similar soils—35 to 50 percent
Minor components:
Nessen and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Boyer
A—0 to 3 inches; black fine sandy loam
E—3 to 4 inches; dark grayish brown gravelly sandy loam
Bt1—4 to 14 inches; dark yellowish brown gravelly sandy loam
Bt2—14 to 30 inches; dark brown gravelly sandy loam
2C1—30 to 45 inches; brown very gravelly sand
2C2—45 to 80 inches; pale brown and light yellowish brown gravelly sand and sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand
Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Boyer—loamy alluvium over sandy and gravelly glaciofluvial deposits; Shavenaugh—sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Boyer—high; Shavenaugh—low
Potential for frost action: Boyer—moderate; Shavenaugh—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Boyer—about 5.7 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches

Shrink-swell potential: Boyer—moderate; Shavenaugh—low
Permeability: Boyer—moderate; Shavenaugh—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Boyer—erosion, slope, rock fragments; Shavenaugh—erosion, slope, sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Boyer—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Boyer—not hydric; Shavenaugh—not hydric

120F—Boyer-Shavenaugh complex, 35 to 50 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Boyer and similar soils—50 to 65 percent
Shavenaugh and similar soils—35 to 50 percent
Minor components:
Nessen and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Boyer
A—0 to 3 inches; black fine sandy loam
E—3 to 4 inches; dark grayish brown gravelly sandy loam
Bt1—4 to 14 inches; dark yellowish brown gravelly sandy loam
Bt2—14 to 30 inches; dark brown gravelly sandy loam
2C1—30 to 45 inches; brown very gravelly sand
2C2—45 to 80 inches; pale brown and light yellowish brown gravelly sand and sand

Shavenaugh
A—0 to 5 inches; very dark grayish brown sand
E—5 to 8 inches; grayish brown sand
Bw1—8 to 16 inches; brown sand
Bw2—16 to 28 inches; dark yellowish brown sand
Bw3—28 to 34 inches; strong brown sand

Bt—34 to 44 inches; very dark brown loamy sand
2C—44 to 80 inches; light yellowish brown very gravelly sand

Soil Properties and Qualities

Parent material: Boyer—loamy alluvium over sandy and gravelly glaciofluvial deposits; Shavenaugh—sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Boyer—high; Shavenaugh—low
Potential for frost action: Boyer—moderate; Shavenaugh—low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Boyer—about 5.7 inches to a depth of 60 inches; Shavenaugh—about 4.4 inches to a depth of 60 inches
Shrink-swell potential: Boyer—moderate; Shavenaugh—low
Permeability: Boyer—moderate; Shavenaugh—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Boyer—rock fragments, severe erosion, slope; Shavenaugh—sandy textures, seedling mortality, severe erosion, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Boyer—4a; Shavenaugh—5a
Prime farmland category: Not prime farmland
Hydric soil status: Boyer—not hydric; Shavenaugh—not hydric

122—Dair-Adrian mucks

Setting

Landform: Drainageways and depressions on outwash plains and lake plains

Map Unit Composition

Major components:
Dair and similar soils—45 to 70 percent
Adrian and similar soils—30 to 50 percent
Minor components:
Covert and similar soils—0 to 10 percent

Typical Profile

Dair
Oa—0 to 4 inches; black muck
A—4 to 7 inches; very dark gray mucky sandy loam
Bw—7 to 11 inches; brownish yellow, mottled sand

C—11 to 21 inches; light olive brown sand
Cg1—21 to 50 inches; grayish brown sand
Cg2—50 to 80 inches; dark grayish brown sand

Adrian
Oa1—0 to 7 inches; black muck
Oa2—7 to 20 inches; black muck
Oa3—20 to 35 inches; very dusky red muck
Cg—35 to 80 inches; weak red sand

Soil Properties and Qualities

Parent material: Dair—sandy glaciofluvial deposits; Adrian—16 to 51 inches of organic material over sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Dair—moderate; Adrian—high
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Dair—about 5.3 inches to a depth of 60 inches; Adrian—about 15.5 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: January, February, June, July, August, September, December
Depth and months of deepest ponding: 0.5 foot (March, April, May, October, November)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness; excess humus and low strength in areas of the Adrian soil

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness; low strength and subsidence in areas of the Adrian soil

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness; low strength and subsidence in areas of the Adrian soil

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: Dair—5c; Adrian—M/4c
Prime farmland category: Not prime farmland
Hydric soil status: Dair—hydric; Adrian—hydric

123B—Platteriver-Pipestone sands, 0 to 4 percent slopes

Setting

Landform: Beach ridges, dunes

Map Unit Composition

Major components:
Platteriver and similar soils—50 to 60 percent
Pipestone and similar soils—35 to 50 percent
Minor components:
Dair and similar soils—0 to 10 percent

Typical Profile

Platteriver
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 14 inches; pinkish gray sand
Bw1—14 to 20 inches; brown sand
Bw2—20 to 29 inches; strong brown, mottled sand
C—29 to 80 inches; light yellowish brown, mottled sand

Pipestone
A—0 to 2 inches; black sand
E—2 to 9 inches; brown sand
Bhs—9 to 12 inches; reddish brown and dark reddish brown, mottled sand
Bs—12 to 24 inches; brown, mottled sand
BC—24 to 32 inches; yellowish brown, mottled sand
C—32 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 4 percent
Surface runoff class: Negligible
Potential for frost action: Platteriver—low; Pipestone—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Platteriver—moderately well drained; Pipestone—somewhat poorly drained
Available water capacity: Platteriver—about 3.7 inches to a depth of 60 inches; Pipestone—about 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: Platteriver—1.5 to 6.5 feet (April); Pipestone—0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Platteriver—sandy textures, seedling mortality; Pipestone—seasonal wetness, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4s

Michigan soil management group: Platteriver—5a; Pipestone—5b
Prime farmland category: Not prime farmland
Hydric soil status: Platteriver—not hydric; Pipestone—not hydric

125B—Spinks-Tekenink, sandy substratum, complex, 0 to 6 percent slopes

Setting

Landform: Till plains, moraines

Map Unit Composition

Major components:
Spinks and similar soils—40 to 55 percent
Tekenink, sandy substratum, and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Shavenaugh and similar soils—0 to 5 percent
Remus and similar soils—0 to 5 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Tekenink
Ap—0 to 8 inches; very dark grayish brown loamy fine sand
E—8 to 16 inches; brown loamy fine sand
Bw—16 to 21 inches; brown sandy loam
E/B—21 to 49 inches; light brown loamy sand and brown sandy loam
Bt—49 to 62 inches; reddish brown sandy loam
2C1—62 to 72 inches; reddish brown loamy sand
2C2—72 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Spinks—sandy glaciofluvial deposits; Tekenink—loamy and sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Spinks—negligible; Tekenink—very low
Potential for frost action: Spinks—low; Tekenink—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Tekenink—about 7.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Spinks—rapid; Tekenink—moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter; nutrient loss and droughtiness in areas of the Spinks soil; groundwater pollution in areas of the Tekenink soil

Pastureland
Major management concerns: Spinks—water erosion, droughtiness; Tekenink—water erosion

Forestland
Major management concerns: Spinks—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: Spinks—4a; Tekenink—3a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Tekenink—not hydric

125C—Spinks-Tekenink, sandy substratum, complex, 6 to 12 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 55 percent
Tekenink, sandy substratum, and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Remus and similar soils—0 to 5 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Tekenink
Ap—0 to 8 inches; very dark grayish brown loamy fine sand
E—8 to 16 inches; brown loamy fine sand

Bw—16 to 21 inches; brown sandy loam
E/B—21 to 49 inches; light brown loamy sand and brown sandy loam
Bt—49 to 62 inches; reddish brown sandy loam
2C1—62 to 72 inches; reddish brown loamy sand
2C2—72 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Spinks—sandy glaciofluvial deposits; Tekenink—loamy and sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Spinks—very low; Tekenink—low
Potential for frost action: Spinks—low; Tekenink—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Tekenink—about 7.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Spinks—rapid; Tekenink—moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter; nutrient loss and droughtiness in areas of the Spinks soil; groundwater pollution in areas of the Tekenink soil

Pastureland
Major management concerns: Spinks—water erosion, droughtiness; Tekenink—water erosion

Forestland
Major management concerns: Spinks—sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 3e
Michigan soil management group: Spinks—4a; Tekenink—3a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Tekenink—not hydric

125D—Spinks-Tekenink, sandy substratum, complex, 12 to 18 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Tekenink, sandy substratum, and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Remus and similar soils—0 to 5 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Tekenink
Ap—0 to 8 inches; very dark grayish brown loamy fine sand
E—8 to 16 inches; brown loamy fine sand
Bw—16 to 21 inches; brown sandy loam
E/B—21 to 49 inches; light brown loamy sand and brown sandy loam
Bt—49 to 62 inches; reddish brown sandy loam
2C1—62 to 72 inches; reddish brown loamy sand
2C2—72 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Spinks—sandy glaciofluvial deposits; Tekenink—loamy and sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Spinks—very low; Tekenink—low
Potential for frost action: Spinks—low; Tekenink—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Tekenink—about 7.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Spinks—rapid; Tekenink—moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, slope; sandy textures and seedling mortality in areas of the Spinks soil

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: Spinks—4a; Tekenink—3a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Tekenink—not hydric

125E—Spinks-Tekenink, sandy substratum, complex, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Tekenink, sandy substratum, and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Remus and similar soils—0 to 5 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Tekenink
Ap—0 to 8 inches; very dark grayish brown loamy fine sand
E—8 to 16 inches; brown loamy fine sand
Bw—16 to 21 inches; brown sandy loam
E/B—21 to 49 inches; light brown loamy sand and brown sandy loam
Bt—49 to 62 inches; reddish brown sandy loam
2C1—62 to 72 inches; reddish brown loamy sand
2C2—72 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Spinks—sandy glaciofluvial deposits; Tekenink—loamy and sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Spinks—low; Tekenink—medium
Potential for frost action: Spinks—low; Tekenink—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Tekenink—about 7.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Spinks—rapid; Tekenink—moderately rapid
Flooding: None

Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, slope; sandy textures and seedling mortality in areas of the Spinks soil

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: Spinks—4a; Tekenink—3a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Tekenink—not hydric

125F—Spinks-Tekenink, sandy substratum, complex, 35 to 50 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Spinks and similar soils—45 to 60 percent
Tekenink, sandy substratum, and similar soils—35 to 45 percent
Minor components:
Coloma and similar soils—0 to 15 percent
Remus and similar soils—0 to 5 percent
Shavenaugh and similar soils—0 to 5 percent

Typical Profile

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Tekenink
Ap—0 to 8 inches; very dark grayish brown loamy fine sand
E—8 to 16 inches; brown loamy fine sand
Bw—16 to 21 inches; brown sandy loam
E/B—21 to 49 inches; light brown loamy sand and brown sandy loam
Bt—49 to 62 inches; reddish brown sandy loam
2C1—62 to 72 inches; reddish brown loamy sand
2C2—72 to 80 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Spinks—sandy glaciofluvial deposits; Tekenink—loamy and sandy glaciofluvial deposits
Slope: 35 to 50 percent
Surface runoff class: Spinks—low; Tekenink—medium
Potential for frost action: Spinks—low; Tekenink—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Spinks—about 4.2 inches to a depth of 60 inches; Tekenink—about 7.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Spinks—rapid; Tekenink—moderately rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, slope; sandy textures and seedling mortality in areas of the Spinks soil

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Spinks—4a; Tekenink—3a
Prime farmland category: Not prime farmland
Hydric soil status: Spinks—not hydric; Tekenink—not hydric

126D—Filer fine sandy loam, 12 to 18 percent slopes

Setting

Landform: Till plains, moraines

Map Unit Composition

Major components:
Filer and similar soils—90 to 100 percent
Minor components:
Mollineaux and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Filer
Ap—0 to 9 inches; dark brown fine sandy loam
B/E—9 to 14 inches; reddish brown sandy clay loam and light brownish gray fine sandy loam
Bt—14 to 31 inches; brown sandy clay loam
C—31 to 80 inches; brown loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 12 to 18 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.0 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, slope

Building site development
Major management concerns: Slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: 2.5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

126E—Filer fine sandy loam, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Filer and similar soils—90 to 100 percent
Minor components:
Mollineaux and similar soils—0 to 10 percent
Coloma and similar soils—0 to 10 percent

Typical Profile

Filer
Ap—0 to 9 inches; dark brown fine sandy loam
B/E—9 to 14 inches; reddish brown sandy clay loam and light brownish gray fine sandy loam
Bt—14 to 31 inches; brown sandy clay loam
C—31 to 80 inches; brown loam

Soil Properties and Qualities

Parent material: Loamy till

Slope: 18 to 35 percent
Surface runoff class: Very high
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 10.0 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, clayey textures, soil rutting, slope

Building site development
Major management concerns: Slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: 2.5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

127B—Kaleva sand, deep water table, 0 to 6 percent slopes

Setting

Landform: Outwash plains, lake plains

Map Unit Composition

Major components:
Kaleva, deep water table, and similar soils—90 to 100 percent
Minor components:
Grattan and similar soils—0 to 5 percent
Nessen and similar soils—0 to 5 percent

Typical Profile

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand
C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 5.0 to 6.5 feet (January, February, March, April, May, September, October, November, December)
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

130A—Glendora-Algansee-Abscota complex, 0 to 3 percent slopes, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Major components:
Glendora and similar soils—30 to 50 percent
Algansee and similar soils—25 to 45 percent
Abscota and similar soils—20 to 35 percent
Minor components:
Adrian and similar soils—0 to 10 percent
Gorvan and similar soils—0 to 10 percent

Typical Profile

Glendora
A—0 to 6 inches; black mucky loamy sand
Cg1—6 to 9 inches; dark grayish brown loamy sand
Cg2—9 to 30 inches; grayish brown, mottled sand
Cg3—30 to 80 inches; brown sand

Algansee
A1—0 to 3 inches; very dark gray loamy fine sand
A2—3 to 9 inches; very dark gray, mottled loamy fine sand
C1—9 to 15 inches; pale brown, mottled sand
C2—15 to 21 inches; brown, mottled sand
Cg1—21 to 32 inches; grayish brown sand
2Cg2—32 to 37 inches; dark grayish brown gravelly sand
2Cg3—37 to 80 inches; stratified dark grayish brown sand and gravelly sand

Abscota
A—0 to 4 inches; very dark gray loamy fine sand
Bw1—4 to 9 inches; dark yellowish brown loamy fine sand
Bw2—9 to 18 inches; light yellowish brown fine sand
C1—18 to 28 inches; yellowish brown fine sand and sand
C2—28 to 32 inches; yellowish brown, mottled fine sand and sand
C3—32 to 36 inches; dark yellowish brown, mottled fine sand and sand
C4—36 to 40 inches; yellowish brown, mottled fine sand and sand
2C5—40 to 44 inches; stratified brown loamy sand and sand
3C6—44 to 80 inches; brown, mottled, stratified gravelly sand, sand, and very gravelly sand; very dark brown loamy sand and sandy loam

Soil Properties and Qualities

Parent material: Sandy alluvium
Slope: Glendora—0 to 2 percent; Algansee—0 to 3 percent; Abscota—0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Glendora—moderate; Algansee—moderate; Abscota—low
Depth to restrictive feature: More than 80 inches
Drainage class: Glendora—very poorly drained; Algansee—somewhat poorly drained; Abscota—moderately well drained
Available water capacity: Glendora—about 4.5 inches to a depth of 60 inches; Algansee—about 3.7 inches to a depth of 60 inches; Abscota—about 4.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Frequency of flooding: Glendora—frequent (March, April, May); Algansee—occasional (March, April, May); Abscota—occasional (March, April, May)
Depth to seasonal high water table: Glendora—at the surface (January, February, March, April, May, June, September, October, November, December); Algansee—0.5 foot to 6.5 feet (April, May); Abscota—2.5 to 6.5 feet (April, May, October)
Months in which ponding does not occur: Glendora—January, February, July, August, September, December; Algansee and Abscota—all year
Depth and months of deepest ponding: Glendora—0.5 foot (March, April, May, June, October, November); Algansee and Abscota—not ponded

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Glendora—severe wetness, seedling mortality, windthrow hazard, flooding; Algansee—seasonal wetness, seedling mortality, windthrow hazard, flooding; Abscota—sandy textures, seedling mortality, windthrow hazard, flooding

Building site development
Major management concerns: Glendora—ponding, cutbanks caving, flooding, severe wetness; Algansee and Abscota—seasonal wetness, cutbanks caving, flooding

Septic tank absorption fields
Major management concerns: Poor filtering capacity, flooding

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: Glendora—L-4c; Algansee—L-4c; Abscota—L-4a
Prime farmland category: Not prime farmland
Hydric soil status: Glendora—hydric; Algansee—not hydric; Abscota—not hydric

131A—Milarch loam, 0 to 3 percent slopes

Setting

Landform: Deltas, lake plains

Map Unit Composition

Major components:
Milarch and similar soils—90 to 100 percent
Minor components:
Coloma and similar soils—0 to 10 percent

Typical Profile

Milarch
Ap—0 to 9 inches; dark grayish brown loam
E—9 to 13 inches; brown loam
B/E—13 to 19 inches; brown clay loam and pale brown loam
Bt1—19 to 27 inches; brown clay loam
Bt2—27 to 30 inches; brown, mottled clay loam
2E and Bt1—30 to 39 inches; strong brown loamy sand with lamellae of brown sandy loam
2E and Bt2—39 to 80 inches; pale brown fine sand with lamellae of strong brown loamy sand and sandy loam

Soil Properties and Qualities

Parent material: Loamy over sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 7.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None

Depth to seasonal high water table: 2.0 to 6.5 feet (May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Clayey textures, soil rutting

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, seasonal wetness

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: 3/5a
Prime farmland category: Prime farmland
Hydric soil status: Not hydric

132A—Milnichol-Dair complex, 0 to 3 percent slopes

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Milnichol and similar soils—50 to 60 percent
Dair and similar soils—35 to 50 percent
Minor components:
Pipestone and similar soils—0 to 10 percent
Thompsonville and similar soils—0 to 5 percent

Typical Profile

Milnichol
A—0 to 2 inches; black fine sand
E—2 to 12 inches; gray, mottled fine sand
Bhs—12 to 15 inches; dark reddish brown, mottled fine sand
Bs1—15 to 25 inches; brown, mottled fine sand
Bs2—25 to 33 inches; strong brown, mottled fine sand
C1—33 to 47 inches; pale brown, mottled fine sand
2C2—47 to 50 inches; dark brown, mottled, stratified loamy fine sand and fine sandy loam
2C3—50 to 68 inches; brown, mottled silty clay loam
2C4—68 to 80 inches; grayish brown, mottled silt loam

Dair
Oa—0 to 4 inches; black muck
A—4 to 7 inches; very dark gray mucky sandy loam
Bw—7 to 11 inches; brownish yellow, mottled sand
C—11 to 21 inches; light olive brown sand

Cg1—21 to 50 inches; grayish brown sand
Cg2—50 to 80 inches; dark grayish brown sand

Soil Properties and Qualities

Parent material: Milnichol—40 to 60 inches of sandy glaciofluvial deposits over loamy alluvium; Dair—sandy glaciofluvial deposits
Slope: Milnichol—0 to 3 percent; Dair—0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Milnichol—somewhat poorly drained; Dair—very poorly drained
Available water capacity: Milnichol—about 5.6 inches to a depth of 60 inches; Dair—about 5.3 inches to a depth of 60 inches
Shrink-swell potential: Milnichol—high; Dair—low
Permeability: Milnichol—moderately slow; Dair—moderate
Flooding: None
Depth to seasonal high water table: Milnichol—0.5 foot to 6.5 feet (May); Dair—at the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: Milnichol—all year; Dair—January, February, June, July, August, September, December
Depth and months of deepest ponding: Milnichol—not ponded; Dair—0.5 foot (March, April, May, October, November)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Milnichol—seedling mortality; Dair—seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Milnichol—shrinking and swelling, cutbanks caving, seasonal wetness; Dair—ponding, severe wetness

Septic tank absorption fields
Major management concerns: Milnichol—restricted permeability, poor filtering capacity, severe wetness; Dair—ponding, poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: Milnichol—5/2b; Dair—5c
Prime farmland category: Not prime farmland
Hydric soil status: Milnichol—not hydric; Dair—hydric

135B—Nessen sand, 0 to 6 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Nessen and similar soils—85 to 100 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent

Kaleva and similar soils—0 to 10 percent
Boyer and similar soils—0 to 5 percent

Typical Profile

Nessen
A—0 to 4 inches; black sand
E—4 to 11 inches; reddish gray sand
Bhs—11 to 15 inches; dark reddish brown sand
Bs1—15 to 24 inches; reddish brown sand
Bs2—24 to 39 inches; strong brown sand
Bt—39 to 44 inches; dark brown gravelly sand
2C—44 to 80 inches; stratified yellowish brown sand and gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

135C—Nessen sand, 6 to 12 percent slopes

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Nessen and similar soils—85 to 100 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent

Kaleva and similar soils—0 to 10 percent
Boyer and similar soils—0 to 5 percent

Typical Profile

Nessen
A—0 to 4 inches; black sand
E—4 to 11 inches; reddish gray sand
Bhs—11 to 15 inches; dark reddish brown sand
Bs1—15 to 24 inches; reddish brown sand
Bs2—24 to 39 inches; strong brown sand
Bt—39 to 44 inches; dark brown gravelly sand
2C—44 to 80 inches; stratified yellowish brown sand and gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

136B—Nessen-Kaleva sands, 0 to 6 percent slopes

Setting

Landform: Lake plains, moraines, outwash plains

Map Unit Composition

Major components:
Nessen and similar soils—50 to 60 percent
Kaleva and similar soils—35 to 50 percent

Minor components:
Shavenaugh and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 5 percent
Boyer and similar soils—0 to 5 percent

Typical Profile

Nessen
A—0 to 4 inches; black sand
E—4 to 11 inches; reddish gray sand
Bhs—11 to 15 inches; dark reddish brown sand
Bs1—15 to 24 inches; reddish brown sand
Bs2—24 to 39 inches; strong brown sand
Bt—39 to 44 inches; dark brown gravelly sand
2C—44 to 80 inches; stratified yellowish brown sand and gravelly sand

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand
C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Nessen—well drained; Kaleva—excessively drained
Available water capacity: Nessen—about 3.7 inches to a depth of 60 inches; Kaleva—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: Nessen—5a; Kaleva—5a
Prime farmland category: Not prime farmland
Hydric soil status: Nessen—not hydric; Kaleva—not hydric

136C—Nessen-Kaleva sands, 6 to 12 percent slopes

Setting

Landform: Lake plains, moraines, outwash plains

Map Unit Composition

Major components:
Nessen and similar soils—50 to 60 percent
Kaleva and similar soils—35 to 50 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 10 percent
Boyer and similar soils—0 to 5 percent

Typical Profile

Nessen
A—0 to 4 inches; black sand
E—4 to 11 inches; reddish gray sand
Bhs—11 to 15 inches; dark reddish brown sand
Bs1—15 to 24 inches; reddish brown sand
Bs2—24 to 39 inches; strong brown sand
Bt—39 to 44 inches; dark brown gravelly sand
2C—44 to 80 inches; stratified yellowish brown sand and gravelly sand

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand
C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 12 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Nessen—well drained; Kaleva—excessively drained
Available water capacity: Nessen—about 3.7 inches to a depth of 60 inches; Kaleva—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Cropland and pastureland
Other uses: Forestland

Cropland
Major management concerns: Water erosion, severe soil blowing, low content of organic matter, droughtiness, nutrient loss

Pastureland
Major management concerns: Water erosion, droughtiness

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Nessen—5a; Kaleva—5a
Prime farmland category: Not prime farmland
Hydric soil status: Nessen—not hydric; Kaleva—not hydric

136D—Nessen-Kaleva sands, 12 to 18 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Nessen and similar soils—50 to 60 percent
Kaleva and similar soils—35 to 50 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 10 percent
Boyer and similar soils—0 to 5 percent

Typical Profile

Nessen
A—0 to 4 inches; black sand
E—4 to 11 inches; reddish gray sand
Bhs—11 to 15 inches; dark reddish brown sand
Bs1—15 to 24 inches; reddish brown sand
Bs2—24 to 39 inches; strong brown sand
Bt—39 to 44 inches; dark brown gravelly sand
2C—44 to 80 inches; stratified yellowish brown sand and gravelly sand

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand

Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand
C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Nessen—well drained; Kaleva—excessively drained
Available water capacity: Nessen—about 3.7 inches to a depth of 60 inches; Kaleva—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: Nessen—5a; Kaleva—5a
Prime farmland category: Not prime farmland
Hydric soil status: Nessen—not hydric; Kaleva—not hydric

136E—Nessen-Kaleva sands, 18 to 35 percent slopes

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Nessen and similar soils—50 to 60 percent
Kaleva and similar soils—35 to 50 percent
Minor components:
Shavenaugh and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 10 percent
Boyer and similar soils—0 to 5 percent

Typical Profile

Nessen
A—0 to 4 inches; black sand
E—4 to 11 inches; reddish gray sand
Bhs—11 to 15 inches; dark reddish brown sand
Bs1—15 to 24 inches; reddish brown sand
Bs2—24 to 39 inches; strong brown sand
Bt—39 to 44 inches; dark brown gravelly sand
2C—44 to 80 inches; stratified yellowish brown sand and gravelly sand

Kaleva
A—0 to 3 inches; very dark gray sand
E—3 to 9 inches; brown sand
Bhs—9 to 11 inches; dark reddish brown sand
Bs1—11 to 16 inches; brown sand
Bs2—16 to 21 inches; dark yellowish brown sand
C1—21 to 70 inches; light yellowish brown sand
C2—70 to 80 inches; very pale brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 35 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Nessen—well drained; Kaleva—excessively drained
Available water capacity: Nessen—about 3.7 inches to a depth of 60 inches; Kaleva—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: Nessen—5a; Kaleva—5a
Prime farmland category: Not prime farmland
Hydric soil status: Nessen—not hydric; Kaleva—not hydric

138D—Mollineaux-Spinks complex, 12 to 18 percent slopes

Setting

Landform: Stream terraces, lake terraces, moraines

Map Unit Composition

Major components:
Mollineaux and similar soils—50 to 60 percent
Spinks and similar soils—35 to 50 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 5 percent
Onekama and similar soils—0 to 5 percent

Typical Profile

Mollineaux
A—0 to 6 inches; dark brown loamy sand
E—6 to 9 inches; brown loamy sand
Bs1—9 to 15 inches; brown loamy sand
Bs2—15 to 27 inches; dark yellowish brown loamy sand
E and Bt—27 to 38 inches; light brown loamy sand with lamellae of strong brown loamy sand
B/E—38 to 64 inches; reddish brown clay loam and pinkish gray loam
E´ and B´t—64 to 80 inches; light yellowish brown sand with lamellae of dark yellowish brown loamy sand

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Mollineaux—sandy glaciofluvial deposits over loamy till; Spinks—sandy glaciofluvial deposits
Slope: 12 to 18 percent
Surface runoff class: Mollineaux—low; Spinks—very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Mollineaux—about 6.7 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Mollineaux—moderate; Spinks—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity; restricted permeability in areas of the Mollineaux soil

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: Mollineaux—4/2a; Spinks—4a
Prime farmland category: Not prime farmland
Hydric soil status: Mollineaux—not hydric; Spinks—not hydric

138E—Mollineaux-Spinks complex, 18 to 35 percent slopes

Setting

Landform: Stream terraces, lake terraces, moraines

Map Unit Composition

Major components:
Mollineaux and similar soils—50 to 60 percent
Spinks and similar soils—35 to 50 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 5 percent
Onekama and similar soils—0 to 5 percent

Typical Profile

Mollineaux
A—0 to 6 inches; dark brown loamy sand
E—6 to 9 inches; brown loamy sand
Bs1—9 to 15 inches; brown loamy sand
Bs2—15 to 27 inches; dark yellowish brown loamy sand
E and Bt—27 to 38 inches; light brown loamy sand with lamellae of strong brown loamy sand
B/E—38 to 64 inches; reddish brown clay loam and pinkish gray loam
E´ and B´t—64 to 80 inches; light yellowish brown sand with lamellae of dark yellowish brown loamy sand

Spinks
Ap—0 to 5 inches; dark brown sand
Bw1—5 to 10 inches; strong brown sand
Bw2—10 to 17 inches; yellowish brown sand
E and Bt1—17 to 62 inches; pale brown sand with lamellae of brown loamy sand
E and Bt2—62 to 72 inches; light brown sand with lamellae of brown loamy sand
C—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Mollineaux—sandy glaciofluvial deposits over loamy till; Spinks—sandy glaciofluvial deposits

Slope: 18 to 35 percent
Surface runoff class: Mollineaux—medium; Spinks—low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Mollineaux—about 6.7 inches to a depth of 60 inches; Spinks—about 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Mollineaux—moderate; Spinks—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity; restricted permeability in areas of the Mollineaux soil

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Mollineaux—4/2a; Spinks—4a
Prime farmland category: Not prime farmland
Hydric soil status: Mollineaux—not hydric; Spinks—not hydric

139D—Mollineaux-Remus complex, 12 to 18 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Mollineaux and similar soils—50 to 60 percent
Remus and similar soils—35 to 50 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 5 percent
Onekama and similar soils—0 to 5 percent

Typical Profile

Mollineaux
A—0 to 6 inches; dark brown loamy sand
E—6 to 9 inches; brown loamy sand
Bs1—9 to 15 inches; brown loamy sand
Bs2—15 to 27 inches; dark yellowish brown loamy sand

E and Bt—27 to 38 inches; light brown loamy sand with lamellae of strong brown loamy sand
B/E—38 to 64 inches; reddish brown clay loam and pinkish gray loam
E´ and B´t—64 to 80 inches; light yellowish brown sand with lamellae of dark yellowish brown loamy sand

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Soil Properties and Qualities

Parent material: Mollineaux—sandy glaciofluvial deposits over loamy till; Remus—loamy till
Slope: 12 to 18 percent
Surface runoff class: Mollineaux—low; Remus—high
Potential for frost action: Mollineaux—low; Remus—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Mollineaux—about 6.7 inches to a depth of 60 inches; Remus—about 10.0 inches to a depth of 60 inches
Shrink-swell potential: Mollineaux—low; Remus—moderate
Permeability: Mollineaux—moderate; Remus—moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, slope; sandy textures and seedling mortality in areas of the Mollineaux soil

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability; poor filtering capacity in areas of the Mollineaux soil

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: Mollineaux—4/2a; Remus—3a
Prime farmland category: Not prime farmland
Hydric soil status: Mollineaux—not hydric; Remus—not hydric

139E—Mollineaux-Remus complex, 18 to 35 percent slopes

Setting

Landform: Moraines

Map Unit Composition

Major components:
Mollineaux and similar soils—50 to 60 percent
Remus and similar soils—35 to 50 percent
Minor components:
Coloma and similar soils—0 to 10 percent
Benzonia and similar soils—0 to 5 percent
Onekama and similar soils—0 to 5 percent

Typical Profile

Mollineaux
A—0 to 6 inches; dark brown loamy sand
E—6 to 9 inches; brown loamy sand
Bs1—9 to 15 inches; brown loamy sand
Bs2—15 to 27 inches; dark yellowish brown loamy sand
E and Bt—27 to 38 inches; light brown loamy sand with lamellae of strong brown loamy sand
B/E—38 to 64 inches; reddish brown clay loam and pinkish gray loam
E´ and B´t—64 to 80 inches; light yellowish brown sand with lamellae of dark yellowish brown loamy sand

Remus
Ap—0 to 9 inches; dark brown fine sandy loam
Bw—9 to 15 inches; light yellowish brown fine sandy loam
E/B—15 to 24 inches; brown loamy sand and brown loam
B/E—24 to 35 inches; brown sandy clay loam and light reddish brown sandy loam
Bt—35 to 66 inches; brown sandy clay loam
C—66 to 80 inches; brown loam

Soil Properties and Qualities

Parent material: Mollineaux—sandy glaciofluvial deposits over loamy till; Remus—loamy till
Slope: 18 to 35 percent
Surface runoff class: Mollineaux—medium; Remus—very high
Potential for frost action: Mollineaux—low; Remus—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: Mollineaux—about 6.7 inches to a depth of 60 inches; Remus—about 10.0 inches to a depth of 60 inches
Shrink-swell potential: Mollineaux—low; Remus—moderate
Permeability: Mollineaux—moderate; Remus—moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, slope; sandy textures and seedling mortality in areas of the Mollineaux soil

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability; poor filtering capacity in areas of the Mollineaux soil

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: Mollineaux—4/2a; Remus—3a
Prime farmland category: Not prime farmland
Hydric soil status: Mollineaux—not hydric; Remus—not hydric

210B—Plainfield sand, nearly level and undulating

Setting

Landform: Lake plains, moraines, outwash plains

Map Unit Composition

Major components:
Plainfield and similar soils—100 percent

Typical Profile

Plainfield
A—0 to 2 inches; black sand
Bw1—2 to 6 inches; brown sand
Bw2—6 to 19 inches; strong brown sand
BC—19 to 24 inches; yellowish brown sand
C—24 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

210C—Plainfield sand, rolling

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Plainfield and similar soils—100 percent

Typical Profile

Plainfield
A—0 to 2 inches; black sand
Bw1—2 to 6 inches; brown sand
Bw2—6 to 19 inches; strong brown sand
BC—19 to 24 inches; yellowish brown sand
C—24 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

210D—Plainfield sand, hilly

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Plainfield and similar soils—100 percent

Typical Profile

Plainfield
A—0 to 2 inches; black sand
Bw1—2 to 6 inches; brown sand
Bw2—6 to 19 inches; strong brown sand
BC—19 to 24 inches; yellowish brown sand
C—24 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

211B—Plainfield sand, banded substratum, nearly level and undulating

Setting

Landform: Outwash plains, lake plains, moraines

Map Unit Composition

Major components:
Plainfield, banded substratum, and similar soils—100 percent

Typical Profile

Plainfield, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 5 inches; very dark grayish brown sand
Bw1—5 to 19 inches; dark yellowish brown fine sand
Bw2—19 to 31 inches; yellowish brown fine sand
BC—31 to 121 inches; light yellowish brown fine sand
C—121 to 160 inches; fine sand
E and Bt—160 to 180 inches; light yellowish brown coarse sand with bands of loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

212B—Plainfield sand, very deep water table, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Plainfield, very deep water table, and similar soils—100 percent

Typical Profile

Plainfield, very deep water table
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; black sand
Bw1—3 to 13 inches; dark yellowish brown sand
Bw2—13 to 21 inches; yellowish brown sand
BC—21 to 115 inches; light yellowish brown sand
C1—115 to 127 inches; pale brown coarse sand
C2—127 to 135 inches; yellowish brown, mottled fine sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 6 to 11 feet all year
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

215B—Plainfield sand, loamy substratum, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Plainfield, loamy substratum, and similar soils—100 percent

Typical Profile

Plainfield, loamy substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; dark grayish brown sand
Bw1—3 to 7 inches; brown sand
Bw2—7 to 25 inches; dark yellowish brown sand
BC—25 to 40 inches; yellowish brown sand
C—40 to 121 inches; light yellowish brown sand
E and Bt—121 to 139 inches; light yellowish brown sand with bands of reddish brown clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over bands of loamy alluvium
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: 5.3a
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

220B—Typic Udipsamments, nearly level and undulating

Setting

Landform: Stream terraces, lake terraces, moraines, outwash plains

Map Unit Composition

Major components:
Typic Udipsamments and similar soils—100 percent

Typical Profile

Typic Udipsamments
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark gray sand
Bw—3 to 23 inches; dark yellowish brown sand
BC—23 to 41 inches; yellowish brown sand
C—41 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

220C—Typic Udipsamments, rolling

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Typic Udipsamments and similar soils—100 percent

Typical Profile

Typic Udipsamments
Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 3 inches; very dark gray sand
Bw—3 to 23 inches; dark yellowish brown sand
BC—23 to 41 inches; yellowish brown sand
C—41 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

220D—Typic Udipsamments, hilly

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Typic Udipsamments and similar soils—100 percent

Typical Profile

Typic Udipsamments
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark gray sand
Bw—3 to 23 inches; dark yellowish brown sand
BC—23 to 41 inches; yellowish brown sand
C—41 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

220E—Typic Udipsamments, steep

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Typic Udipsamments and similar soils—100 percent

Typical Profile

Typic Udipsamments
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark gray sand
Bw—3 to 23 inches; dark yellowish brown sand
BC—23 to 41 inches; yellowish brown sand
C—41 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 30 to 45 percent
Surface runoff class: Low
Potential for frost action: Low

Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

220F—Typic Udipsamments, very steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Udipsamments and similar soils—100 percent

Typical Profile

Typic Udipsamments
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark gray sand
Bw—3 to 23 inches; dark yellowish brown sand
BC—23 to 41 inches; yellowish brown sand
C—41 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 45 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid

Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

221B—Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, nearly level and undulating

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Typic Udipsamments, banded substratum, and similar soils—55 percent
Lamellic Udipsamments and similar soils—45 percent

Typical Profile

Typic Udipsamments, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; grayish brown sand
Bw1—4 to 15 inches; brown sand
Bw2—15 to 21 inches; dark yellowish brown sand
BC—21 to 32 inches; yellowish brown sand
C1—32 to 119 inches; light yellowish brown sand
C2—119 to 127 inches; dark yellowish brown gravelly sand
C3—127 to 131 inches; brown coarse sand with bands of sandy clay loam

Lamellic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; very dark grayish brown sand
Bw1—4 to 21 inches; dark yellowish brown sand
Bw2—21 to 31 inches; yellowish brown sand
E and Bt—31 to 100 inches; light yellowish brown sand with lamellae of strong brown and brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits

Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Typic Udipsamments—about 3.6 inches to a depth of 60 inches; Lamellic Udipsamments—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Udipsamments—not hydric; Lamellic Udipsamments—not hydric

221C—Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, rolling

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Typic Udipsamments, banded substratum, and similar soils—55 percent
Lamellic Udipsamments and similar soils—45 percent

Typical Profile

Typic Udipsamments, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; grayish brown sand
Bw1—4 to 15 inches; brown sand
Bw2—15 to 21 inches; dark yellowish brown sand
BC—21 to 32 inches; yellowish brown sand
C1—32 to 119 inches; light yellowish brown sand
C2—119 to 127 inches; dark yellowish brown gravelly sand
C3—127 to 131 inches; brown coarse sand with bands of sandy clay loam

Lamellic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; very dark grayish brown sand
Bw1—4 to 21 inches; dark yellowish brown sand
Bw2—21 to 31 inches; yellowish brown sand
E and Bt—31 to 100 inches; light yellowish brown sand with lamellae of strong brown and brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Typic Udipsamments—about 3.6 inches to a depth of 60 inches; Lamellic Udipsamments—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Udipsamments—not hydric; Lamellic Udipsamments—not hydric

221D—Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, hilly

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Udipsamments, banded substratum, and similar soils—55 percent
Lamellic Udipsamments and similar soils—45 percent

Typical Profile

Typic Udipsamments, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; grayish brown sand
Bw1—4 to 15 inches; brown sand
Bw2—15 to 21 inches; dark yellowish brown sand
BC—21 to 32 inches; yellowish brown sand
C1—32 to 119 inches; light yellowish brown sand
C2—119 to 127 inches; dark yellowish brown gravelly sand
C3—127 to 131 inches; brown coarse sand with bands of sandy clay loam

Lamellic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; very dark grayish brown sand
Bw1—4 to 21 inches; dark yellowish brown sand
Bw2—21 to 31 inches; yellowish brown sand
E and Bt—31 to 100 inches; light yellowish brown sand with lamellae of strong brown and brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Typic Udipsamments—about 3.6 inches to a depth of 60 inches; Lamellic Udipsamments—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Udipsamments—not hydric; Lamellic Udipsamments—not hydric

221E—Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Udipsamments, banded substratum, and similar soils—55 percent
Lamellic Udipsamments and similar soils—45 percent

Typical Profile

Typic Udipsamments, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; grayish brown sand
Bw1—4 to 15 inches; brown sand
Bw2—15 to 21 inches; dark yellowish brown sand
BC—21 to 32 inches; yellowish brown sand
C1—32 to 119 inches; light yellowish brown sand
C2—119 to 127 inches; dark yellowish brown gravelly sand
C3—127 to 131 inches; brown coarse sand with bands of sandy clay loam

Lamellic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; very dark grayish brown sand
Bw1—4 to 21 inches; dark yellowish brown sand
Bw2—21 to 31 inches; yellowish brown sand
E and Bt—31 to 100 inches; light yellowish brown sand with lamellae of strong brown and brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Typic Udipsamments—about 3.6 inches to a depth of 60 inches; Lamellic Udipsamments—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Udipsamments—not hydric; Lamellic Udipsamments—not hydric

221F—Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, very steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Udipsamments, banded substratum, and similar soils—55 percent
Lamellic Udipsamments and similar soils—45 percent

Typical Profile

Typic Udipsamments, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; grayish brown sand
Bw1—4 to 15 inches; brown sand
Bw2—15 to 21 inches; dark yellowish brown sand
BC—21 to 32 inches; yellowish brown sand
C1—32 to 119 inches; light yellowish brown sand
C2—119 to 127 inches; dark yellowish brown gravelly sand
C3—127 to 131 inches; brown coarse sand with bands of sandy clay loam

Lamellic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; very dark grayish brown sand
Bw1—4 to 21 inches; dark yellowish brown sand
Bw2—21 to 31 inches; yellowish brown sand
E and Bt—31 to 100 inches; light yellowish brown sand with lamellae of strong brown and brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 45 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Typic Udipsamments—about 3.6 inches to a depth of 60 inches; Lamellic Udipsamments—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Udipsamments—not hydric; Lamellic Udipsamments—not hydric

222B—Typic Udipsamments, very deep water table, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Typic Udipsamments, very deep water table, and similar soils—100 percent

Typical Profile

Typic Udipsamments, very deep water table
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; black sand
Bw—4 to 32 inches; strong brown sand
C1—32 to 43 inches; light yellowish brown sand
C2—43 to 58 inches; light yellowish brown, mottled sand
C3—58 to 84 inches; light brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid

Flooding: None
Depth to seasonal high water table: 6 to 7 feet all year
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

222C—Typic Udipsamments, very deep water table, rolling

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Typic Udipsamments, very deep water table, and similar soils—100 percent

Typical Profile

Typic Udipsamments, very deep water table
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; black sand
Bw—4 to 32 inches; strong brown sand
C1—32 to 43 inches; light yellowish brown sand
C2—43 to 58 inches; light yellowish brown, mottled sand
C3—58 to 84 inches; light brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 6 to 7 feet all year
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

223B—Lamellic Udipsamments-Typic Udipsamments, banded substratum, complex, nearly level and undulating

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Lamellic Udipsamments and similar soils—55 percent
Typic Udipsamments, banded substratum, and similar soils—45 percent

Typical Profile

Lamellic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; very dark grayish brown sand
Bw1—4 to 21 inches; dark yellowish brown sand
Bw2—21 to 31 inches; yellowish brown sand
E and Bt—31 to 100 inches; light yellowish brown sand with lamellae of strong brown and brown loamy sand

Typic Udipsamments, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; grayish brown sand
Bw1—4 to 15 inches; brown sand
Bw2—15 to 21 inches; dark yellowish brown sand
BC—21 to 32 inches; yellowish brown sand
C1—32 to 119 inches; light yellowish brown sand
C2—119 to 127 inches; dark yellowish brown gravelly sand
C3—127 to 131 inches; brown coarse sand with bands of sandy clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible

Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Lamellic Udipsamments—about 4.7 inches to a depth of 60 inches; Typic Udipsamments—about 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Lamellic Udipsamments—not hydric; Typic Udipsamments—not hydric

223C—Lamellic Udipsamments-Typic Udipsamments, banded substratum, complex, rolling

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Lamellic Udipsamments and similar soils—55 percent
Typic Udipsamments, banded substratum, and similar soils—45 percent

Typical Profile

Lamellic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 4 inches; very dark grayish brown sand
Bw1—4 to 21 inches; dark yellowish brown sand
Bw2—21 to 31 inches; yellowish brown sand
E and Bt—31 to 100 inches; light yellowish brown sand with lamellae of strong brown and brown loamy sand

Typic Udipsamments, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; grayish brown sand
Bw1—4 to 15 inches; brown sand

Bw2—15 to 21 inches; dark yellowish brown sand
BC—21 to 32 inches; yellowish brown sand
C1—32 to 119 inches; light yellowish brown sand
C2—119 to 127 inches; dark yellowish brown gravelly sand
C3—127 to 131 inches; brown coarse sand with bands of sandy clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Lamellic Udipsamments—about 4.7 inches to a depth of 60 inches; Typic Udipsamments—about 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Lamellic Udipsamments—not hydric; Typic Udipsamments—not hydric

224B—Oxyaquic Udipsamments, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Oxyaquic Udipsamments and similar soils—100 percent

Typical Profile

Oxyaquic Udipsamments
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; black sand

E—2 to 3 inches; brown sand
Bw1—3 to 15 inches; dark yellowish brown sand
Bw2—15 to 24 inches; dark yellowish brown sand
BC—24 to 29 inches; brownish yellow sand
C1—29 to 40 inches; light yellowish brown, mottled sand
C2—40 to 49 inches; light yellowish brown, mottled sand
C3—49 to 85 inches; very pale brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.5 to 7.0 feet (February, March, April, October, November)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

225B—Typic Udipsamments, loamy substratum, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Typic Udipsamments, loamy substratum, and similar soils—100 percent

Typical Profile

Typic Udipsamments, loamy substratum
Oi—0 to 1 inch; slightly decomposed plant material

A—1 to 2 inches; black sand
E—2 to 5 inches; brown sand
Bw—5 to 32 inches; strong brown sand
C1—32 to 40 inches; yellowish brown sand
C2—40 to 49 inches; brownish yellow fine sand
C3—49 to 85 inches; brownish yellow sand
C4—85 to 180 inches; stratified brownish yellow fine sandy loam and clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

225C—Typic Udipsamments, loamy substratum, rolling

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Udipsamments, loamy substratum, and similar soils—100 percent

Typical Profile

Typic Udipsamments, loamy substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; black sand
E—2 to 5 inches; brown sand
Bw—5 to 32 inches; strong brown sand

C1—32 to 40 inches; yellowish brown sand
C2—40 to 49 inches; brownish yellow fine sand
C3—49 to 85 inches; brownish yellow sand
C4—85 to 180 inches; stratified brownish yellow fine sandy loam and clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

225D—Typic Udipsamments, loamy substratum, hilly

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Udipsamments, loamy substratum, and similar soils—100 percent

Typical Profile

Typic Udipsamments, loamy substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; black sand
E—2 to 5 inches; brown sand
Bw—5 to 32 inches; strong brown sand
C1—32 to 40 inches; yellowish brown sand
C2—40 to 49 inches; brownish yellow fine sand

C3—49 to 85 inches; brownish yellow sand
C4—85 to 180 inches; stratified brownish yellow fine sandy loam and clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 3.9 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

230B—Entic Haplorthods, sandy, nearly level and undulating

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Entic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Entic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 4 inches; very dark gray sand
E—4 to 6 inches; pinkish gray sand
Bs—6 to 21 inches; strong brown sand
BC—21 to 36 inches; reddish yellow sand
C—36 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

230C—Entic Haplorthods, sandy, rolling

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Entic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Entic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 4 inches; very dark gray sand
E—4 to 6 inches; pinkish gray sand
Bs—6 to 21 inches; strong brown sand
BC—21 to 36 inches; reddish yellow sand
C—36 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low

Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

230D—Entic Haplorthods, sandy, hilly

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Entic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Entic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 4 inches; very dark gray sand
E—4 to 6 inches; pinkish gray sand
Bs—6 to 21 inches; strong brown sand
BC—21 to 36 inches; reddish yellow sand
C—36 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low

Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

230E—Entic Haplorthods, sandy, steep

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Entic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Entic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 4 inches; very dark gray sand
E—4 to 6 inches; pinkish gray sand
Bs—6 to 21 inches; strong brown sand
BC—21 to 36 inches; reddish yellow sand
C—36 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 30 to 45 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

230F—Entic Haplorthods, sandy, very steep

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Entic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Entic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 4 inches; very dark gray sand
E—4 to 6 inches; pinkish gray sand
Bs—6 to 21 inches; strong brown sand
BC—21 to 36 inches; reddish yellow sand
C—36 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 45 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 4.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

231B—Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, nearly level and undulating

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Entic Haplorthods, sandy, banded substratum, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand
BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible

Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Entic Haplorthods—about 3.7 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Entic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

231C—Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, rolling

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Entic Haplorthods, sandy, banded substratum, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand
BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand

E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Entic Haplorthods—about 3.7 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Entic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

231D—Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, hilly

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Entic Haplorthods, sandy, banded substratum, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material

A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand
BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Entic Haplorthods—about 3.7 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Entic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

231E—Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, steep

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Entic Haplorthods, sandy, banded substratum, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand
BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 30 to 45 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Entic Haplorthods—about 3.7 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Entic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

232B—Entic Haplorthods-Lamellic Haplorthods complex, sandy, very deep water table, nearly level and undulating

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Entic Haplorthods, sandy, very deep water table, and similar soils—55 percent
Lamellic Haplorthods, sandy, very deep water table, and similar soils—45 percent

Typical Profile

Entic Haplorthods, sandy, very deep water table
Oi—0 to 2 inches; slightly decomposed plant material
A—2 to 6 inches; dark gray sand
E—6 to 10 inches; grayish brown sand
Bs—10 to 22 inches; brown sand
BC—22 to 61 inches; yellowish brown sand
C1—61 to 85 inches; light yellowish brown sand
C2—85 to 156 inches; yellowish brown, mottled fine sand
C3—156 to 167 inches; yellowish brown, mottled sand

Lamellic Haplorthods, sandy, very deep water table
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; dark brown sand
E—2 to 4 inches; dark grayish brown sand
Bs1—4 to 7 inches; strong brown sand
Bs2—7 to 17 inches; dark yellowish brown sand
Bs3—17 to 21 inches; yellowish brown sand
BC—21 to 64 inches; light yellowish brown sand
E and Bt—64 to 68 inches; brown sand with lamellae of brown sandy clay loam
C1—68 to 88 inches; brown sand
C2—88 to 115 inches; brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained

Available water capacity: Entic Haplorthods—about 3.6 inches to a depth of 60 inches; Lamellic Haplorthods—about 5.3 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 6 to 15 feet all year
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Entic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

233B—Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, nearly level and undulating

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Lamellic Haplorthods, sandy, and similar soils—55 percent
Entic Haplorthods, sandy, banded substratum, and similar soils—45 percent

Typical Profile

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand

BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches; Entic Haplorthods—about 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Lamellic Haplorthods—not hydric; Entic Haplorthods—not hydric

233C—Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, rolling

Setting

Landform: Moraines

Map Unit Composition

Major components:
Lamellic Haplorthods, sandy, and similar soils—55 percent
Entic Haplorthods, sandy, banded substratum, and similar soils—45 percent

Typical Profile

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand

Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand
BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches; Entic Haplorthods—about 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Lamellic Haplorthods—not hydric; Entic Haplorthods—not hydric

233D—Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, hilly

Setting

Landform: Moraines

Map Unit Composition

Major components:
Lamellic Haplorthods, sandy, and similar soils—55 percent
Entic Haplorthods, sandy, banded substratum, and similar soils—45 percent

Typical Profile

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand
BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches; Entic Haplorthods—about 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s

Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Lamellic Haplorthods—not hydric; Entic Haplorthods—not hydric

233E—Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Lamellic Haplorthods, sandy, and similar soils—55 percent
Entic Haplorthods, sandy, banded substratum, and similar soils—45 percent

Typical Profile

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Entic Haplorthods, sandy, banded substratum
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark brown sand
E—2 to 3 inches; grayish brown sand
Bs1—3 to 19 inches; strong brown sand
Bs2—19 to 25 inches; yellowish brown sand
BC—25 to 56 inches; yellowish brown sand
C—56 to 85 inches; light brown sand
E and Bt—85 to 180 inches; light brown sand with lamellae of reddish brown sandy loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 30 to 45 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches; Entic Haplorthods—about 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Lamellic Haplorthods—not hydric; Entic Haplorthods—not hydric

234B—Oxyaquic Haplorthods, sandy, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Oxyaquic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Oxyaquic Haplorthods, sandy
A—0 to 2 inches; black sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 7 inches; brown sand
Bs2—7 to 17 inches; strong brown sand
C1—17 to 23 inches; brownish yellow sand
C2—23 to 30 inches; brownish yellow, mottled sand
C3—30 to 54 inches; brownish yellow, mottled sand
C4—54 to 70 inches; brownish yellow, mottled sand
C5—70 to 84 inches; yellowish brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: 2.5 to 7.0 feet (February, March, April, October, November)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

235B—Alfic Haplorthods-Lamellic Haplorthods complex, sandy, nearly level and undulating

Setting

Landform: Moraines

Map Unit Composition

Major components:
Alfic Haplorthods, sandy, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Alfic Haplorthods, sandy
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; very dark grayish brown loamy sand
E—5 to 6 inches; light gray sand
Bs1—6 to 9 inches; strong brown sand
Bs2—9 to 24 inches; dark yellowish brown sand
BC—24 to 44 inches; yellowish brown sand
2Bt—44 to 52 inches; brown sandy loam
3C1—52 to 84 inches; light yellowish brown sand
3C2—84 to 92 inches; yellowish brown loamy sand
3C3—92 to 180 inches; light yellowish brown sand

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Alfic Haplorthods—sandy over loamy glaciofluvial deposits; Lamellic Haplorthods—sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Alfic Haplorthods—well drained; Lamellic Haplorthods—excessively drained
Available water capacity: Alfic Haplorthods—about 5.1 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Alfic Haplorthods—moderately slow; Lamellic Haplorthods—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity; restricted permeability in areas of the Alfic Haplorthods

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Alfic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

235C—Alfic Haplorthods-Lamellic Haplorthods complex, sandy, rolling

Setting

Landform: Moraines

Map Unit Composition

Major components:
Alfic Haplorthods, sandy, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Alfic Haplorthods, sandy
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; very dark grayish brown loamy sand
E—5 to 6 inches; light gray sand

Bs1—6 to 9 inches; strong brown sand
Bs2—9 to 24 inches; dark yellowish brown sand
BC—24 to 44 inches; yellowish brown sand
2Bt—44 to 52 inches; brown sandy loam
3C1—52 to 84 inches; light yellowish brown sand
3C2—84 to 92 inches; yellowish brown loamy sand
3C3—92 to 180 inches; light yellowish brown sand

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Alfic Haplorthods—sandy over loamy glaciofluvial deposits; Lamellic Haplorthods—sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Alfic Haplorthods—well drained; Lamellic Haplorthods—excessively drained
Available water capacity: Alfic Haplorthods—about 5.1 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Alfic Haplorthods—moderately slow; Lamellic Haplorthods—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity; restricted permeability in areas of the Alfic Haplorthods

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Alfic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

235D—Alfic Haplorthods-Lamellic Haplorthods complex, sandy, hilly

Setting

Landform: Moraines

Map Unit Composition

Major components:
Alfic Haplorthods, sandy, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Alfic Haplorthods, sandy
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; very dark grayish brown loamy sand
E—5 to 6 inches; light gray sand
Bs1—6 to 9 inches; strong brown sand
Bs2—9 to 24 inches; dark yellowish brown sand
BC—24 to 44 inches; yellowish brown sand
2Bt—44 to 52 inches; brown sandy loam
3C1—52 to 84 inches; light yellowish brown sand
3C2—84 to 92 inches; yellowish brown loamy sand
3C3—92 to 180 inches; light yellowish brown sand

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Alfic Haplorthods—sandy over loamy glaciofluvial deposits; Lamellic Haplorthods—sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Alfic Haplorthods—well drained; Lamellic Haplorthods—excessively drained
Available water capacity: Alfic Haplorthods—about 5.1 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Alfic Haplorthods—moderately slow; Lamellic Haplorthods—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity; restricted permeability in areas of the Alfic Haplorthods

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Alfic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

235E—Alfic Haplorthods-Lamellic Haplorthods complex, sandy, steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Alfic Haplorthods, sandy, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Alfic Haplorthods, sandy
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; very dark grayish brown loamy sand
E—5 to 6 inches; light gray sand
Bs1—6 to 9 inches; strong brown sand
Bs2—9 to 24 inches; dark yellowish brown sand
BC—24 to 44 inches; yellowish brown sand
2Bt—44 to 52 inches; brown sandy loam
3C1—52 to 84 inches; light yellowish brown sand
3C2—84 to 92 inches; yellowish brown loamy sand
3C3—92 to 180 inches; light yellowish brown sand

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Alfic Haplorthods—sandy over loamy glaciofluvial deposits; Lamellic Haplorthods—sandy glaciofluvial deposits
Slope: 30 to 45 percent

Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Alfic Haplorthods—well drained; Lamellic Haplorthods—excessively drained
Available water capacity: Alfic Haplorthods—about 5.1 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Alfic Haplorthods—moderately slow; Lamellic Haplorthods—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity; restricted permeability in areas of the Alfic Haplorthods

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Alfic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

235F—Alfic Haplorthods-Lamellic Haplorthods complex, sandy, very steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Alfic Haplorthods, sandy, and similar soils—55 percent
Lamellic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Alfic Haplorthods, sandy
Oe—0 to 2 inches; moderately decomposed plant material
A—2 to 5 inches; very dark grayish brown loamy sand
E—5 to 6 inches; light gray sand
Bs1—6 to 9 inches; strong brown sand
Bs2—9 to 24 inches; dark yellowish brown sand
BC—24 to 44 inches; yellowish brown sand
2Bt—44 to 52 inches; brown sandy loam
3C1—52 to 84 inches; light yellowish brown sand

3C2—84 to 92 inches; yellowish brown loamy sand
3C3—92 to 180 inches; light yellowish brown sand

Lamellic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; very dark gray sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 9 inches; dark brown sand
Bs2—9 to 24 inches; strong brown sand
Bs3—24 to 29 inches; yellowish brown sand
E and Bt—29 to 180 inches; light yellowish brown sand with lamellae of strong brown loamy sand

Soil Properties and Qualities

Parent material: Alfic Haplorthods—sandy over loamy glaciofluvial deposits; Lamellic Haplorthods—sandy glaciofluvial deposits
Slope: 45 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Alfic Haplorthods—well drained; Lamellic Haplorthods—excessively drained
Available water capacity: Alfic Haplorthods—about 5.1 inches to a depth of 60 inches; Lamellic Haplorthods—about 4.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Alfic Haplorthods—moderately slow; Lamellic Haplorthods—rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity; restricted permeability in areas of the Alfic Haplorthods

Interpretive Groups

Land capability classification: 7e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Alfic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

237B—Glossudalfs, fine-loamy, nearly level and undulating

Setting

Landform: Moraines

Map Unit Composition

Major components:
Glossudalfs, fine-loamy, and similar soils—100 percent

Typical Profile

Glossudalfs, fine-loamy
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; black sandy loam
E—5 to 11 inches; pale brown sandy loam
E/B—11 to 21 inches; pale brown sandy loam and yellowish brown loam
Bt—21 to 46 inches; reddish brown sandy clay loam
C—46 to 60 inches; brown sandy clay loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 0 to 6 percent
Surface runoff class: Low
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.5 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: None

Building site development
Major management concerns: None

Septic tank absorption fields
Major management concerns: Restricted permeability

Interpretive Groups

Land capability classification: 2e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

237C—Glossudalfs, fine-loamy, rolling

Setting

Landform: Moraines

Map Unit Composition

Major components:
Glossudalfs, fine-loamy, and similar soils—100 percent

Typical Profile

Glossudalfs, fine-loamy
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; black sandy loam
E—5 to 11 inches; pale brown sandy loam
E/B—11 to 21 inches; pale brown sandy loam and yellowish brown loam
Bt—21 to 46 inches; reddish brown sandy clay loam
C—46 to 60 inches; brown sandy clay loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 6 to 18 percent
Surface runoff class: Medium
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.5 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, slope

Building site development
Major management concerns: Slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability

Interpretive Groups

Land capability classification: 4e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

237D—Glossudalfs, fine-loamy, hilly

Setting

Landform: Moraines

Map Unit Composition

Major components:
Glossudalfs, fine-loamy, and similar soils—100 percent

Typical Profile

Glossudalfs, fine-loamy
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; black sandy loam

E—5 to 11 inches; pale brown sandy loam
E/B—11 to 21 inches; pale brown sandy loam and yellowish brown loam
Bt—21 to 46 inches; reddish brown sandy clay loam
C—46 to 60 inches; brown sandy clay loam

Soil Properties and Qualities

Parent material: Loamy till
Slope: 18 to 30 percent
Surface runoff class: High
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Available water capacity: About 8.5 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, soil rutting, slope

Building site development
Major management concerns: Slope

Septic tank absorption fields
Major management concerns: Slope, restricted permeability

Interpretive Groups

Land capability classification: 6e
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

240B—Typic Haplorthods, sandy, nearly level and undulating

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Typic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Typic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 7 inches; grayish brown sand
Bhs—7 to 8 inches; dark brown sand
Bs—8 to 15 inches; strong brown sand

BC—15 to 23 inches; dark yellowish brown sand
C1—23 to 85 inches; light yellowish brown sand
C2—85 to 157 inches; light yellowish brown sand and coarse sand
C3—157 to 175 inches; pale brown sand and coarse sand
C4—175 to 180 inches; pale brown gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 2.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

240C—Typic Haplorthods, sandy, rolling

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Typic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Typic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 7 inches; grayish brown sand
Bhs—7 to 8 inches; dark brown sand
Bs—8 to 15 inches; strong brown sand
BC—15 to 23 inches; dark yellowish brown sand

C1—23 to 85 inches; light yellowish brown sand
C2—85 to 157 inches; light yellowish brown sand and coarse sand
C3—157 to 175 inches; pale brown sand and coarse sand
C4—175 to 180 inches; pale brown gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 2.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

240D—Typic Haplorthods, sandy, hilly

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Typic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 7 inches; grayish brown sand
Bhs—7 to 8 inches; dark brown sand
Bs—8 to 15 inches; strong brown sand
BC—15 to 23 inches; dark yellowish brown sand
C1—23 to 85 inches; light yellowish brown sand

C2—85 to 157 inches; light yellowish brown sand and coarse sand
C3—157 to 175 inches; pale brown sand and coarse sand
C4—175 to 180 inches; pale brown gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 2.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

240E—Typic Haplorthods, sandy, steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Typic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 7 inches; grayish brown sand
Bhs—7 to 8 inches; dark brown sand
Bs—8 to 15 inches; strong brown sand
BC—15 to 23 inches; dark yellowish brown sand
C1—23 to 85 inches; light yellowish brown sand
C2—85 to 157 inches; light yellowish brown sand and coarse sand

C3—157 to 175 inches; pale brown sand and coarse sand
C4—175 to 180 inches; pale brown gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 30 to 45 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 2.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

240F—Typic Haplorthods, sandy, very steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, and similar soils—100 percent

Typical Profile

Typic Haplorthods, sandy
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 7 inches; grayish brown sand
Bhs—7 to 8 inches; dark brown sand
Bs—8 to 15 inches; strong brown sand
BC—15 to 23 inches; dark yellowish brown sand
C1—23 to 85 inches; light yellowish brown sand
C2—85 to 157 inches; light yellowish brown sand and coarse sand

C3—157 to 175 inches; pale brown sand and coarse sand
C4—175 to 180 inches; pale brown gravelly sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 45 to 70 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 2.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

241B—Typic Haplorthods, banded substratum-Lamellic Haplorthods, dark subsoil, complex, sandy, nearly level and undulating

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, banded substratum, and similar soils—55 percent
Lamellic Haplorthods, sandy, dark subsoil, and similar soils—45 percent

Typical Profile

Typic Haplorthods, sandy, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 7 inches; grayish brown sand
Bhs—7 to 13 inches; brown sand
Bs1—13 to 21 inches; strong brown sand

Bs2—21 to 25 inches; yellowish brown sand
C1—25 to 72 inches; light yellowish brown sand
C2—72 to 141 inches; brown loamy sand with bands of very fine sand
C3—141 to 180 inches; light yellowish brown sand

Lamellic Haplorthods, sandy, dark subsoil
Oi—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; very dark gray sand
Bhs1—4 to 8 inches; brown sand
Bhs2—8 to 12 inches; dark reddish brown sand
Bs—12 to 28 inches; brown sand
BC—28 to 49 inches; yellowish brown sand
E and Bt—49 to 104 inches; brown sand with lamellae of loamy sand
C—104 to 180 inches; strong brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Typic Haplorthods—somewhat excessively drained; Lamellic Haplorthods—excessively drained
Available water capacity: Typic Haplorthods—about 3.9 inches to a depth of 60 inches; Lamellic Haplorthods—about 5.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Haplorthods—not hydric; Lamellic Haplorthods—not hydric

241C—Typic Haplorthods, banded substratum-Lamellic Haplorthods, dark subsoil, complex, sandy, rolling

Setting

Landform: Outwash plains, moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, banded substratum, and similar soils—55 percent
Lamellic Haplorthods, sandy, dark subsoil, and similar soils—45 percent

Typical Profile

Typic Haplorthods, sandy, banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 7 inches; grayish brown sand
Bhs—7 to 13 inches; brown sand
Bs1—13 to 21 inches; strong brown sand
Bs2—21 to 25 inches; yellowish brown sand
C1—25 to 72 inches; light yellowish brown sand
C2—72 to 141 inches; brown loamy sand with bands of very fine sand
C3—141 to 180 inches; light yellowish brown sand

Lamellic Haplorthods, sandy, dark subsoil
Oi—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; very dark gray sand
Bhs1—4 to 8 inches; brown sand
Bhs2—8 to 12 inches; dark reddish brown sand
Bs—12 to 28 inches; brown sand
BC—28 to 49 inches; yellowish brown sand
E and Bt—49 to 104 inches; brown sand with lamellae of loamy sand
C—104 to 180 inches; strong brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Typic Haplorthods—somewhat excessively drained; Lamellic Haplorthods—excessively drained
Available water capacity: Typic Haplorthods—about 3.9 inches to a depth of 60 inches; Lamellic Haplorthods—about 5.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s

Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

242B—Typic Haplorthods, sandy, very deep water table, nearly level and undulating

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Typic Haplorthods, sandy, very deep water table, and similar soils—100 percent

Typical Profile

Typic Haplorthods, sandy, very deep water table
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 2 inches; black sand
E—2 to 5 inches; grayish brown sand
Bhs—5 to 7 inches; dark brown sand
Bs1—7 to 13 inches; strong brown sand
Bs2—13 to 25 inches; yellowish brown sand
BC—25 to 99 inches; light yellowish brown sand
C—99 to 106 inches; yellowish brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Available water capacity: About 3.6 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 6 to 9 feet all year
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, seasonal wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned

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

243C—Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum, rolling

Setting

Landform: Moraines

Map Unit Composition

Major components:
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum, and similar soils—100 percent

Typical Profile

Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; dark gray sand
E—3 to 7 inches; gray sand
Bhs1—7 to 9 inches; very dark brown sand
Bhs2—9 to 11 inches; dark brown sand
Bs1—11 to 17 inches; brown sand
Bs2—17 to 23 inches; strong brown sand
Bs3—23 to 40 inches; yellowish brown sand
BC—40 to 56 inches; light yellowish brown sand
E and Bt—56 to 87 inches; brown loamy sand with bands of sandy clay loam
C—87 to 180 inches; light yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Available water capacity: About 5.3 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, sandy textures, seedling mortality, slope

Building site development
Major management concerns: Cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

244B—Oxyaquic Haplorthods, sandy, dark subsoil, nearly level and undulating

Setting

Landform: Moraines, till plains, outwash plains

Map Unit Composition

Major components:
Oxyaquic Haplorthods, sandy, dark subsoil, and similar soils—100 percent

Typical Profile

Oxyaquic Haplorthods, sandy, dark subsoil
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 4 inches; very dark gray sand
E—4 to 12 inches; grayish brown sand
Bhs1—12 to 13 inches; very dark brown sand
Bhs2—13 to 34 inches; dark brown sand
Bs—34 to 41 inches; brown, mottled sand
C—41 to 84 inches; yellowish brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 3.7 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 2.5 to 7.0 feet (February, March, April, October, November)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

245C—Typic Haplorthods, loamy substratum-Alfic Haplorthods, dark subsoil, complex, sandy, rolling

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, loamy substratum, and similar soils—55 percent
Alfic Haplorthods, sandy, dark subsoil, and similar soils—45 percent

Typical Profile

Typic Haplorthods, sandy, loamy substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bhs—4 to 9 inches; dark brown loamy sand
Bs—9 to 19 inches; brown loamy sand
BC—19 to 72 inches; dark yellowish brown gravelly coarse sand
C1—72 to 92 inches; dark yellowish brown sand
C2—92 to 102 inches; brown clay loam

Alfic Haplorthods, sandy, dark subsoil
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 5 inches; dark grayish brown loamy fine sand
Bhs—5 to 13 inches; dark brown loamy fine sand
Bs—13 to 23 inches; dark yellowish brown loamy fine sand
Bt—23 to 34 inches; brown sandy clay loam
E and Bt—34 to 72 inches; light yellowish brown fine sand with lamellae of fine sandy loam
C—72 to 84 inches; dark yellowish brown loamy sand

Soil Properties and Qualities

Parent material: Typic Haplorthods—more than 60 inches of sandy glaciofluvial deposits over loamy alluvium; Alfic Haplorthods—sandy glaciofluvial deposits
Slope: 6 to 18 percent
Surface runoff class: Very low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Typic Haplorthods—somewhat excessively drained; Alfic Haplorthods—well drained
Available water capacity: Typic Haplorthods—about 3.4 inches to a depth of 60 inches; Alfic Haplorthods—about 6.3 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Typic Haplorthods—moderately slow; Alfic Haplorthods—moderate

Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, seedling mortality, slope, sandy textures

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: 6s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Haplorthods—not hydric; Alfic Haplorthods—not hydric

245D—Typic Haplorthods, loamy substratum-Alfic Haplorthods, dark subsoil, complex, sandy, hilly

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, loamy substratum, and similar soils—55 percent
Alfic Haplorthods, sandy, dark subsoil, and similar soils—45 percent

Typical Profile

Typic Haplorthods, sandy, loamy substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bhs—4 to 9 inches; dark brown loamy sand
Bs—9 to 19 inches; brown loamy sand
BC—19 to 72 inches; dark yellowish brown gravelly coarse sand
C1—72 to 92 inches; dark yellowish brown sand
C2—92 to 102 inches; brown clay loam

Alfic Haplorthods, sandy, dark subsoil
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 5 inches; dark grayish brown loamy fine sand
Bhs—5 to 13 inches; dark brown loamy fine sand
Bs—13 to 23 inches; dark yellowish brown loamy fine sand
Bt—23 to 34 inches; brown sandy clay loam
E and Bt—34 to 72 inches; light yellowish brown fine sand with lamellae of fine sandy loam
C—72 to 84 inches; dark yellowish brown loamy sand

Soil Properties and Qualities

Parent material: Typic Haplorthods—more than 60 inches of sandy glaciofluvial deposits over loamy alluvium; Alfic Haplorthods—sandy glaciofluvial deposits
Slope: 18 to 30 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Typic Haplorthods—somewhat excessively drained; Alfic Haplorthods—well drained
Available water capacity: Typic Haplorthods—about 3.4 inches to a depth of 60 inches; Alfic Haplorthods—about 6.3 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Typic Haplorthods—moderately slow; Alfic Haplorthods—moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Erosion, seedling mortality, slope, sandy textures

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Haplorthods—not hydric; Alfic Haplorthods—not hydric

245E—Typic Haplorthods, loamy substratum-Alfic Haplorthods, dark subsoil, complex, sandy, steep

Setting

Landform: Moraines

Map Unit Composition

Major components:
Typic Haplorthods, sandy, loamy substratum, and similar soils—55 percent
Alfic Haplorthods, sandy, dark subsoil, and similar soils—45 percent

Typical Profile

Typic Haplorthods, sandy, loamy substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bhs—4 to 9 inches; dark brown loamy sand
Bs—9 to 19 inches; brown loamy sand
BC—19 to 72 inches; dark yellowish brown gravelly coarse sand

C1—72 to 92 inches; dark yellowish brown sand
C2—92 to 102 inches; brown clay loam

Alfic Haplorthods, sandy, dark subsoil
Oi—0 to 1 inch; slightly decomposed plant material
E—1 to 5 inches; dark grayish brown loamy fine sand
Bhs—5 to 13 inches; dark brown loamy fine sand
Bs—13 to 23 inches; dark yellowish brown loamy fine sand
Bt—23 to 34 inches; brown sandy clay loam
E and Bt—34 to 72 inches; light yellowish brown fine sand with lamellae of fine sandy loam
C—72 to 84 inches; dark yellowish brown loamy sand

Soil Properties and Qualities

Parent material: Typic Haplorthods—more than 60 inches of sandy glaciofluvial deposits over loamy alluvium; Alfic Haplorthods—sandy glaciofluvial deposits
Slope: 30 to 45 percent
Surface runoff class: Low
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Typic Haplorthods—somewhat excessively drained; Alfic Haplorthods—well drained
Available water capacity: Typic Haplorthods—about 3.4 inches to a depth of 60 inches; Alfic Haplorthods—about 6.3 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Typic Haplorthods—moderately slow; Alfic Haplorthods—moderate
Flooding: None
Depth to seasonal high water table: More than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Severe erosion, seedling mortality, slope, sandy textures

Building site development
Major management concerns: Shrinking and swelling, cutbanks caving, slope

Septic tank absorption fields
Major management concerns: Slope, poor filtering capacity, restricted permeability

Interpretive Groups

Land capability classification: 7s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Haplorthods—not hydric; Alfic Haplorthods—not hydric

246B—Alfic Oxyaquic Haplorthods-Typic Haplorthods, loamy substratum, complex, sandy, nearly level and undulating

Setting

Landform: Moraines, outwash plains

Map Unit Composition

Major components:
Alfic Oxyaquic Haplorthods, sandy, and similar soils—55 percent
Typic Haplorthods, sandy, loamy substratum, and similar soils—45 percent

Typical Profile

Alfic Oxyaquic Haplorthods, sandy
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 5 inches; very dark gray sand
E—5 to 8 inches; light brownish gray sand
Bhs—8 to 12 inches; dark brown sand
Bs—12 to 31 inches; brown sand
Bw1—31 to 42 inches; yellowish brown sand
Bw2—42 to 44 inches; pale brown, mottled loamy coarse sand
2E/B—44 to 49 inches; reddish gray loamy sand and reddish brown clay loam
2Bt—49 to 57 inches; reddish brown clay loam
3C—57 to 84 inches; sand

Typic Haplorthods, sandy, loamy substratum
Oi—0 to 1 inch; slightly decomposed plant material
A—1 to 3 inches; very dark grayish brown sand
E—3 to 4 inches; dark grayish brown sand
Bhs—4 to 9 inches; dark brown loamy sand
Bs—9 to 19 inches; brown loamy sand
BC—19 to 72 inches; dark yellowish brown gravelly coarse sand
C1—72 to 92 inches; dark yellowish brown sand
C2—92 to 102 inches; brown clay loam

Soil Properties and Qualities

Parent material: Alfic Oxyaquic Haplorthods—sandy glaciofluvial deposits; Typic Haplorthods—more than 60 inches of sandy glaciofluvial deposits over loamy alluvium
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Alfic Oxyaquic Haplorthods—moderately well drained; Typic Haplorthods—somewhat excessively drained
Available water capacity: Alfic Oxyaquic Haplorthods—about 4.9 inches to a depth of 60 inches; Typic Haplorthods—about 3.4 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Alfic Oxyaquic Haplorthods—moderate; Typic Haplorthods—moderately slow
Flooding: None
Depth to seasonal high water table: Alfic Oxyaquic Haplorthods—2.5 to 7.0 feet (April, May); Typic Haplorthods—more than 6.5 feet
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Alfic Oxyaquic Haplorthods—cutbanks caving, seasonal wetness; Typic Haplorthods—shrinking and swelling, cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability; severe wetness in areas of the Alfic Oxyaquic Haplorthods

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Alfic Oxyaquic Haplorthods—not hydric; Typic Haplorthods—not hydric

250—Typic Psammaquents-Aquic Udipsamments-Haplosaprists, euic, complex, frequently flooded

Setting

Landform: Flood plains, lake plains, outwash plains

Map Unit Composition

Major components:
Typic Psammaquents and similar soils—45 percent
Aquic Udipsamments and similar soils—30 percent
Haplosaprists, euic, and similar soils—25 percent

Typical Profile

Typic Psammaquents
Oa—0 to 3 inches; black muck
A—3 to 6 inches; black fine sandy loam
Cg—6 to 9 inches; light brownish gray, mottled loamy sand
C1—9 to 18 inches; brown sand
C2—18 to 60 inches; dark yellowish brown sand

Aquic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 8 inches; brown sand
Bw—8 to 26 inches; dark yellowish brown sand
BC—26 to 46 inches; yellowish brown, mottled sand
C—46 to 60 inches; yellowish brown, mottled sand

Haplosaprists, euic
Oa1—0 to 6 inches; black muck
Oa2—6 to 84 inches; black and very dark brown muck

Soil Properties and Qualities

Parent material: Typic Psammaquents and Aquic Udipsamments—sandy glaciofluvial deposits; Haplosaprists—more than 51 inches of organic material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Typic Psammaquents—moderate; Aquic Udipsamments—low; Haplosaprists—high

Depth to restrictive feature: More than 80 inches
Drainage class: Typic Psammaquents—poorly drained; Aquic Udipsamments—moderately well drained; Haplosaprists—very poorly drained
Available water capacity: Typic Psammaquents—about 4.9 inches to a depth of 60 inches; Aquic Udipsamments—about 4.0 inches to a depth of 60 inches; Haplosaprists—about 23.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Typic Psammaquents—moderately rapid; Aquic Udipsamments—rapid; Haplosaprists—moderately rapid
Frequency of flooding: Typic Psammaquents—frequent (January, February, March, April, May, October, November, December)
Depth to seasonal high water table: Typic Psammaquents—at the surface (January, February, March, April, May, October, November, December); Aquic Udipsamments—0.5 foot to 6.5 feet (April, May); Haplosaprists—at the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: Typic Psammaquents—June, July, August, September; Aquic Udipsamments—all year
Depth and months of deepest ponding: Typic Psammaquents—0.5 foot (January, February, March, April, May, October, November, December); Aquic Udipsamments—not ponded; Haplosaprists—0.5 foot (all year)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Typic Psammaquents—seedling mortality, flooding, windthrow hazard, severe wetness; Aquic Udipsamments—sandy textures, seasonal wetness; Haplosaprists—windthrow hazard, severe wetness

Building site development
Major management concerns: Typic Psammaquents—cutbanks caving, flooding; Aquic Udipsamments—cutbanks caving, seasonal wetness; Haplosaprists—ponding, severe wetness, cutbanks caving

Septic tank absorption fields
Major management concerns: Poor filtering capacity, flooding

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Psammaquents—hydric; Aquic Udipsamments—not hydric; Haplosaprists—hydric

252—Typic Endoaquods, sandy, wet-Haplosaprists, dysic, complex

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Typic Endoaquods, sandy, wet, and similar soils—60 percent
Haplosaprists, dysic, and similar soils—40 percent

Typical Profile

Typic Endoaquods, sandy, wet
A—0 to 4 inches; black mucky sand
E—4 to 7 inches; grayish brown sand
Bhs—7 to 9 inches; dark reddish brown sand
Bs—9 to 25 inches; brown sand
C—25 to 60 inches; yellowish brown sand

Haplosaprists, dysic
Oi1—0 to 4 inches; light olive brown peat
Oi2—4 to 7 inches; dark yellowish brown peat
Oa1—7 to 13 inches; very dark brown muck
Oa2—13 to 60 inches; very dark brown muck
Oa3—60 to 72 inches; very light gray muck
Cg—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: Typic Endoaquods—sandy glaciofluvial deposits; Haplosaprists—more than 51 inches of organic material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Typic Endoaquods—moderate; Haplosaprists—high
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Typic Endoaquods—about 4.0 inches to a depth of 60 inches; Haplosaprists—about 25.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Typic Endoaquods—rapid; Haplosaprists—moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: Typic Endoaquods—June, July, August, September, October
Depth and months of deepest ponding: Typic Endoaquods—0.5 foot (January, February, March, April, May, November, December); Haplosaprists—0.5 foot (all year)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Endoaquods—hydric; Haplosaprists—hydric

253A—Typic Duraquods, sandy, ortstein-Aquic Udipsamments complex, nearly level

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Typic Duraquods, sandy, ortstein, and similar soils—55 percent
Aquic Udipsamments and similar soils—45 percent

Typical Profile

Typic Duraquods, sandy, ortstein
A—0 to 2 inches; reddish black sand
E—2 to 12 inches; light brownish gray sand
Bhsm—12 to 16 inches; reddish gray and dark reddish brown sand
Bsm—16 to 18 inches; dark reddish brown sand
BC—18 to 52 inches; light yellowish brown sand
C—52 to 66 inches; yellowish brown sand

Aquic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 8 inches; brown sand
Bw—8 to 26 inches; dark yellowish brown sand
BC—26 to 46 inches; yellowish brown, mottled sand
C—46 to 60 inches; yellowish brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: Typic Duraquods—0 to 3 percent; Aquic Udipsamments—0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Typic Duraquods—moderate; Aquic Udipsamments—low
Depth to restrictive feature: Typic Duraquods—12 inches to ortstein; Aquic Udipsamments—more than 80 inches
Drainage class: Typic Duraquods—somewhat poorly drained; Aquic Udipsamments—moderately well drained
Available water capacity: Typic Duraquods—about 4.1 inches to a depth of 60 inches; Aquic Udipsamments—about 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Typic Duraquods—moderately rapid; Aquic Udipsamments—rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, seasonal wetness, sandy textures

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness; depth to ortstein in areas of the Typic Duraquods

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Typic Duraquods—not hydric; Aquic Udipsamments—not hydric

255B—Aquic Udipsamments-Oxyaquic Haplorthods, sandy, complex, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Aquic Udipsamments and similar soils—55 percent
Oxyaquic Haplorthods, sandy, and similar soils—45 percent

Typical Profile

Aquic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 8 inches; brown sand
Bw—8 to 26 inches; dark yellowish brown sand
BC—26 to 46 inches; yellowish brown, mottled sand
C—46 to 60 inches; yellowish brown, mottled sand

Oxyaquic Haplorthods, sandy
A—0 to 2 inches; black sand
E—2 to 4 inches; grayish brown sand
Bs1—4 to 7 inches; brown sand
Bs2—7 to 17 inches; strong brown sand
C1—17 to 23 inches; brownish yellow sand
C2—23 to 30 inches; brownish yellow, mottled sand
C3—30 to 54 inches; brownish yellow, mottled sand
C4—54 to 70 inches; brownish yellow, mottled sand
C5—70 to 84 inches; yellowish brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: Aquic Udipsamments—about 4.0 inches to a depth of 60 inches; Oxyaquic Haplorthods—about 3.8 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None

Depth to seasonal high water table: Aquic Udipsamments—0.5 foot to 6.5 feet (April, May); Oxyaquic Haplorthods—2.5 to 7.0 feet (February, March, April, October, November)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Aquic Udipsamments—not hydric; Oxyaquic Haplorthods—not hydric

257—Endoaquolls-Haplosaprists, euic-Typic Psammaquents complex, frequently flooded

Setting

Landform: Flood plains

Map Unit Composition

Major components:
Endoaquolls and similar soils—45 percent
Haplosaprists, euic, and similar soils—30 percent
Typic Psammaquents and similar soils—25 percent

Typical Profile

Endoaquolls
A1—0 to 4 inches; black mucky silt loam
A2—4 to 9 inches; dark reddish brown, mottled silt loam
Cg1—9 to 27 inches; dark gray, mottled silt loam
2Cg2—27 to 80 inches; grayish brown sand

Haplosaprists, euic
Oa1—0 to 6 inches; black muck
Oa2—6 to 84 inches; black and very dark brown muck

Typic Psammaquents
Oa—0 to 3 inches; black muck
A—3 to 6 inches; black fine sandy loam
Cg—6 to 9 inches; light brownish gray, mottled loamy sand
C1—9 to 18 inches; brown sand
C2—18 to 60 inches; dark yellowish brown sand

Soil Properties and Qualities

Parent material: Endoaquolls—loamy and clayey alluvium; Haplosaprists—more than 51 inches of organic material; Typic Psammaquents—sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Endoaquolls—high; Haplosaprists—high; Typic Psammaquents—moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Endoaquolls and Haplosaprists—very poorly drained; Typic Psammaquents—poorly drained
Available water capacity: Endoaquolls—about 7.7 inches to a depth of 60 inches; Haplosaprists—about 23.9 inches to a depth of 60 inches; Typic Psammaquents—about 4.9 inches to a depth of 60 inches
Shrink-swell potential: Endoaquolls—moderate; Haplosaprists—not rated; Typic Psammaquents—low
Permeability: Endoaquolls—moderate; Haplosaprists—moderately rapid; Typic Psammaquents—moderately rapid
Frequency of flooding: Frequent (March, April, May, September, October)
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Months in which ponding does not occur: Endoaquolls—January, February, June, July, August, September; Haplosaprists—July, August; Typic Psammaquents—June, July, August, September
Depth and months of deepest ponding: Endoaquolls—0.5 foot (March, April, May, October, November, December); Haplosaprists—0.5 foot (January, February, March, April, May, June, September, October, November, December); Typic Psammaquents—0.5 foot (January, February, March, April, May, October, November, December)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness, flooding

Building site development
Major management concerns: Ponding, flooding, severe wetness; cutbanks caving in areas of the Typic Psammaquents

Septic tank absorption fields
Major management concerns: Flooding, severe wetness; poor filtering capacity in areas of the Typic Psammaquents

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Endoaquolls—hydric; Haplosaprists—hydric; Typic Psammaquents—hydric

262A—Typic Duraquods, sandy, ortstein, nearly level

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Typic Duraquods, sandy, ortstein, and similar soils—100 percent

Typical Profile

Typic Duraquods, sandy, ortstein
A—0 to 2 inches; reddish black sand
E—2 to 12 inches; light brownish gray sand
Bhsm—12 to 16 inches; reddish gray and dark reddish brown sand
Bsm—16 to 18 inches; dark reddish brown sand
BC—18 to 52 inches; light yellowish brown sand
C—52 to 66 inches; yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: 12 inches to ortstein
Drainage class: Somewhat poorly drained
Available water capacity: About 4.1 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, depth to ortstein, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

263B—Aquic Udipsamments, nearly level and undulating

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Aquic Udipsamments and similar soils—100 percent

Typical Profile

Aquic Udipsamments
Oe—0 to 1 inch; moderately decomposed plant material
A—1 to 3 inches; very dark gray sand
E—3 to 8 inches; brown sand
Bw—8 to 26 inches; dark yellowish brown sand
BC—26 to 46 inches; yellowish brown, mottled sand
C—46 to 60 inches; yellowish brown, mottled sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 6 percent
Surface runoff class: Negligible
Potential for frost action: Low
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Sandy textures, seedling mortality, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 3s
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

264A—Typic Endoaquods, sandy, nearly level

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Typic Endoaquods, sandy, and similar soils—100 percent

Typical Profile

Typic Endoaquods, sandy
A—0 to 2 inches; black sand
E—2 to 8 inches; dark grayish brown sand
Bhs—8 to 10 inches; dark reddish brown sand
Bs1—10 to 12 inches; yellowish red, mottled sand
Bs2—12 to 48 inches; strong brown sand
BC—48 to 54 inches; strong brown sand
C—54 to 66 inches; brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 3 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Available water capacity: About 4.2 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: 0.5 foot to 6.5 feet (April, May)
Ponding: None

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, seasonal wetness

Building site development
Major management concerns: Cutbanks caving, seasonal wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, severe wetness

Interpretive Groups

Land capability classification: 4w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Not hydric

272—Typic Endoaquods, sandy, wet

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Typic Endoaquods, sandy, wet, and similar soils—100 percent

Typical Profile

Typic Endoaquods, sandy, wet
A—0 to 4 inches; black mucky sand

E—4 to 7 inches; grayish brown sand
Bhs—7 to 9 inches; dark reddish brown sand
Bs—9 to 25 inches; brown sand
C—25 to 60 inches; yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 4.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: June, July, August, September, October
Depth and months of deepest ponding: 0.5 foot (January, February, March, April, May, November, December)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Hydric

273—Typic Psammaquents

Setting

Landform: Outwash plains

Map Unit Composition

Major components:
Typic Psammaquents and similar soils—100 percent

Typical Profile

Typic Psammaquents
Oa—0 to 3 inches; black muck
A—3 to 6 inches; black fine sandy loam
Cg—6 to 9 inches; light brownish gray, mottled loamy sand

C1—9 to 18 inches; brown sand
C2—18 to 60 inches; dark yellowish brown sand

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: Moderate
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Available water capacity: About 4.9 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: June, July, August, September, October
Depth and months of deepest ponding: 0.5 foot (January, February, March, April, May, November, December)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, seasonal wetness, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Hydric

274—Typic Epiaquolls, sandy over loamy

Setting

Landform: Lake plains, outwash plains

Map Unit Composition

Major components:
Typic Epiaquolls, sandy over loamy, and similar soils—100 percent

Typical Profile

Typic Epiaquolls, sandy over loamy
Oa—0 to 4 inches; black muck
A—4 to 14 inches; black loamy fine sand
Bg—14 to 19 inches; reddish gray, mottled fine sand
Cg1—19 to 29 inches; grayish brown, mottled fine sand

2Cg2—29 to 44 inches; brown silt loam
2Cg3—44 to 60 inches; grayish brown silty clay loam

Soil Properties and Qualities

Parent material: Sandy glaciofluvial deposits over loamy alluvium
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 9.7 inches to a depth of 60 inches
Shrink-swell potential: Moderate
Permeability: Moderately slow
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, October, November, December)
Months in which ponding does not occur: June, July, August, September
Depth and months of deepest ponding: 0.5 foot (January, February, March, April, May, October, November, December)

Use and Management

Dominant land uses: Forestland

Forestland
Major management concerns: Seedling mortality, windthrow hazard, severe wetness

Building site development
Major management concerns: Cutbanks caving, ponding, severe wetness

Septic tank absorption fields
Major management concerns: Poor filtering capacity, restricted permeability, ponding, severe wetness

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Hydric

280—Aquents and Histosols, ponded

Setting

Landform: Marshes

Map Unit Composition

Major components:
Aquents and similar soils—0 to 100 percent
Histosols and similar soils—0 to 100 percent

Typical Profile

Aquents
AC—0 to 80 inches; variable

Histosols
Oa—0 to 45 inches; black and very dark gray muck
C—45 to 80 inches; gray sand

Soil Properties and Qualities

Parent material: Aquents—sandy material underlain by loamy till, lacustrine sediments, or sandy deposits; Histosols—organic material underlain by mineral deposits
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: Aquents—not rated; Histosols—about 18.9 inches to a depth of 60 inches
Shrink-swell potential: Aquents—not rated; Histosols—low
Permeability: Aquents—not rated; Histosols—moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface all year
Ponding depth: 0.5 foot all year

Use and Management

Dominant land uses: Marsh and forestland
- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: 8w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Aquents—hydric; Histosols—hydric

281—Haplosaprists, dysic

Setting

Landform: Depressions on moraines, outwash plains, and lake plains

Map Unit Composition

Major components:
Haplosaprists, dysic, and similar soils—100 percent

Typical Profile

Haplosaprists, dysic
Oi1—0 to 4 inches; light olive brown peat
Oi2—4 to 7 inches; dark yellowish brown peat
Oa1—7 to 13 inches; very dark brown muck
Oa2—13 to 60 inches; dark brown muck
Oa3—60 to 72 inches; very light gray muck
Cg—72 to 80 inches; brown sand

Soil Properties and Qualities

Parent material: More than 51 inches of organic material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches

Drainage class: Very poorly drained
Available water capacity: About 25.0 inches to a depth of 60 inches
Shrink-swell potential: Low
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Ponding depth: 0.5 foot all year

Use and Management

Dominant land uses: Forestland
- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: 6w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Hydric

282—Haplosaprists, euic

Setting

Landform: Depressions on lake plains, moraines, and outwash plains

Map Unit Composition

Major components:
Haplosaprists, euic, and similar soils—100 percent

Typical Profile

Haplosaprists, euic
Oa1—0 to 6 inches; black muck
Oa2—6 to 84 inches; black and very dark brown muck

Soil Properties and Qualities

Parent material: More than 51 inches of organic material
Slope: 0 to 2 percent
Surface runoff class: Negligible
Potential for frost action: High
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Available water capacity: About 23.9 inches to a depth of 60 inches
Shrink-swell potential: Not rated
Permeability: Moderately rapid
Flooding: None
Depth to seasonal high water table: At the surface (January, February, March, April, May, June, September, October, November, December)
Ponding depth: 0.5 foot all year

Use and Management

Dominant land uses: Forestland
- Onsite investigation is needed to determine the suitability for specific uses.

Interpretive Groups

Land capability classification: 5w
Michigan soil management group: None assigned
Prime farmland category: Not prime farmland
Hydric soil status: Hydric

380—Access denied

- This map unit consists of areas that were not accessible for mapping. Onsite investigation is needed to determine the suitability for specific uses.

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 gravel, sand, 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,* and *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 crops or pasture plants best suited to the soils are identified, the estimated yields of the main crops and hay and pasture plants are listed for each soil, the system of land capability classification used by the Natural Resources Conservation 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 "Detailed Soil Map Units." In addition, specific information on management practices for cropland and pastureland can be obtained from the local office of the Natural Resources Conservation Service, the Soil Conservation District, Michigan State University Extension, or a certified planning professional.

Much of the cropland in the survey area is used for pasture or hay (fig. 10). Some specialty crops, including fruits and vegetables, are grown.

Soil type is the major issue on much of the cropland in the survey area. The predominantly sandy soils contribute to the low agricultural production. Forage crops are suited to sandy soils, but a droughty growing season can adversely affect yields.

If drainage is planned, care must be taken so that designated wetlands are not affected. Drainage of these areas could violate existing laws and regulations and may jeopardize receipt of USDA benefits. Information about the design of drainage systems and wetland compliance is available in local offices of the Natural Resources Conservation Service.

Erosion-control practices provide a protective surface cover, reduce the runoff rate, and increase the rate of water infiltration. Conservation tillage, which leaves crop residue on the surface, increases the rate of water infiltration and helps to control runoff and erosion. No-till farming reduces the hazard of erosion. This type of farming requires a high level of management and relies on herbicides and insecticides for weed and pest control. No-till farming is especially effective in minimizing erosion on the less clayey, sloping soils in the survey area. No-till cropping is primarily used for pasture and wildlife food plots.

Figure 10.—Farmland occurs in scattered areas throughout Benzie and Manistee Counties. Much of this land is used for pasture or hay.

Soil blowing is a hazard on soils that have a surface layer of sand, loamy sand, or sandy loam. Using surface mulch to maintain the plant cover, planting small grain buffer strips, leaving crop residue on the surface, and maintaining a rough surface through tillage help to control soil blowing. Field windbreaks of adapted trees and shrubs planted at right angles to the prevailing wind provide long-term protection from erosion.

Soil fertility is naturally low in the sandy soils in the survey area. It is medium in most of the loamy soils. The soils that formed on till plains or moraines, such as Marlette and Remus soils, are moderately high in natural fertility. Soil fertility is quite variable because of differences in past land use and management. Most of the soils in the survey area are moderately acid to neutral in the surface layer. Additions of lime, bio ash, and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the expected level of yields. The Extension Service can help to determine the kind and amount of all nutrients to be applied (Michigan State University, 1992).

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. 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 map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. 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, and 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 productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 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 the Extension Service can provide information about the management and productivity of the soils for those crops.

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 include major and generally expensive landforming 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 are generally grouped at three levels—capability class, subclass, and unit (USDA/SCS, 1961).

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. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one 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 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.

In class 1 there are no subclasses 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.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of the soils in this survey area is given in the section "Detailed Soil Map Units" and in the yields table.

At the end of each map unit description, the Michigan soil management group is listed. The soils in each map unit are assigned to a group according to the dominant texture, the drainage class, and the major management concerns (Mokma, 1982). More detailed information about these groups is available from the local office of the Michigan State University Extension.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 6,300 acres in the survey area, or about 1 percent of the total acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the survey area, but most are in Manistee County.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. Some of the soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

Hydric Soils

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 all of the characteristics must be met for areas to be identified as wetlands (fig. 11). 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, under natural conditions, 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, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil

Figure 11.—Typical vegetation in an area of Lumley-Makinen complex. These soils support acid-loving plants, such as bog cotton and leatherleaf.

Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time 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 are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

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.

The following map units have soils (occurring as major components of the map unit) that meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (Hurt and Vasilas, 2006; National Research Council, 1995).

15—Parkhill loam
25—Gorvan-Houghton-Glendora complex, frequently flooded
53A—Saugatuck-Jebavy complex, 0 to 3 percent slopes (Jebavy soil)
60—Dair muck
73—Houghton-Adrian mucks
81—Lumley-Makinen complex
83—Histosols and Aquents, ponded

100A—Dair-Pipestone complex, 0 to 2 percent slopes (Dair soil)
106B—Covert-Dair complex, 0 to 6 percent slopes (Dair soil)
114B—Nordhouse-Platteriver-Dair complex, 0 to 6 percent slopes (Dair soil)
119—Madaus muck
122—Dair-Adrian mucks
130A—Glendora-Algansee-Abscota complex, 0 to 3 percent slopes, frequently flooded (Glendora soil)
132A—Milnichol-Dair complex, 0 to 3 percent slopes (Dair soil)
250—Typic Psammaquents-Aquic Udipsamments-Haplosaprists, euic, complex, frequently flooded (Typic Psammaquents and Haplosaprists, euic)
252—Typic Endoaquods, sandy, wet-Haplosaprists, dysic, complex
257—Endoaquolls-Haplosaprists, euic-Typic Psammaquents complex, frequently flooded
272—Typic Endoaquods, sandy, wet
273—Typic Psammaquents
274—Typic Epiaquolls, sandy over loamy
280—Aquents and Histosols, ponded
281—Haplosaprists, dysic
282—Haplosaprists, euic

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform. Onsite investigation is recommended to determine the occurrence and location of hydric soils.

Forestland

The presettlement vegetation in Benzie County was northern hardwoods of sugar maple, beech, hemlock, and white pine. A mixed conifer swamp extends from the northwest end of Platte Lake to the white pine and red pine forest that is now known as Sleeping Bear Dunes. A strip of aspen birch forest grew between Platte Lake and Little Platte Lake, and another mixed conifer swamp extended from the east sides of the lakes. Fingers of cedar swamps grew around both Platte Lake and Crystal Lake. A cedar swamp surrounded Grass Lake. Nearly all of the western part of the Betsie River was surrounded with mixed conifer swamps. Most of Colfax Township was mixed conifer swamp and hemlock/white pine forest. Most of the area east of Lake Ann was covered with white pine mixed with hardwood forest.

The presettlement vegetation in the northern part of Manistee County was northern hardwoods of sugar maple, beech, hemlock, and white pine. White pine and red pine covered the southern half of the county, near the Manistee River. Poorly drained parts of the sandy lake plain supported swamps containing various combinations of black ash, elm, trembling aspen, tamarack, northern whitecedar, and hemlock. In the middle part of the northern half of the county, numerous areas of mixed conifer swamps were common. The city of Manistee once supported white oak or, in the more fire-prone areas, red pine and jack pine. Mixed hardwood swamps ran adjacent to the Manistee River (fig. 12).

Presently, Manistee and Benzie Counties have a narrow band of highly productive forest types along the dunes and moraines within 15 miles of Lake Michigan (fig. 13). Some of the timber stands in this area are very high in value and are capable of producing net growth rates in excess of 500 board feet per acre per year. Areas that produce 500 board feet per acre per year are considered of national importance and are classified as prime forestland. In Benzie County, prime forestland is along the south shore of Crystal Lake, in scattered small pockets to the east of Upper Herring Lake, south of the Village of Honor, in small areas near but not on the Lake Michigan

Figure 12.—This wooded area of Dair soils, which are considered hydric, is subject to ponding.

shoreline north of Crystal Lake and between Otter Creek and the Leelanau County line, and in isolated locations in Almira Township. Prime forestland in Manistee County occurs in a band that stretches from the southwest corner through the city of Manistee and then cuts east and north up to Bear Lake. Also, large pockets are east of Arcadia, surrounding the settlement of Marilla, east of Copemish, and on much of the land owned by the Forest Service between Copemish, Healy Lake, and Bear Lake. There are small pockets of prime forestland on the east side of the county north of the Manistee River, and a large pocket is on the southern edge of the county south of Pine Lake.

Other parts of Benzie and Manistee Counties have timber lands of regional importance, which are not quite as productive as prime forestland but are still valuable.

Extensive logging of white pine and red pine occurred at the end of the 1800s and in the early 1900s. Now pioneer species, such as aspen, red maple, and paper birch, are more dominant after logging. Early settlers tried to convert hardwood stands into field crops but had little success because of the sandy soils. Stands of red pine were planted in areas where strong winds created sand holes. Now red pine stands that are 50 to 70 years old are slowly reverting to hardwood stands.

The Conservation District, the Michigan Department of Natural Resources, the Cooperative Extension Service, and private consulting forestry professionals can help to determine forestland management needs in specific areas.

Forestland Management and Productivity

Table 7 can help woodland owners or forest managers plan the use of soils for wood crops. Only those soils suitable for wood crops are listed.

Erosion hazard ratings are based on the soil erosion 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.

Site preparation ratings 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.

Windthrow hazard is the likelihood that trees will be uprooted by the wind because the soil is not deep enough for adequate root anchorage. The main restrictions that affect rooting are a seasonal high water table and the depth to bedrock, a fragipan, or other limiting layers. A rating of *slight* indicates that under normal conditions no trees are blown down by the wind. Strong winds may damage trees, but they do not uproot them. A rating of *moderate* indicates that some trees can be blown down during periods when the soil is wet and winds are moderate or strong. A rating of *severe* indicates that many trees can be blown down during these periods.

Seedling mortality ratings 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.

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 woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important trees. This number, expressed as cubic feet per acre per year, indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Suggested trees to plant are those that are suitable for commercial wood production.

Table 8 provides expanded information concerning the operability of harvesting equipment. The table gives information about operating harvesting or thinning equipment in logging areas and on skid roads, log landings, and haul roads. Limitations are given for the most limiting season and for the preferred operating season. The most limiting season in this survey area generally is spring or late fall. In some areas, however, it is during dry periods in summer, when loose sand can limit trafficability on deep, excessively drained, sandy soils.

The preferred operating season is the period when harvesting or thinning causes the least amount of soil damage. This period generally is when the soil is not too wet or when the ground is frozen or partly frozen or has an adequate snow cover.

Figure 13.—Typical forest growth in an area of Plainfield soils.

For limitations affecting construction of *haul roads*, the ratings are based on slope, flooding, 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 soils are described as well suited, moderately suited, and poorly suited. A rating of *well suited* indicates that no significant limitations affect construction activities, *moderately suited* indicates that one or more limitations can cause some difficulty in construction, and *poorly suited* 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 *logging areas and skid roads* 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.

Plant Associations

The Ecological Classification System (ECS) for the Huron-Manistee National Forests (Pregitzer and others, 1987) was developed for National Forest System information needs. These needs include delineating land units for planning analyses, predicting vegetative structure and the distribution of wildlife habitat, planning desired future conditions within and across geologic regions for conservation of biological diversity, and evaluating ecological processes, such as forest succession or soil productivity. The overall purpose of the ECS is to provide an ecological framework for integrated resource planning and management.

The ECS is an ecological approach to defining biological potential of the National Forest land base. Multiple ecological factors were used to define the classification and map units. Climate, landform, soil, and vegetation information was integrated before map units were described and delineated. Information regarding vegetation and soils was predominantly used to delineate map units in the field.

Plant associations are used in the mapping process to help identify local map units. Plant associations are combinations of late successional overstories and groups of associated understory and ground flora species. Species groups are associated with the map unit. However, species composition may vary within the map units, and any given species within a species group may not occur at a particular place. In some cases, the plant association does not reflect soil characteristics and potential. In landscapes that do not support diagnostic plant communities because of natural variability or disturbance, soil and landform variables serve alone as differentiating map unit criteria.

The following paragraphs describe the plant associations in the survey area. They provide information about the landform and soil type on which the plants occur, the potential late successional overstory and the diagnostic understory, and the ground flora species characteristic of the association.

Plant Association 1.—Black oak (*Quercus velutina*)-White oak (*Quercus alba*)-Blueberry (*Angustifolium*). This association is characteristic of dry, nutrient-poor landscapes in areas of sandy soils. Potential late successional natural vegetation includes species that have adapted to harsh conditions and frequent fire disturbance. The association is represented by overstory species of black oak (*Quercus velutina*), white oak (*Quercus alba*), and northern pin oak (*Quercus ellipsoidalis*). Distinguishing ground flora and understory species include blueberry (*Vaccinium angustifolium*), cowwheat (*Melampyrum lineare*), trailing arbutus (*Epigaea repens*), huckleberry

(*Gaylussacia baccata*), brackenfern (*Pteridium aquilinum*), red maple (*Acer rubrum*) seedlings, and oak (*Quercus spp.*) seedlings.

Plant Association 2.—Mixed oak (*Quercus spp.*)-Red maple (*Acer rubrum*)-Starflower (*Trientalis borealis*). This association is primarily in areas of sandy soils that exhibit weak spodic development. Potential late successional overstory species include black oak (*Quercus velutina*), white oak (*Quercus alba*), northern red oak (*Quercus rubra*), red maple (*Acer rubrum*), red pine (*Pinus resinosa*), and eastern white pine (*Pinus strobus*). Distinguishing ground flora and understory species include mapleleaf viburnum (*Viburnum acerifolium*), brackenfern (*Pteridium aquilinum*), wintergreen (*Gaultheria procumbens*), starflower (*Trientalis borealis*), blueberry (*Vaccinium angustifolium*), red maple (*Acer rubrum*) seedlings and saplings, and juneberry species (*Amelanchier spp.*).

Plant Association 3.—Northern red oak (*Quercus rubra*)-Red maple (*Acer rubrum*)-Mapleleaf viburnum (*Viburnum acerifolium*). This association is primarily on sandy morainal landscapes and in areas of well developed soils on lake plains. Potential late successional overstory species include northern red oak (*Quercus rubra*), red maple (*Acer rubrum*), and eastern white pine (*Pinus strobus*). Distinguishing ground flora and understory species include mapleleaf viburnum (*Viburnum acerifolium*), sarsaparilla (*Aralia nudicaulis*), lily of the valley (*Maianthemum canadense*), large-leaved aster (*Aster macrophyllus*), squaw root (*Conopholis americana*), red maple (*Acer rubrum*) seedlings and saplings, and witch hazel (*Hamamelis virginiana*).

Plant Association 4.—Northern red oak (*Quercus rubra*)-Red maple (*Acer rubrum*)-Trefoil (*Desmodium spp.*). This association is primarily on moraines and lake beds that have deposits of sand overlying fine-loamy materials. Potential late successional overstory species include northern red oak (*Quercus rubra*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*), and white ash (*Fraxinus americana*). Distinguishing ground flora and understory species include trefoils (*Desmodium spp.*), downy yellow violet (*Viola pubescens*), flowering dogwood (*Corpus florida*), black cherry (*Prunus serotina*) seedlings, sugar maple (*Acer saccharum*) seedlings, mapleleaf viburnum (*Viburnum acerifolium*), and red maple (*Acer rubrum*) seedlings.

Plant Association 5.—Sugar maple (*Acer saccharum*)-American beech (*Fagus grandifolia*)-Clubmoss (*Lycopodium obscurum, L. lucidulum*). This association is on sandy moraines and sandy lake plains in areas of soils that have dark horizons in the subsoil. Potential late successional overstory species include sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), northern red oak (*Quercus rubra*), and red maple (*Acer rubrum*). The association is characterized by low diversity and coverage of ground flora along the forest floor. Distinguishing understory and ground flora species include lily of the valley (*Maianthemum canadense*), clubmosses (*Lycopodium obscurum and L. lucidulum*), true Solomon's seal (*Polygonatum biflorum*), longstalk sedge (*Carex pedunculata*), and sugar maple (*Acer saccharum*) seedlings.

Plant Association 6.—Sugar maple (*Acer saccharum*)-White ash (*Fraxinus americana*)-Sweet cicely (*Osmorhiza claytonii*). This association is in areas of coarse textured over fine textured soils on moraines, till plains, and lake beds. Potential late successional overstory species include sugar maple (*Acer saccharum*), white ash (*Fraxinus americana*), American basswood (*Tilia americana*), eastern hemlock (*Tsuga canadensis*), black cherry (*Prunus serotina*), and northern red oak (*Quercus rubra*). The association is characterized by diverse and abundant ground flora on the forest floor. Distinguishing understory and ground flora species include sweet cicely (*Osmorhiza claytonii*), wild leek (*Allium tricoccum*), false miterwort (*Tiarella cordifolia*), true miterwort (*Mitella diphylla*), Canada white violet (*Viola canadensis*), bellwort (*Uvularia perfoliata*), grapefern (*Botrychium virginianum*), blue cohosh (*Caulophyllum*

thalictroides), sugar maple (*Acer saccharum*) seedlings, and white ash (*Fraxinus americana*) seedlings.

Plant Association 7.—Northern red oak (*Quercus rubra*)-Red maple (*Acer rubrum*)-Leatherleaf (*Chamaedaphne calyculata*)-Blueberry (*Vaccinium angustifolium*). This association is in areas of poorly drained, acidic sand deposits on outwash plains and lake plains. Potential late successional overstory species include northern red oak (*Quercus rubra*), black oak (*Quercus velutina*), white oak (*Quercus alba*), red maple (*Acer rubrum*), and eastern white pine (*Pinus strobus*). The association is characterized by species adapted to acidic and frequent anaerobic soil conditions. Distinguishing understory and ground flora species include leatherleaf (Chamaedaphne calyculata), blueberry (*Vaccinium angustifolium*), Labrador tea (*Ledum groenlandicum*), wintergreen (*Gaultheria procumbens*), dewberry (*Rubus spp.*), brackenfern (*Pteridium aquilinum*), and speckled alder (*Alnus rugosa*).

Plant Association 8.—Red maple (*Acer rubrum*)-Balsam fir (*Abies balsamea*)-Bunchberry dogwood (*Corpus canadensis*). This association is on outwash plains, flood plains, and lake plains in areas of sandy deposits that are slightly acid to alkaline. Potential late successional overstory species include red maple (*Acer rubrum*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), balsam fir (*Abies balsamea*), and eastern white pine (*Pinus strobus*). Distinguishing understory and ground flora species include lily of the valley (*Maianthemum canadense*), bunchberry dogwood (*Corpus canadensis*), goldthread (*Coptis groenlandica*), wintergreen (*Gaultheria procumbens*), and spinulose shield fern (*Dryopteris spinulosa*).

Plant Association 9.—Mixed ash (*Fraxinus spp.*)-Basswood (*Tilia americana*)-Downy yellow violet (*Viola pubescens*). This association is in areas of poorly drained, nutrient-rich, loamy soils on lake beds, till plains, and flood plains. Organic deposits are shallow. Potential late successional overstory species include American basswood (*Tilia americana*), eastern hemlock (*Tsuga canadensis*), black ash (*Fraxinus nigra*), green ash (*Fraxinus pennsylvanica*), and northern whitecedar (*Thuja occidentalis*). Distinguishing understory and ground flora species include downy yellow violet (*Viola pubescens*), maidenhair fern (*Adiantum pedatum*), cinnamon fern (*Osmunda cinnamomea*), jack-in-the-pulpit (*Arisaema triphyllum*), and bellwort (*Uvularia perfoliata*).

Plant Association 10.—Black spruce (*Picea mariana*)-Tamarack (*Larix laricina*)-Labrador tea (*Ledum groenlandicum*). This association is in areas of poorly drained, dysic organic deposits on outwash plains and lake plains. The organic deposits are deep. The association is characterized by acid bog conditions. The overstory is sparse, and black spruce (*Picea mariana*) and tamarack (*Larix laricina*) are the predominant species. Distinguishing understory and ground flora species include Labrador tea (*Ledum groenlandicum*), leatherleaf (*Chamaedaphne calyculata*), sphagnum (*Sphagnum spp.*), and speckled alder (*Alnus rugosa*).

Plant Association 11.—Northern whitecedar (*Thuja occidentalis*)-Eastern hemlock (*Tsuga canadensis*)-Canada violet (*Viola canadense*). This association is in areas of poorly drained, euic organic deposits on flood plains, till plains, and lake beds. The organic deposits are deep. Potential late successional overstory species include northern whitecedar (*Thuja occidentalis*), eastern hemlock (*Tsuga canadensis*), white spruce (*Picea glauca*), and black ash (*Fraxinus nigra*). Distinguishing understory and ground flora species include Canada violet (*Viola canadense*), maidenhair fern (*Adiantum pedatum*), bedstraws (*Galium spp.*), and lily of the valley (*Maianthemum canadense*).

Plant Communities on Selected Soils

Table 9 lists plants that are typically associated with soils in the survey area. Plants are listed in the table on the basis of sample site information. Sample sites were

selected for vegetative analysis after detailed soil maps and soil series descriptions were completed in an area. Once the soils were verified, representative vegetative communities were selected. The sample sites are in areas that are relatively free of recent disturbances, such as fire, tree harvesting, or noticeable insect or disease infestations, and that exhibit typical stocking densities.

The sample sites were approximately 10,000 square feet in size. Plant species were identified and recorded, and an ocular estimate was made of the percent coverage for each species. The percentage of canopy coverage was estimated for tree species, and the percentage of ground coverage was estimated for other plants.

The plants listed in table 9 for each map unit were selected on the basis of information from two to ten sample sites. They are considered the typical plants in the map unit, but they are not the only plants in the map unit (Voss, 1972, 1985, 1996). Only the common plant names are shown in the table. The common names are those on a national list of plant names (http://plants.usda.gov).

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

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. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

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 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 0.00 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.

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

Lynn Sampson, State Biologist, Natural Resources Conservation Service, helped prepare this section.

The habitat for wildlife in Benzie and Manistee Counties is very diverse. Habitats include open farmland, hardwood and conifer forests, grasslands, wetlands, rivers and streams, and inland lakes.

Before the county was settled by Europeans, such wildlife species as black bear, cougar, lynx, bobcat, white-tailed deer, and timber wolf were common. The passenger pigeon was abundant in the forested areas. With agricultural development and the forest regeneration following the logging that occurred during the late 1800s, the species suited to second-growth forest, brushy edges, and farmland became dominant. The populations of white-tailed deer, red fox, coyote, ruffed grouse, snowshoe hare, and cottontail rabbit increased.

The interspersion of farmland with woodland is ideal for the large population of white-tailed deer in the area. Cottontail rabbits are associated with cropland, farmsteads, and abandoned structures. Wetlands that support shrubs and trees provide habitat for snowshoe hare. Tree squirrels, including both fox squirrels and gray squirrels, inhabit the woodlands throughout the survey area.

The wooded streams and wetlands provide habitat for mink, river otter, and beaver. Pine marten and eastern wild turkey have been reintroduced into the area.

The diverse wetlands in the area are important habitats for a wide variety of birds, including waterfowl. Flooded areas of timber are good nesting sites for wood duck. Marshy areas provide suitable habitat for mallards, teal, sandhill cranes, blue heron, green heron, and numerous songbirds.

The rivers, streams, and lakes in the area provide habitat for populations of northern pike, walleye, largemouth bass, bluegill, sunfish, and crappie. The area is famous for the salmon and trout populations that are seasonally abundant in the rivers and streams.

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, wheat, and oats.

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 fescue, bromegrass, clover, and alfalfa.

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 bluestem, goldenrod, beggarweed, wheatgrass, and grama.

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, apple, hawthorn, dogwood, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are Russian-olive, autumn-olive, and crabapple.

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 juniper.

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, cordgrass, rushes, sedges, and reeds.

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, and 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 bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, 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, woodcock, thrushes, woodpeckers, squirrels, gray fox, 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.

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 estimated data and test data in the "Soil Properties" section.

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 gravel, sand, 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 13a and 13b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and shallow excavations.

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 0.00 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.

Sanitary Facilities

Tables 14a and 14b show 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 tables indicate the 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 (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

Tables 15a and 15b give information about the soils as potential sources of gravel, sand, reclamation material, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 15a, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

In table 15b, 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 16a and 16b 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; grassed waterways; and drainage. 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).

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 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 or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, 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.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, a cemented pan, or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. Availability of drainage outlets is not considered in the ratings.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined 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.

Engineering Index Properties

Table 17 gives the engineering classifications and the range of engineering 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. “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, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

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.

Physical Properties of the Soils

Table 18 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.

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 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 linear extensibility, 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 (Ksat) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (Ksat). 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.

Erosion factors are shown in the table as the K factor 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 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. The groups are described in the “National Soil Survey Handbook,” which is available in local offices of the Natural Resources Conservation Service or on the Internet.

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 of the Soils

Table 19 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.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, 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.

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.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

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.

Soil Features

Table 20 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. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

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.

Water Features

Soil moisture status is an estimate of the fluctuating water content in a soil. It greatly influences vegetation type and plant growth; physical properties of soils, such as permeability, workability, strength, linear extensibility, and frost action; and chemical interactions and transport. Many other properties, qualities, and interpretations also are affected. Soil moisture status is important in the classification of soils, wetland, and habitat.

Table 21 gives estimates of soil moisture for each component of a map unit at various depths for every month of the year. The depths displayed are representative values that are indicative of conditions that occur most commonly. *Dry* indicates a moisture condition under which most plants (especially crops) cannot extract water for growth. *Moist* indicates a moisture condition under which soil water is most readily available for plant growth. *Wet* indicates a condition under which water will stand in an unlined hole or at least a condition under which the soil is too wet for the growth of most agricultural species. A moisture status of 4.0-6.7 (wet) indicates that most of the time the component is saturated at some depth between 4.0 feet and 6.7 feet during the month designated. In some years the soil may be saturated at a depth of less than 4.0 feet or more than 6.7 feet; however, field observations indicate that the soil will be saturated between these depths in most years. In the summer, the soil may show the effects of drying plus intermittent rains that result in a moist or wet layer over a dry layer that gets moist or wet again.

Table 22 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 22 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.

Table 22 also shows 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. The table 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.

Characterization Data for Selected Soils

Some of the major soils in Benzie and Manistee Counties were sampled by the Soil Survey Laboratory in Lincoln, Nebraska. The laboratory data obtained from the soil samples included analyses of particle-size distribution, rock fragments, bulk density, and moisture retention. Complete chemical analyses were also performed on each sample. Standard National Cooperative Soil Survey procedures were used for all analyses (USDA/NRCS, 1996).

These data were used in classifying and correlating the soils and in evaluating their behavior, especially under forestry uses. Twenty-two pedons were selected as representative of their respective series. These series and their laboratory identification numbers are as follows:

Benzonia (S96MI-019-002)
Brethren (S96MI-019-001)
Capac (S01MI-101-001)
Copemish (S96MI-101-003)
Dair (S97MI-019-001)
Filer (S01MI-101-002)
Fogg (S01MI-019-001)
Healylake (S97MI-101-002)
Jebavy (S97MI-101-001)
Kaleva (S96MI-101-002, S95MI-019-001)
Milarch (S01MI-101-004)
Nessen (S02MI-019-001)
Nordhouse (S95MI-019-003, S99MI-019-001, S99MI-019-002, S99MI-101-001, S95MI-019-001)
Pipestone (S95MI-019-001)
Platteriver (S95MI-019-002)
Shavenaugh (S96MI-019-004)
Tatches (S01MI-101-003)

Information from all of these soil analyses is available from the Soil Survey Laboratory in Lincoln, Nebraska (online at http://soils.usda.gov), and in the State office of the Natural Resources Conservation Service, East Lansing, Michigan.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 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 23 gives 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 Alfisol.

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 Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

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; type of saturation; 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 Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalfs*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup 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 taxonomic class. 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 Hapludalfs.

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, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, mixed, semiactive, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Taxonomic Units and Their Morphology

In this section, each soil series or higher taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified. 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) and in the “Field Book for Describing and Sampling Soils” (Schoeneberger and others, 2002). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1999) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Abscota Series

The Abscota series consists of moderately well drained soils on flood plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 3 percent.

Taxonomic classification: Mixed, mesic Oxyaquic Udipsamments

Typical pedon of Abscota loamy fine sand, in an area of Glendora-Algansee-Abscota complex, 0 to 3 percent slopes, frequently flooded; 915 feet north and 450 feet east of the southwest corner of sec. 29, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Pleasanton, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 43.6 seconds N. and long. 86 degrees 02 minutes 18.8 seconds W., NAD 83:

A—0 to 4 inches; very dark gray (10YR 3/1) loamy fine sand, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many very fine and fine roots and common medium and coarse roots; strongly acid; abrupt wavy boundary.

Bw1—4 to 9 inches; dark yellowish brown (10YR 4/4) loamy fine sand; weak very fine subangular blocky structure; friable; many very fine and fine roots and common medium and coarse roots; moderately acid; clear wavy boundary.

Bw2—9 to 18 inches; light yellowish brown (10YR 5/4) fine sand; weak fine subangular blocky structure; very friable; common fine and many medium and coarse roots; slightly acid; clear wavy boundary.

C1—18 to 28 inches; yellowish brown (10YR 5/4) fine sand and sand; single grain; loose; common medium and coarse roots; slightly acid; clear wavy boundary.

C2—28 to 32 inches; yellowish brown (10YR 5/4) fine sand and sand; single grain; loose; few medium and coarse roots; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation in the matrix; neutral; abrupt wavy boundary.

C3—32 to 36 inches; dark yellowish brown (10YR 4/4) fine sand and sand; single grain; loose; few fine distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; neutral; abrupt wavy boundary.

C4—36 to 40 inches; yellowish brown (10YR 5/4) fine sand and sand; single grain; loose; common medium faint brown (10YR 5/3) masses of iron accumulation in the matrix; slightly alkaline; abrupt smooth boundary.

2C5—40 to 44 inches; brown (7.5YR 4/2), stratified loamy sand and sand; single grain; massive; slightly alkaline; abrupt smooth boundary.

3C6—44 to 80 inches; brown (7.5YR 4/3), stratified sand, gravelly sand, and very gravelly sand; strata of very dark brown (7.5YR 2.5/2 loamy sand and sandy loam 1/4 to 1/2 inch thick; single grain; loose; individual layers of gravel range from 0 to 40 percent; common medium faint yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly effervescent; slightly alkaline.

The content of gravel ranges from 0 to 10 percent above the C1 horizon and from 0 to 40 percent in the C horizons. The depth to redoximorphic features ranges from 30 to more than 60 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 3. It is loamy fine sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 6. It is fine sand, sand, loamy fine sand, or loamy sand.

The C horizons have hue of 7.5YR or 10YR, value of 3 to 7, and chroma of 2 to 6. They are fine sand, sand, coarse sand, or gravelly sand. Thin strata (1/4 to 1/2 inch thick) of loamy sand and/or sandy loam are common below a depth of 30 inches. Thin layers of gravelly coarse sand and very gravelly sand are common below a depth of 40 inches.

Adrian Series

The Adrian series consists of very poorly drained soils in depressions on outwash plains, lake plains, moraines, and flood plains. These soils formed in 16 to 51 inches of organic material over sandy material. Permeability is moderately slow to moderately rapid in the organic material and rapid in the sandy material. Slopes range from 0 to 2 percent.

Taxonomic classification: Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists

Typical pedon of Adrian muck, in an area of Houghton-Adrian mucks; 150 feet north and 30 feet west of the southeast corner of sec. 10, T. 25 N., R. 14 W., Weldon Township, Benzie County, Michigan; USGS Thompsonville, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 34 minutes 17.9 seconds N. and long. 85 degrees 58 minutes 39.4 seconds W., NAD 83:

Oa1—0 to 7 inches; muck, black (N 2.5/) broken face and rubbed; about 20 percent fiber, less than 5 percent rubbed; moderate medium granular structure; very friable; many very fine to coarse roots; 5 percent wood fragments; slightly acid; clear wavy boundary.

Oa2—7 to 20 inches; black (7.5YR 2.5/1) muck, black (5YR 2.5/1) broken face and rubbed; about 30 percent fiber, 10 percent rubbed; moderate thick platy structure; very friable; common very fine to coarse roots; 5 percent wood fragments; neutral; clear wavy boundary.

Oa3—20 to 35 inches; muck, very dusky red (2.5YR 2.5/2) broken face and reddish black (2.5YR 2.5/1) rubbed; about 50 percent fiber, 10 percent rubbed; moderate thin platy structure; very friable; few very fine to coarse roots; 5 percent wood fragments; neutral; abrupt wavy boundary.

Cg—35 to 80 inches; weak red (2.5YR 5/2) sand; single grain; loose; neutral.

The depth to the sandy material ranges from 16 to 51 inches.

The surface tier has hue of 2.5YR to 10YR or is neutral in hue. It has value of 2 and chroma of 0 or 1. It is muck.

The subsurface tiers have hue of 2.5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. They are muck.

The C horizon has hue of 2.5YR to 2.5Y, value of 2 to 6, and chroma of 1 or 2. It is sand.

Alfic Haplorthods, sandy

Alfic Haplorthods are well drained soils on outwash plains, end moraines, and ground moraines. These soils formed in sandy and loamy deposits. Permeability is rapid in the sandy material and moderate in the loamy material. Slopes range from 0 to 70 percent.

Taxonomic classification: Sandy, mixed, mesic Alfic Haplorthods

Reference pedon of Alfic Haplorthods, sandy, in an area of Alfic Haplorthods, sandy over loamy-Alfic Haplorthods, sandy, complex, nearly level and undulating; 1,800 feet south and 950 feet west of the northeast corner of sec. 20, T. 17 N., R. 15 W., Logan Township, Mason County, Michigan; USGS Carr, Michigan, 7.5-minute topographic quadrangle; lat. 43 degrees 51 minutes 16 seconds N. and long. 86 degrees 07 minutes 19 seconds W., NAD 83:

Oe—0 to 2 inches; partially decomposed hardwood leaf litter.
A—2 to 5 inches; very dark grayish brown (10YR 3/2) loamy sand, brown (10YR 4/3) dry; weak fine granular structure; very friable; many very fine and fine roots; moderately acid; clear irregular boundary.
E—5 to 6 inches; light gray (10YR 7/2) sand, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; many very fine and fine roots; moderately acid; clear irregular boundary.
Bs1—6 to 9 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; friable; moderately acid; gradual wavy boundary.
Bs2—9 to 24 inches; dark yellowish brown (10YR 4/6) sand; weak medium subangular blocky structure; friable; moderately acid; abrupt wavy boundary.
BC—24 to 44 inches; yellowish brown (10YR 5/6) sand; weak fine subangular blocky structure; very friable; moderately acid; clear irregular boundary.
2Bt—44 to 52 inches; brown (7.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; many distinct brown (7.5YR 4/4) clay films on faces of peds; slightly acid; abrupt wavy boundary.
3C1—52 to 84 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; slightly acid; clear wavy boundary.
3C2—84 to 92 inches; yellowish brown (10YR 5/6) loamy sand; single grain; loose; slightly acid; clear wavy boundary.
3C3—92 to 180 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; slightly acid.

The depth to the C horizon ranges from 20 to 55 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is sand or loamy sand.

The E horizon has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 2 or 3. It is sand or loamy sand. Some pedons do not have an E horizon.

The Bs1 horizon has hue of 5YR or 7.5YR and value and chroma of 3 to 6. It is sand or loamy sand. Some pedons have a Bhs horizon.

The Bs2 horizon has hue of 5YR to 10YR and value and chroma of 3 to 6. It is sand or loamy sand.

The 2Bt horizon has hue of 7.5YR or 5YR, value of 3 to 5, and chroma of 3 to 6. It is sandy loam, loam, sandy clay loam, or fine sandy loam.

The 3C horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 4 to 6. It is sand, loamy sand, fine sand, or sandy loam.

Alfic Oxyaquic Haplorthods, sandy

Alfic Oxyaquic Haplorthods are moderately well drained soils on outwash plains, end moraines, and ground moraines. These soils formed in sandy and loamy deposits. Permeability is rapid in the sandy material and moderately slow or slow in the loamy material. Slopes range from 0 to 6 percent.

Taxonomic classification: Sandy, mixed, mesic Alfic Oxyaquic Haplorthods

Reference pedon of Alfic Oxyaquic Haplorthods, sandy, in an area of Alfic Oxyaquic Haplorthods-Typic Haplorthods, loamy substratum, complex, sandy, nearly level and undulating; 840 feet north and 460 feet east of the southwest corner of sec. 22, T. 22 N., R. 13 W., Dickson Township, Manistee County, Michigan; USGS Yuma, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 17 minutes 11 seconds N. and long. 85 degrees 52 minutes 07 seconds W., NAD 83:

Oe—0 to 1 inch; partially decomposed hardwood leaf litter.

A—1 to 5 inches; black (10YR 2/1) sand, very dark gray (10YR 3/1) dry; single grain; loose; many fine roots; strongly acid; abrupt smooth boundary.

E—5 to 8 inches; brown (10YR 5/3) sand, light brownish gray (10YR 6/2) dry; single grain; loose; many very fine to medium roots; very strongly acid; abrupt smooth boundary.

Bhs—8 to 12 inches; dark brown (7.5YR 3/3) sand; weak fine subangular blocky structure; very friable; few very fine to medium roots; slightly acid; diffuse wavy boundary.

Bs—12 to 31 inches; brown (7.5YR 4/4) sand; weak fine subangular blocky structure; very friable; few very fine roots; slightly acid; abrupt smooth boundary.

Bw1—31 to 42 inches; yellowish brown (10YR 5/4) sand; weak fine subangular blocky structure; very friable; very few roots; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid; abrupt smooth boundary.

Bw2—42 to 44 inches; pale brown (10YR 6/3) loamy coarse sand; 14 percent gravel; some dark yellowish brown (10YR 3/4) organic staining; weak fine subangular blocky structure; firm; many very fine and fine roots; few fine distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; slightly acid; abrupt smooth boundary.

2E/B—44 to 49 inches; 60 percent reddish gray (5YR 5/2) loamy sand (E), light gray (5YR 7/1) dry; single grain; loose; 40 percent reddish brown (2.5YR 4/3) clay loam (Bt); moderate fine or medium subangular blocky structure; friable; brown (7.5YR 5/3) clay films on Bt material; moderately acid; clear smooth boundary.

2Bt—49 to 57 inches; reddish brown (2.5YR 4/3) clay loam; clay films; moderate fine or medium subangular blocky structure; firm; common very fine and fine roots in cracks; moderately acid; abrupt smooth boundary.

3C—57 to 84 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; very few roots; slightly acid.

The depth to the C horizon ranges from 20 to 60 inches. The content of gravel ranges from 0 to 14 percent throughout the profile.

The A horizon has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 1 or 2. It is sand, loamy sand, fine sandy loam, or loamy fine sand.

The E horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or 3. It is sand or fine sand. Some pedons do not have an E horizon.

The Bhs horizon has hue of 5YR or 7.5YR and value and chroma of 3. It is sand, fine sand, loamy coarse sand, loamy sand, or loamy fine sand.

The Bs horizon has hue of 5YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6. Value and chroma of 3 do not occur together. The texture is sand, fine sand, loamy coarse sand, loamy sand, or loamy fine sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6. It is sand, fine sand, loamy coarse sand, loamy sand, or loamy fine sand. In some pedons, as much as 20 percent of this horizon consists of lenses or bands of gravel.

The E part of the 2E/B horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 2. It is sand, fine sand, or loamy sand.

The Bt part of the 2E/B horizon and the 2Bt horizon have hue of 2.5YR to 10YR, value of 3 to 5, and chroma of 3 to 6. The texture is sandy clay loam or clay loam. In

some pedons, as much as 35 percent of these horizons consists of lenses or bands of gravel.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. It is dominantly sand, but the range includes textural layers and gravel.

Algansee Series

The Algansee series consists of somewhat poorly drained soils on flood plains. These soils formed in sandy deposits over sandy and gravelly material. Permeability is rapid or very rapid. Slopes range from 0 to 3 percent.

Taxonomic classification: Mixed, mesic Aquic Udipsamments

Typical pedon of Algansee loamy fine sand, in an area of Glendora-Algansee-Abscota complex, 0 to 3 percent slopes, frequently flooded; 710 feet north and 325 feet east of the southwest corner of sec. 29, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Pleasanton, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 41.4 seconds N. and long. 86 degrees 02 minutes 23 seconds W., NAD 83:

A1—0 to 3 inches; very dark gray (10YR 3/1) loamy fine sand, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; many fine, medium, and coarse roots; moderately acid; abrupt smooth boundary.

A2—3 to 9 inches; very dark gray (10YR 3/1) loamy fine sand, grayish brown (10YR 5/2) dry; single grain; loose; many medium prominent yellowish red (5YR 4/6) iron depletions in the matrix; strongly acid; clear wavy boundary.

C1—9 to 15 inches; pale brown (10YR 6/3) sand; single grain; loose; many coarse faint grayish brown (10YR 5/2) iron depletions in the matrix; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

C2—15 to 21 inches; brown (10YR 5/3) sand; single grain; loose; many coarse faint grayish brown (10YR 5/2) iron depletions in the matrix; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

Cg1—21 to 32 inches; grayish brown (10YR 5/2) sand; single grain; loose; slightly alkaline; abrupt wavy boundary.

2Cg2—32 to 37 inches; dark grayish brown (10YR 4/2) gravelly sand; single grain; loose; 30 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

2Cg3—37 to 80 inches; dark grayish brown (10YR 4/2), stratified sand and gravelly sand; single grain; loose; 5 percent gravel with individual lenses making up as much as 20 percent; slightly effervescent; slightly alkaline.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. It is loamy fine sand. The content of gravel ranges from 0 to 14 percent.

Some pedons have a Bw horizon. This horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6. It is loamy fine sand, fine sand, sand, or loamy sand.

The C horizons have hue of 2.5Y to 5YR, value of 3 to 7, and chroma of 2 to 4. They are sand, gravelly sand, or stratified sand and gravel. In some pedons they have thin strata of loam, sandy loam, loamy sand, loamy fine sand, loamy very fine sand, very fine sandy loam, or gravel. Some pedons have thin layers darkened by organic matter. The content of gravel ranges from 0 to 20 percent in the C horizons and from 5 to 35 percent in the 2C horizons.

Aquents

Aquents consist of very poorly drained soils on lake plains, outwash plains, till plains, moraines, and flood plains. These soils formed in sandy material underlain by loamy till, lacustrine sediments, or sandy deposits. Permeability is rapid in the sandy material and varies in the lower part of the profile. Slopes range from 0 to 2 percent.

Taxonomic classification: Aquents

Reference pedon of Aquents, in an area of Histosols and Aquents, ponded; 2,350 feet south and 50 feet west of the northeast corner of sec. 22, T. 23 N., R. 14 W., Maple Grove Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 22 minutes 36.4 seconds N. and long. 85 degrees 58 minutes 50.4 seconds W., NAD 83:

Oa—0 to 5 inches; muck, black (N 2.5/) broken face and rubbed; about 20 percent fiber, less than 5 percent rubbed; weak fine subangular blocky structure; very friable; strongly acid; abrupt smooth boundary.

Bg—5 to 24 inches; gray (N 5/) sand; single grain; loose; strongly acid; clear wavy boundary.

Cg—24 to 80 inches; light brownish gray (10YR 6/2) sand; single grain; loose; slightly acid.

The O horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 or 1. It is muck.

Some pedons have an A horizon. This horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 or 1. It is mucky sand, mucky loamy sand, mucky loamy fine sand, sand, loamy sand, loamy fine sand, sandy loam, or fine sandy loam.

The Bg horizon has hue of 7.5YR to 2.5Y or is neutral in hue. It has value of 4 to 6 and chroma of 0 to 3. It is sand, fine sand, loamy sand, or loamy fine sand.

The C horizon has hue of 5Y to 2.5YR, value of 4 to 6, and chroma of 1 to 6. It is sand, gravelly sand, or fine sand. Some pedons have a 2C horizon. This horizon is sandy loam, gravelly sandy loam, fine sandy loam, loam, or clay loam.

Aquic Udipsamments

Aquic Udipsamments consist of moderately well drained soils on outwash plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 6 percent.

Taxonomic classification: Mixed, mesic Aquic Udipsamments

Reference pedon of Aquic Udipsamments, nearly level; 2,640 feet north and 1,350 feet west of the southeast corner of sec. 19, T. 20 N., R. 17 W., Grant Township, Mason County, Michigan; USGS Hamlin Lake, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 07 minutes 03 seconds N. and long. 86 degrees 23 minutes 10 seconds W., NAD 83:

Oe—0 to 1 inch; partially decomposed hardwood leaf litter.

A—1 to 3 inches; very dark gray (10YR 3/1) sand, dark grayish brown (10YR 4/2) dry; weak fine granular structure; very friable; many fine roots; strongly acid; clear wavy boundary.

E—3 to 8 inches; brown (10YR 5/3) sand; weak fine and medium granular structure; very friable; strongly acid; clear wavy boundary.

Bw—8 to 26 inches; dark yellowish brown (10YR 4/6) sand; weak fine subangular blocky structure; friable; strongly acid; gradual wavy boundary.

BC—26 to 46 inches; yellowish brown (10YR 5/4) sand; weak medium subangular blocky structure; friable; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; strongly acid; gradual wavy boundary.

C—46 to 60 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common medium distinct light brownish gray (10YR 6/2) masses of iron accumulation in the matrix; strongly acid.

The depth to the C horizon ranges from 25 to 60 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is dominantly sand, but the range includes loamy sand.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 2 to 4. It is sand or loamy sand.

The Bw horizon has hue of 10YR and value and chroma of 4 to 6. It is sand.

The C horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 6. It is sand. Some pedons have strata of loamy sand to fine sandy loam at a depth of more than 60 inches.

Benona Series

The Benona series consists of excessively drained soils on lake plains, outwash plains, and moraines. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Sandy, mixed, mesic Lamellic Haplorthods

Typical pedon of Benona sand, 0 to 6 percent slopes; 600 feet south and 2,500 feet east of the northwest corner of sec. 1, T. 26 N., R. 13 W., Inland Township, Benzie County, Michigan; USGS Lake Ann, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 41 minutes 15 seconds N. and long. 85 degrees 49 minutes 40 seconds W., NAD 83:

A—0 to 2 inches; black (10YR 2/1) sand, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; many very fine to coarse roots; about 2 percent gravel; extremely acid; abrupt wavy boundary.

E—2 to 6 inches; dark grayish brown (10YR 4/2) sand, light gray (10YR 7/2) dry; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; about 2 percent gravel; strongly acid; abrupt wavy boundary.

Bs1—6 to 9 inches; brown (7.5YR 4/4) sand; weak very fine subangular blocky structure; very friable; common very fine to coarse roots; about 2 percent gravel; strongly acid; clear wavy boundary.

Bs2—9 to 17 inches; strong brown (7.5YR 4/6) sand; weak very fine subangular blocky structure; very friable; common very fine to coarse roots; about 2 percent gravel; strongly acid; clear wavy boundary.

Bw—17 to 28 inches; brownish yellow (10YR 6/6) sand; weak very fine subangular blocky structure; loose; few fine and medium roots; about 2 percent gravel; strongly acid; gradual wavy boundary.

E´—28 to 46 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; about 2 percent gravel; strongly acid; gradual wavy boundary.

E and Bt—46 to 80 inches; about 95 percent pale brown (10YR 6/3) sand (E); single grain; loose; strong brown (7.5YR 5/6) loamy sand (Bt) consisting of several wavy and discontinuous and continuous lamellae 1/16 to 1/8 inch thick; lamellae are 2 to 8 inches apart (total thickness equals 1 inch); single grain; very friable; about 3 percent gravel; moderately acid.

The depth to the first lamellae ranges from 34 to 50 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3. It is sand.

The E horizon has hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 1 or 2. It is sand.

The Bs horizons are sand. The Bs1 horizon has hue of 7.5YR, value of 3 or 4, and chroma of 4. The Bs2 horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 6.

The Bw horizon has hue of 10YR and value and chroma of 4 to 6. It is sand.

The E´ horizon and the E part of the E and Bt horizon have hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 2 to 4. They are sand.

The Bt part of the E and Bt horizon consists of lamellae that are 1/8 to 1/4 inch thick and have a total thickness of less than 6 inches. The lamellae have hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 to 6. They are loamy sand.

Benzonia Series

The Benzonia series consists somewhat excessively drained soils on outwash plains, moraines, and lake plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 50 percent.

Taxonomic classification: Sandy, isotic, mesic Lamellic Haplorthods

Typical pedon of Benzonia sand, 0 to 6 percent slopes; 1,100 feet north and 1,100 feet west of the southeast corner of sec. 14, T. 25 N., R. 14 W., Weldon Township, Benzie County, Michigan; USGS Thompsonville, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 33 minutes 35 seconds N. and long. 85 degrees 57 minutes 46 seconds W., NAD 83:

A—0 to 5 inches; 50 percent black (5YR 2.5/1) and dark reddish brown (5YR 2.5/2) sand, dark gray (N 4/) dry; weak medium granular structure; very friable; many very fine to coarse roots; very strongly acid; clear wavy boundary.

E—5 to 11 inches; reddish gray (5YR 5/2) sand, pinkish gray (7.5YR 7/2) dry; weak fine granular structure; very friable; many very fine to coarse roots; strongly acid; abrupt wavy boundary.

Bhs1—11 to 15 inches; dark reddish brown (5YR 2.5/2) sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots; strongly acid; clear irregular boundary.

Bhs2—15 to 20 inches; dark reddish brown (5YR 3/3) sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots; strongly acid; clear irregular boundary.

Bs1—20 to 27 inches; dark reddish brown (5YR 3/4) sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots; strongly acid; clear wavy boundary.

Bs2—27 to 35 inches; strong brown (7.5YR 5/6) sand; massive; very friable; many very fine to coarse roots; strongly acid; clear wavy boundary.

E and Bt—35 to 80 inches; about 95 percent brown (7.5YR 5/4) sand (E); single grain; loose; brown (7.5YR 4/4) loamy sand (Bt) consisting of several wavy and discontinuous lamellae 1/8 to 1/4 inch thick (total thickness equals 3 inches); massive; friable; few fine roots; common faint brown (7.5YR 4/4) clay bridges between sand grains (Bt); moderately acid.

The depth to the first lamellae ranges from 30 to 55 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR to 5YR, value of 2 or 2.5, and chroma of 1 or 2. It is sand.

The E horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 2. It is sand.

The Bhs horizon has hue of 5YR or 7.5YR, value of 2.5 or 3, and chroma of 2 or 3. It is sand.

The Bs horizon has hue of 7.5YR or 5YR, value of 3 to 5, and chroma of 4 to 6. Some pedons have a Bw horizon. This horizon has hue of 10YR, value of 5, and chroma of 6. It is sand.

The E part of the E and Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4. It is sand. Some pedons have an E´ horizon above the E and Bt horizon. This horizon has the same colors and textures as those in the E part of the E and Bt horizon.

The Bt part of the E and Bt horizon consists of lamellae that are 1/8 to 1/4 inch thick and have a total thickness of less than 6 inches. The lamellae have hue of 7.5YR and value and chroma of 4. They are loamy sand.

Boyer Series

The Boyer series consists of well drained soils on moraines. These soils formed in loamy deposits over sandy and gravelly material. Permeability is moderate in the loamy material and rapid in the sandy material. Slopes range from 0 to 50 percent.

Taxonomic classification: Coarse-loamy, mixed, semiactive, mesic Typic Hapludalfs

Typical pedon of Boyer fine sandy loam, in an area of Boyer-Shavenaugh complex, 0 to 6 percent slopes; 1,200 feet south and 375 feet east of the northwest corner of sec. 35, T. 24 N., R. 13 W., Cleon Township, Manistee County, Michigan; USGS Harlan, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 11 seconds N. and long. 85 degrees 51 minutes 27 seconds W., NAD 83:

A—0 to 3 inches; black (N 2.5/) fine sandy loam, very dark gray (N 3/) dry; moderate medium subangular blocky structure; friable; common coarse and many very fine to medium roots; slightly acid; about 10 percent gravel; abrupt wavy boundary.

E—3 to 4 inches; dark grayish brown (10YR 4/2) gravelly sandy loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; common coarse and many very fine to medium roots throughout; slightly acid; about 30 percent gravel; abrupt broken boundary.

Bt1—4 to 14 inches; dark yellowish brown (10YR 4/4) gravelly sandy loam; moderate medium subangular blocky structure; friable; common coarse and many very fine to medium roots; neutral; common faint patchy dark yellowish brown (10YR 4/4) (moist) clay bridging between sand grains; about 34 percent gravel; clear wavy boundary.

Bt2—14 to 30 inches; dark brown (10YR 3/3) gravelly sandy loam; moderate medium subangular blocky structure; friable; many very fine to medium roots; many distinct dark brown (10YR 3/3) clay films on faces of peds; about 30 percent gravel; neutral; clear irregular boundary.

2C1—30 to 45 inches; brown (10YR 5/3) very gravelly sand; single grain; loose; common fine roots throughout; about 55 percent gravel; violently effervescent; moderately alkaline; abrupt smooth boundary.

2C2—45 to 80 inches; 65 percent pale brown (10YR 6/3) and light yellowish brown (10YR 6/4) gravelly sand and sand; single grain; loose; about 20 percent gravel; moderately alkaline; strongly effervescent.

The depth to carbonates ranges from 20 to 40 inches.

The A horizon is neutral in hue and has value of 2.5 and chroma of 0. It is fine sandy loam. The content of gravel ranges from 1 to 30 percent.

The E horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 6. It is gravelly sandy loam or fine sandy loam. The content of gravel ranges from 1 to 30 percent.

The Bt horizon has hue of 10YR or 7.5YR and value and chroma of 3 or 4. It is gravelly sandy loam or sandy clay loam. The content of gravel ranges from 1 to 35 percent.

The 2C horizon has hue of 10YR, value of 4 to 6, and chroma of 3 to 6. It is very gravelly sand, gravelly sand, gravelly loamy sand, or stratified gravelly sand and sand. The content of gravel ranges from 10 to 55 percent.

Brethren Series

The Brethren series consists of moderately well drained soils on outwash plains and lake plains (fig. 14). These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 6 percent.

Taxonomic classification: Sandy, isotic, mesic Oxyaquic Haplorthods

Typical pedon of Brethren sand, 0 to 6 percent slopes; 1,550 feet south and 1,790 feet west of the northeast corner of sec. 26, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 27 minutes 03 seconds N. and long. 85 degrees 57 minutes 59 seconds W., NAD 83:

A—0 to 4 inches; black (N 2.5/) sand, dark gray (N 4/) dry; weak fine granular structure; very friable; many very fine to coarse and few very coarse roots throughout; very strongly acid; abrupt wavy boundary.

E—4 to 8 inches; brown (7.5YR 5/2) sand, gray (7.5YR 6/1) dry; weak medium subangular blocky structure; very friable; many very fine to coarse roots throughout; very strongly acid; abrupt irregular boundary.

Bhs—8 to 10 inches; dark reddish brown (5YR 2.5/2) sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots throughout; moderately acid; abrupt irregular boundary.

Bs—10 to 20 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots throughout; columns of very weakly cemented, dark reddish brown (5YR 2.5/2) ortstein about 3 inches wide extending through the Bw horizon into the BC horizon; ortstein columns are about 35 inches apart; ortstein occupies about 8 percent of the horizon; moderately acid; clear wavy boundary.

Bw—20 to 27 inches; yellowish brown (10YR 5/8) sand; single grain; loose; common very fine to coarse roots throughout; columns of very weakly cemented, dark reddish brown (5YR 2.5/2) ortstein about 5 inches wide extend through this horizon from the Bs horizon and into the BC horizon; ortstein columns are about 35 inches apart; ortstein occupies about 20 percent of the horizon; strongly acid; clear wavy boundary.

BC—27 to 43 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine and very fine roots throughout; columns of very weakly cemented, dark reddish brown (5YR 2.5/2) ortstein about 5 inches wide extend from the Bs and Bw horizons; ortstein columns are about 35 inches apart; ortstein occupies about 20 percent of the horizon; about 3 percent gravel; common fine distinct yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; slightly acid; clear wavy boundary.

C—43 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; few lenses of coarse sand and gravel; about 3 percent gravel; common medium prominent strong brown (7.5YR 5/8) and yellowish red (5YR 4/6) and common medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; slightly acid.

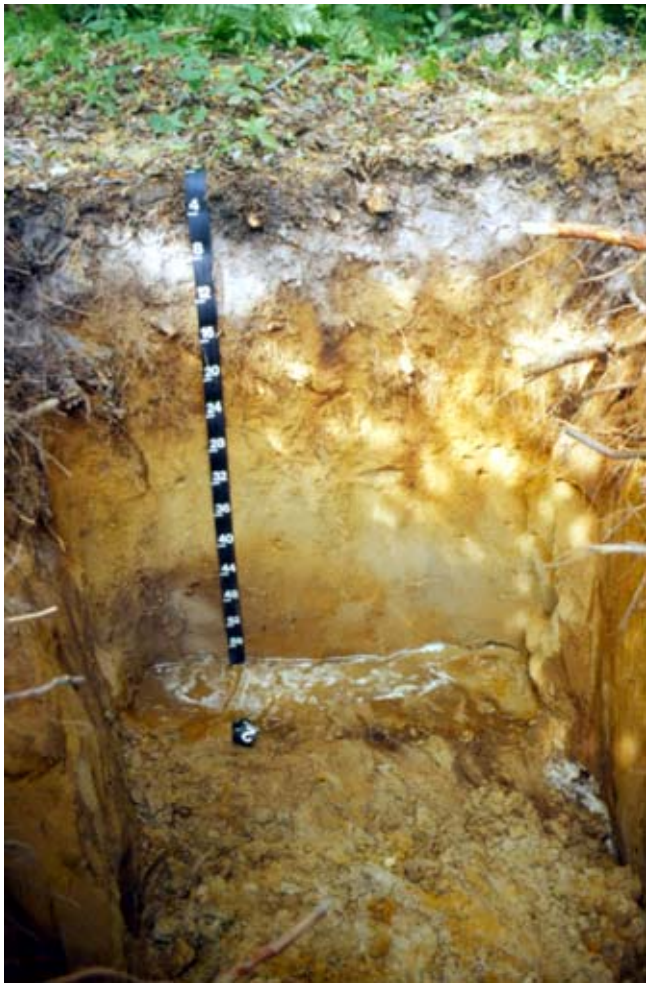

Figure 14.—A profile of a Brethren soil. Depth is marked in inches.

The depth to redoximorphic features ranges from 20 to 40 inches. The texture throughout the profile is sand. The content of gravel ranges from 0 to 5 percent throughout the profile.

The A horizon has hue of 7.5YR or 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. Some pedons have an Ap horizon, which has the same colors and textures as those of the A horizon.

The E horizon has hue of 10YR or 7.5YR, value of 3 to 6, and chroma of 1 to 3.

The Bhs horizon has hue of 2.5YR to 7.5YR, value of 2.5 or 3, and chroma of 1 to 3.

The Bs horizon has hue of 5YR or 7.5YR, value of 3 or 4, and chroma of 4 to 6. The content of ortstein ranges from 0 to 40 percent.

The Bw horizon has hue of 10YR, value of 4 or 5, and chroma of 6 to 8. The content of ortstein ranges from 0 to 40 percent.

The BC horizon has hue of 10YR, value of 5, and chroma of 6. The content of ortstein ranges from 0 to 40 percent.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6.

Capac Series

The Capac series consists of somewhat poorly drained soils on till plains and moraines. These soils formed in loamy material. Permeability is moderately slow. Slopes range from 0 to 3 percent.

Taxonomic classification: Fine-loamy, mixed, active, mesic Aquic Glossudalfs

Typical pedon of Capac loam, 0 to 3 percent slopes; 500 feet east and 635 feet south of the northwest corner of sec. 14, T. 21 N., R. 17 W., Filer Township, Manistee County, Michigan; USGS Manistee, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 14 minutes 01 second N. and long. 86 degrees 20 minutes 36 seconds W., NAD 83:

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

B/E—5 to 8 inches; about 75 percent brown (7.5YR 4/4) clay loam (B); about 25 percent pinkish gray (7.5YR 6/2) clay loam (E), light gray (10YR 7/2) dry; moderate fine subangular blocky structure; friable; common coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; few medium prominent gray (10YR 6/1) iron depletions in the matrix; slightly acid; clear wavy boundary.

Bt—8 to 18 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; many prominent reddish brown (10YR 5/3) clay films on surfaces along pores; coarse distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few medium prominent gray (10YR 6/1) iron depletions in the matrix; neutral; clear wavy boundary.

C—18 to 80 inches; brown (7.5YR 5/4) clay loam; massive; friable; common prominent white (7.5YR 8/1) calcium carbonates; common very coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common very coarse prominent gray (10YR 6/1) iron depletions in the matrix; moderately alkaline; clear wavy boundary.

The depth to carbonates ranges from 18 to 40 inches. The content of gravel ranges from 0 to 3 percent throughout the profile.

The Ap horizon has hue of 10YR, value of 3, and chroma of 2 or 3. It is loam.

The E part of the B/E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3. It is fine sandy loam, sandy loam, or clay loam.

The Bt part of the B/E horizon and the Bt horizon have hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 to 6. They are clay loam.

The C horizon has hue of 7.5YR, value of 5, and chroma of 4 or 5. It is clay loam.

Coloma Series

The Coloma series consists of somewhat excessively drained soils on outwash plains, deltas, stream terraces, and moraines (fig. 15). These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Mixed, mesic Lamellic Udipsamments

Typical pedon of Coloma sand, 0 to 6 percent slopes; 800 feet north and 1,200 feet west of the southeast corner of sec. 30, T. 22 N., R. 13 W., Dickson Township, Manistee County, Michigan; USGS Marilla, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 16 minutes 09 seconds N. and long. 85 degrees 55 minutes 32 seconds W., NAD 83:

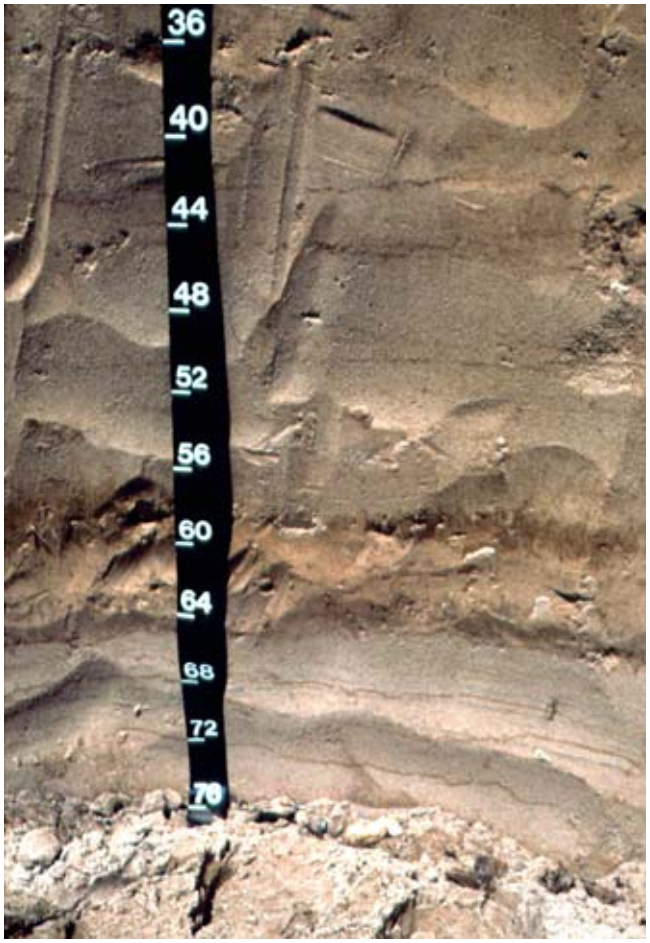

Figure 15.—A profile of a Coloma soil. Depth is marked in inches.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) sand, dark grayish brown (10YR 4/2) dry; weak fine granular structure; very friable; many very fine to medium and few coarse roots; strongly acid; abrupt smooth boundary.

E—3 to 4 inches; dark grayish brown (10YR 4/2) sand, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; very friable; many very fine to medium and few coarse roots; strongly acid; abrupt smooth boundary.

Bw1—4 to 8 inches; strong brown (7.5YR 4/6) sand; weak fine and medium subangular blocky structure; very friable; many very fine to medium and few coarse roots; strongly acid; clear wavy boundary.

Bw2—8 to 15 inches; dark yellowish brown (10YR 4/6) sand; weak fine and medium subangular blocky structure; very friable; many very fine to medium and few coarse roots; moderately acid; clear wavy boundary.

Bw3—15 to 25 inches; yellowish brown (10YR 5/6) sand; weak medium and coarse subangular blocky structure; very friable; many very fine to medium and few coarse roots; moderately acid; clear wavy boundary.

Bw4—25 to 40 inches; brownish yellow (10YR 6/6) sand; weak medium and coarse subangular blocky structure; very friable; few very fine to medium roots; moderately acid; clear wavy boundary.

E and Bt—40 to 80 inches; very pale brown (10YR 7/3) sand (E), light gray (10YR 7/2) dry; single grain; loose; lamellae of strong brown (7.5YR 5/6) loamy sand (Bt);

massive; very friable; lamellae are 1/16 to 1/8 inch thick and about 6 inches apart (total thickness equals 2 inches); few patchy faint strong brown (7.5YR 5/6) clay bridges; moderately acid.

The depth to the first lamellae ranges from 25 to 50 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 or 2. It is sand. Some pedons have an Ap horizon. This horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 2 or 3. It is sand.

The E horizon has hue of 10YR, value of 4 or 5, and chroma of 2 or 3. It is sand or loamy sand.

The Bw horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. It is typically sand or loamy sand, but the range includes fine sand and loamy fine sand.

The E part of the E and Bt horizon has hue of 5YR to 10YR, value of 4 to 7, and chroma of 3 to 6. It is sand.

The Bt part of the E and Bt horizon has hue of 5YR, 7.5YR, or 10YR, value of 3 to 5, and chroma of 3 to 6. It is typically loamy sand, but the range includes sandy loam.

Some pedons have a C horizon. This horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6. It is sand.

Copemish Series

The Copemish series consists of well drained soils on beach ridges and dunes. These soils formed in sandy material. They contain ortstein. Permeability is moderately rapid in the ortstein and rapid in the sandy material. Slopes range from 3 to 35 percent.

Taxonomic classification: Sandy, mixed, mesic, ortstein Entic Haplorthods

Typical pedon of Copemish sand, 3 to 12 percent slopes; 1,300 feet north and 1,400 feet east of the southwest corner of sec. 13, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 28 minutes 25 seconds N. and long. 85 degrees 57 minutes 14 seconds W., NAD 83:

A—0 to 2 inches; very dark gray (10YR 3/1) sand, very dark grayish brown (10YR 3/2) dry; weak fine granular structure; very friable; many very fine to medium and few coarse roots; extremely acid; clear wavy boundary.

E1—2 to 7 inches; dark grayish brown (10YR 4/2) sand, light brownish gray (10YR 6/2) dry; single grain; loose; many very fine to medium and few coarse roots; extremely acid; clear wavy boundary.

E2—7 to 11 inches; 80 percent brown (7.5YR 5/3) and dark yellowish brown (10YR 4/4) sand, light gray (10YR 7/2) dry; single grain; loose; many very fine to medium and few coarse roots; extremely acid; clear wavy boundary.

Bs1—11 to 28 inches; 60 percent dark reddish brown (5YR 3/4) and strong brown (7.5YR 4/6) sand; single grain; loose; few fine and medium roots; columns of moderately cemented brown (7.5YR 4/4) ortstein and strongly cemented dark reddish brown (5YR 2.5/2) ortstein 18 to 24 inches wide and 6 to 8 inches apart extend into the Bs2 horizon; ortstein occupies about 70 percent of the horizon; extremely acid; clear irregular boundary.

Bs2—28 to 36 inches; 50 percent yellowish brown (10YR 5/6) and brownish yellow (10YR 6/6) sand; single grain; loose; columns of moderately cemented brown (7.5YR 4/4) ortstein and strongly cemented dark reddish brown (5YR 2.5/2) ortstein 18 to 24 inches wide and 6 to 8 inches apart extend into this horizon from the Bs1 horizon; ortstein occupies about 70 percent of the horizon; extremely acid; clear irregular boundary.

C—36 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; very strongly acid.

The profile is sand throughout.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 4.

The Bs1 horizon has hue of 5YR or 7.5YR, value of 3 or 4, and chroma of 4 to 6. The content of ortstein ranges from 51 to 70 percent.

The Bs2 horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 6. The content of ortstein ranges from 51 to 80 percent.

Some pedons have a Bhs horizon. This horizon has hue of 5YR and value and chroma of 2 or 3.

Some pedons have a BC horizon. This horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6.

The C horizon has hue of 10YR, value of 6, and chroma of 4 to 8.

Covert Series

The Covert series consists of moderately well drained soils on outwash plains and lake plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 6 percent.

Taxonomic classification: Sandy, mixed, mesic Oxyaquic Haplorthods

Typical pedon of Covert sand, 0 to 6 percent slopes; 2,310 feet west and 672 feet south of the northeast corner of sec. 34, T. 26 N., R. 13 W., Island Township, Benzie County, Michigan; USGS Karlin, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 36 minutes 48 seconds N. and long. 85 degrees 52 minutes 02 seconds W., NAD 83:

A—0 to 1 inch; black (7.5YR 2.5/1) sand, brown (7.5YR 4/2) dry; weak fine granular structure; very friable; many very fine to medium roots; very strongly acid; abrupt wavy boundary.

E—1 to 8 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to medium roots; very strongly acid; abrupt wavy boundary.

Bs1—8 to 18 inches; brown (7.5YR 4/4) sand; weak fine subangular blocky structure; very friable; common very fine to coarse roots; pockets of very dark brown (7.5YR 2.5/2) and dark brown (7.5YR 3/4) material on top of column of spodic material 2 to 3 inches wide extending into the Bs2 and BC horizons; columns are 6 to 30 inches apart and occupy about 20 percent of the horizon; strongly acid; clear wavy boundary.

Bs2—18 to 25 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; few very fine and fine roots; pockets of very dark brown (7.5YR 2.5/2) and dark brown (7.5YR 3/4) material on top of column of spodic material 2 to 3 inches wide extending from the Bs1 horizon into the BC horizon; columns are 6 to 30 inches apart and occupy about 20 percent of the horizon; strongly acid; clear wavy boundary.

BC—25 to 29 inches; dark yellowish brown (10YR 4/6) sand; single grain; loose; few very fine to coarse roots; pockets of very dark brown (7.5YR 2.5/2) and dark brown (7.5YR 3/4) material on top of column of spodic material 2 to 3 inches wide extending from the Bs1 and Bs2 horizons; columns are 6 to 30 inches apart and occupy about 20 percent of the horizon; common fine faint strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

C1—29 to 38 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

C2—38 to 47 inches; brown (10YR 5/3) sand; single grain; loose; common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; common medium distinct dark brown (7.5YR 3/2) iron depletions in the matrix; moderately acid; clear wavy boundary.

C3—47 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; about 3 percent gravel; moderately acid.

The depth to redoximorphic features ranges from 18 to 40 inches. The profile is sand throughout. The content of gravel ranges from 0 to 5 percent throughout the profile.

The A horizon has hue of 10YR or 7.5YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 or 1. Some pedons have an Ap horizon.

The E horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 1 to 3.

The Bs1 horizon has hue of 7.5YR and value and chroma of 4.

The Bs2 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6.

The BC horizon has hue of 10YR, value of 4, and chroma of 6. Some pedons do not have a BC horizon.

The C horizon has hue of 10YR, value of 5 or 6, and chroma of 3 to 8.

Dair Series

The Dair series consists of very poorly drained soils in depressions and drainageways on outwash plains, dunes, and low beach ridges. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 2 percent.

Taxonomic classification: Mixed, mesic Typic Psammaquents

Typical pedon of Dair muck; 300 feet south and 50 feet east of the northwest corner of sec. 12, T. 25 N., R. 14 W., Weldon Township, Benzie County, Michigan; USGS Thompsonville, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 35 minutes 04 seconds N. and long. 85 degrees 57 minutes 26 seconds W., NAD 83:

Oa—0 to 4 inches; black (5YR 2.5/1) muck; about 5 percent fiber, 0 percent rubbed; weak thick platy structure parting to weak fine granular; very friable; many fine to coarse roots throughout; moderately acid; clear wavy boundary.

A—4 to 7 inches; very dark gray (2.5Y 3/1) mucky sandy loam, very dark grayish brown (2.5Y 3/2) dry; weak medium and fine granular structure; very friable; many fine and medium roots throughout; slightly acid; abrupt smooth boundary.

Bw—7 to 11 inches; brownish yellow (10YR 6/6) sand; weak coarse subangular blocky structure; very friable; few fine interstitial pores; common fine and medium yellowish brown (10YR 5/6) iron accumulations; about 1 percent gravel; neutral; abrupt smooth boundary.

C—11 to 21 inches; light olive brown (2.5Y 5/3) sand; weak coarse subangular blocky structure; very friable; about 1 percent gravel; slightly alkaline; clear wavy boundary.

Cg1—21 to 50 inches; grayish brown (2.5Y 5/2) sand; single grain; loose; about 1 percent gravel; slightly alkaline; abrupt smooth boundary.

Cg2—50 to 80 inches; dark grayish brown (2.5Y 4/2) sand; single grain; loose; streaks of black (10YR 2/1) sand; about 1 percent gravel; neutral.

The depth to carbonates ranges from 25 to more than 60 inches. The content of gravel ranges from 0 to 5 percent throughout the profile.

The Oa horizon has hue of 5YR to 10YR, value of 2.5 or 3, and chroma of 1.

The A horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2. It is mucky sandy loam, mucky loam, or loam.

The Bw horizon has hue of 10YR, value of 3 to 6, and chroma of 2 to 6. It is sand.

Some pedons have a Bg horizon. This horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2.

The C horizons have hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4. They are sand.

Endoaquolls

Endoaquolls consist of very poorly drained soils on flood plains. These soils formed in loamy deposits over sandy material. Permeability is moderately slow in the loamy material and rapid in the sandy material. Slopes range from 0 to 2 percent.

Taxonomic classification: Mixed, mesic Endoaquolls

Reference pedon of Endoaquolls, in an area of Endoaquolls-Haplosaprists, euic-Typic Psammaquents complex, frequently flooded; 640 feet south and 250 feet west of the northeast corner of sec. 30, T. 22 N., R. 15 W., Brown Township, Manistee County, Michigan; USGS Onekama, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 17 minutes 07 seconds N. and long. 86 degrees 09 minutes 48 seconds W., NAD 83:

A1—0 to 4 inches; black (5YR 2.5/1) silt loam, dark gray (7.5YR 4/1) dry; moderate medium granular structure; friable; common fine and few very fine roots; neutral; clear wavy boundary.

A2—4 to 9 inches; dark reddish brown (5YR 3/2) silt loam, brown (7.5YR 5/3) dry; moderate medium subangular blocky structure; friable; few very fine roots; neutral; abrupt wavy boundary.

Cg1—9 to 27 inches; dark gray (5Y 4/1) silt loam; moderate medium subangular blocky structure; friable; few medium prominent brown (10YR 4/3) masses of iron accumulation in the matrix; slightly alkaline; abrupt wavy boundary.

2Cg2—27 to 80 inches; grayish brown (10YR 5/2) sand; single grain; loose; few medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation in the matrix; slightly alkaline.

The depth to sand ranges from 25 to 35 inches.

The A horizon has hue of 5YR to 2.5Y or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is mucky silt loam, silt loam, or loam.

The Cg horizon has hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 or 2. It is silty clay loam, clay loam, silt loam, or loam and is stratified in some pedons. The content of gravel and cobbles ranges from 0 to 5 percent.

The 2C horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 3. It is sand. The content of gravel and cobbles ranges from 0 to 14 percent.

Entic Haplorthods, sandy

Entic Haplorthods consist of excessively drained soils on moraines and outwash plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Sandy, mixed, mesic Entic Haplorthods

Reference pedon of Entic Haplorthods, sandy, nearly level and undulating; 1,700 feet north and 1,000 feet west of the southeast corner of sec. 13, T. 20 N., R. 16 W.,

Freesoil Township, Mason County, Michigan; USGS Star Corners, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 07 minutes 31 seconds N. and long. 86 degrees 09 minutes 49 seconds W., NAD 83:

Oa—0 to 1 inch; well decomposed hardwood leaf litter.
A—1 to 4 inches; very dark gray (10YR 3/1) sand, very dark gray (10YR 4/1) dry; weak medium granular structure; very friable; many fine roots; strongly acid; clear wavy boundary.
E—4 to 6 inches; pinkish gray (7.5YR 6/2) sand; weak medium granular structure; very friable; many fine roots; strongly acid; clear irregular boundary.
Bs—6 to 21 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.
BC—21 to 36 inches; reddish yellow (7.5YR 6/6) sand; weak medium subangular blocky structure; friable; moderately acid; gradual wavy boundary.
C—36 to 180 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; moderately acid.

The depth to the C horizon ranges from 20 to 40 inches. The texture throughout the profile is sand, loamy sand, or fine sand. The content of gravel ranges from 0 to 4 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3.

The E horizon, if it occurs, has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 2 to 4.

The Bs horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 4 to 6.

The BC horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 6.

The C horizon has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 4 to 6.

Banded substratum and very deep water table phases are recognized.

Fern Series

The Fern series consists of moderately well drained soils on moraines (fig. 16). These soils formed in sandy deposits over loamy material. Permeability is rapid in the sandy material and moderate or moderately slow in the loamy material. Slopes range from 0 to 12 percent.

Taxonomic classification: Loamy, mixed, active, mesic Arenic Oxyaquic Glossudalfs

Typical pedon of Fern sand, 0 to 6 percent slopes; 1,020 feet west and 1,100 feet south of the northeast corner of sec. 27, T. 26 N., R. 13 W., Inland Township, Benzie County, Michigan; USGS Lake Ann, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 37 minutes 36.7 seconds N. and long. 85 degrees 51 minutes 41.7 seconds W., NAD 83:

Ap—0 to 9 inches; very dark brown (7.5YR 2.5/2) sand, brown (7.5YR 5/2) dry; weak medium granular structure; very friable; common fine roots; about 5 percent gravel; moderately acid; abrupt smooth boundary.
E—9 to 10 inches; brown (7.5YR 4/2) sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; very friable; common fine roots; about 5 percent gravel; slightly acid; abrupt broken boundary.
Bw—10 to 24 inches; brown (7.5YR 4/4) sand; weak fine subangular blocky structure; very friable; common fine roots; about 5 percent gravel; neutral; abrupt wavy boundary.
2B/E—24 to 29 inches; reddish brown (5YR 4/4) clay loam (B); grayish brown (10YR 5/2) clay loam (E), light brownish gray (10YR 6/2) dry; weak fine and medium prismatic structure; firm; few fine roots; common prominent reddish brown (5YR 4/3) clay films on all faces of peds; about 3 percent gravel; few fine distinct strong

Figure 16.—A profile of a Fern soil. Depth is marked in inches.

brown (7.5YR 5/6) masses of iron accumulation in the matrix; neutral; clear wavy boundary.

2Bt—29 to 42 inches; reddish brown (5YR 4/4) clay loam; common prominent reddish brown (5YR 4/3) clay films on all faces of peds; weak medium prismatic structure; firm; common fine roots; about 2 percent gravel; slightly effervescent; slightly alkaline; clear wavy boundary.

2BC—42 to 50 inches; brown (7.5YR 4/3) clay loam; weak medium subangular blocky structure; firm; common distinct brown (7.5YR 4/3) clay films on vertical faces of peds; about 2 percent gravel; slightly effervescent; slightly alkaline; gradual wavy boundary.

2C—50 to 80 inches; brown (7.5YR 5/3) clay loam; massive; firm; about 2 percent gravel; strongly effervescent; moderately alkaline.

The depth to the loamy material ranges from 20 to 40 inches. The depth to the C horizon ranges from 30 to more than 60 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The Ap horizon has hue of 7.5YR, value of 2.5 to 4, and chroma of 2 or 3. It is sand. Pedons in uncultivated areas have an A horizon, which has colors and textures similar to those of the Ap horizon.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 6. It is fine sand, sand, loamy fine sand, or loamy sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6.

The E part of the 2B/E horizon has colors similar to those of the E horizon. It is loamy fine sand, loam, or clay loam.

The Bt part of the 2B/E horizon and the 2Bt horizon have hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. They are loam or clay loam.

The BC horizon has hue of 7.5YR, value of 4, and chroma of 3. It is clay loam.

The 2C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. It is loam or clay loam.

Filer Series

The Filer series consists of well drained soils on moraines and till plains (fig. 17). These soils formed in loamy material. Permeability is moderately slow. Slopes range from 12 to 35 percent.

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Haplic Glossudalfs

Typical pedon of Filer fine sandy loam, 12 to 18 percent slopes; 2,500 feet north and 350 feet west of the southeast corner of sec. 15, T. 21 N., R. 17 W., Filer Township, Manistee County, Michigan; USGS Manistee, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 13 minutes 40.9 seconds N. and long. 86 degrees 20 minutes 44 seconds W., NAD 83:

Ap—0 to 9 inches; dark brown (7.5YR 3/2) fine sandy loam, light brown (7.5YR 6/3) dry; moderate medium subangular blocky structure; friable; about 1 percent fine gravel; slightly acid; abrupt wavy boundary.

B/E—9 to 14 inches; about 60 percent reddish brown (5YR 4/4) sandy clay loam (B); surrounding light brownish gray (10YR 6/2) fine sandy loam (E), light gray (10YR 7/2) dry; moderate medium subangular blocky structure; friable; about 1 percent fine gravel; slightly acid; clear wavy boundary.

Bt—14 to 31 inches; brown (7.5YR 4/4) sandy clay loam; moderate medium subangular blocky structure; common faint brown (7.5YR 4/3) clay films on surfaces along pores; about 1 percent fine gravel; slightly acid; clear wavy boundary.

C—31 to 80 inches; brown (7.5YR 5/3) loam; massive; friable; few patchy prominent pinkish gray (7.5YR 7/2) carbonate coatings on surfaces along pores; about 2 percent fine gravel; strongly effervescent; slightly alkaline.

The depth to carbonates ranges from 25 to 40 inches. The content of gravel ranges from 1 to 10 percent throughout the profile.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 1 to 3. It is sandy loam, fine sandy loam, or loam. Pedons in forested areas have an A horizon. This horizon is 1 to 3 inches thick. It has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. It is sandy loam, fine sandy loam, or loam.

Some pedons have an E horizon directly below the A horizon. The E horizon, if it occurs, has hue of 10YR, value of 5 to 7, and chroma of 1 to 3. It is sandy loam, fine sandy loam, or loam.

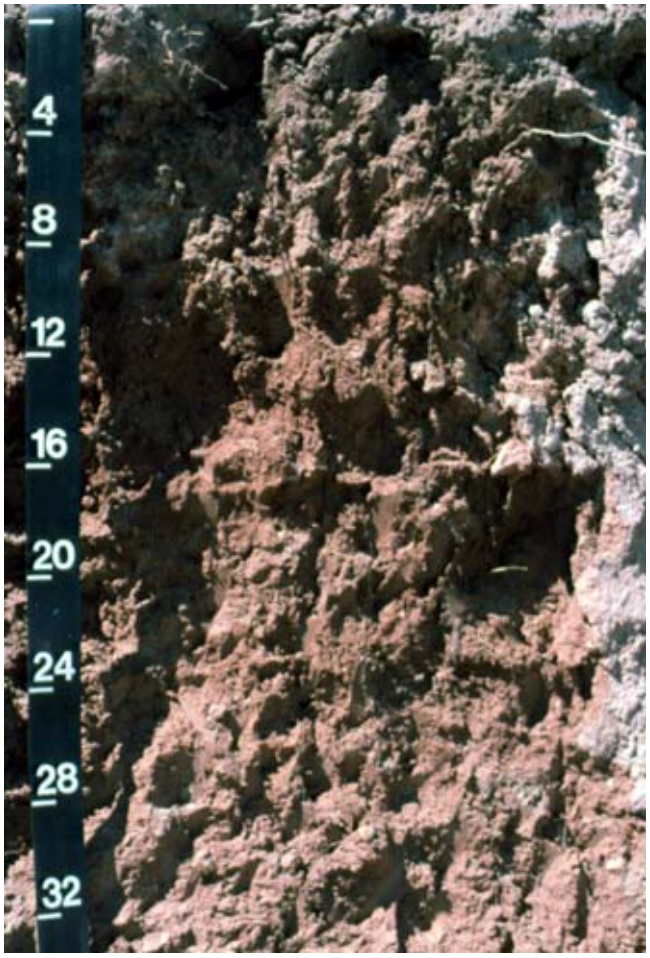

Figure 17.—A profile of a Filer soil. Depth is marked in inches.

The E part of the B/E horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3. It is sandy loam, fine sandy loam, or loam.

The Bt part of the B/E horizon and the Bt horizon have hue of 5YR to 10YR, value of 4 or 5, and chroma of 3 to 6. They are loam, sandy clay loam, or clay loam.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4. It is loam or clay loam.

Fogg Series

The Fogg series consists of well drained soils on moraines and outwash plains. These soils formed in sandy and loamy material. Permeability is rapid in the sandy material and moderately rapid in the loamy material. Slopes range from 0 to 50 percent.

Taxonomic classification: Sandy, mixed, mesic Alfic Haplorthods

Typical pedon of Fogg sand, in an area of Fogg-Benzonia sands, 0 to 6 percent slopes; 2,100 feet north and 2,500 feet west of the southeast corner of sec. 25, T. 27 N., R. 14 W., Platte Township, Benzie County, Michigan; USGS Platte River, Michigan,

7.5-minute topographic quadrangle; lat. 44 degrees 42 minutes 33 seconds N. and long. 85 degrees 56 minutes 51 seconds W., NAD 83:

A—0 to 2 inches; black (7.5YR 2.5/1) sand, dark gray (7.5YR 4/1) dry; weak medium granular structure; very friable; few fine and few medium roots; about 3 percent fine gravel; strongly acid; clear wavy boundary.

E—2 to 7 inches; brown (7.5YR 5/2) sand, gray (7.5YR 6/1) dry; weak medium subangular blocky structure; very friable; few fine and medium roots; about 3 percent fine gravel; strongly acid; clear irregular boundary.

Bhs—7 to 13 inches; dark reddish brown (5YR 3/3) sand; weak medium subangular blocky structure; very friable; few fine and few medium roots; about 3 percent fine gravel; strongly acid; clear wavy boundary.

Bs1—13 to 21 inches; brown (7.5YR 4/4) sand; single grain; loose; few fine and few medium roots; about 3 percent fine gravel; strongly acid; clear wavy boundary.

Bs2—21 to 34 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine and few medium roots; about 3 percent fine gravel; strongly acid; gradual wavy boundary.

E/B—34 to 43 inches; about 70 percent brown (7.5YR 5/3) loamy fine sand (E), pinkish gray (5YR 6/2) dry; single grain; loose; surrounding reddish brown (5YR 5/4) sandy loam (Bt); moderate fine subangular blocky structure; friable; few fine and medium roots; few distinct clay films on faces of peds; many clay bridges between sand grains; about 5 percent fine gravel; moderately acid; clear irregular boundary.

B/E—43 to 48 inches; about 75 percent reddish brown (5YR 4/4) sandy loam (Bt); moderate medium subangular blocky structure; friable; surrounding reddish brown (5YR 5/3) loamy sand (E), pinkish gray (5YR 7/2) dry; few distinct clay films on faces of peds; many clay bridges between sand grains; about 5 percent fine gravel; neutral; abrupt broken boundary.

Bt—48 to 55 inches; reddish brown (5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; few distinct clay films on faces of peds; about 5 percent fine gravel; neutral; abrupt smooth boundary.

E and Bt—55 to 80 inches; light brown (7.5YR 6/4) sand (E); single grain and loose (E); lamellae of reddish brown (5YR 5/4) loamy sand (Bt); weak fine subangular blocky structure; very friable (Bt); neutral.

The depth to carbonates ranges from 50 to more than 80 inches. The depth to the B/E horizon ranges from 40 to 60 inches. The content of gravel ranges from 0 to 14 percent throughout the profile, and the content of cobbles ranges from 0 to 3 percent throughout.

The A horizon has hue of 5YR or 7.5YR, value of 2.5 or 3, and chroma of 1 or 2. Pedons in cultivated areas have an Ap horizon. This horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is sand.

The E horizon has hue of 5YR or 7.5YR, value of 5 or 6, and chroma of 1 or 2. It is loamy sand or sand.

The Bhs horizon has hue of 5YR or 7.5YR and value and chroma of 2 or 3. It is sand.

The Bs1 horizon has hue of 7.5YR and value and chroma of 3 or 4. Chroma and value of 3 do not occur together. This horizon is sand.

The Bs2 horizon has hue of 7.5YR, value of 4 or 5, and chroma of 6. It is sand.

The E part of the E/B and B/E horizons has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. It is loamy fine sand or loamy sand.

The Bt part of the E/B and B/E horizons and the Bt horizon have hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. They are sandy loam or loam.

The E part of the E and Bt horizon has hue of 7.5YR, value of 5 or 6, and chroma of 3 or 4. It is sand. The Bt part of the E and Bt horizon has hue of 5YR, value of 4 or 5, and chroma of 3 to 6. It is loamy sand or sandy loam.

Some pedons have a C horizon. This horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4. It is sand.

Glendora Series

The Glendora series consists of very poorly drained soils on flood plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 2 percent.

Taxonomic classification: Mixed, mesic Mollic Psammaquents

Typical pedon of Glendora mucky loamy sand, in an area of Gorvan-Houghton-Glendora complex, frequently flooded; 300 feet south and 2,200 feet west of the northeast corner of sec. 6, T. 21 N., R. 16 W., Manistee Township, Manistee County, Michigan; USGS Parkdale, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 15 minutes 40.3 seconds N. and long. 86 degrees 17 minutes 32.7 seconds W., NAD 83:

A—0 to 6 inches; black (7.5YR 2.5/1) mucky loamy sand, very dark gray (5YR 3/1) dry; weak medium granular structure; friable; common very fine and medium roots; slightly acid; clear wavy boundary.

Cg1—6 to 9 inches; dark grayish brown (10YR 4/2) loamy sand, brown (7.5YR 4/2) dry; weak medium granular structure; friable; few fine roots; neutral; clear wavy boundary.

Cg2—9 to 30 inches; grayish brown (10YR 5/2) sand; single grain; loose; few fine roots; few coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; neutral; clear wavy boundary.

Cg3—30 to 80 inches; brown (7.5YR 5/2) sand; single grain; loose; black (7.5YR 2.5/1) organic bands 1/8 to 1/2 inch thick; slightly acid.

The content of gravel ranges from 0 to 3 percent throughout the profile.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. It is mucky loamy sand.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 to 4. It is sand, fine sand, or loamy sand. Some pedons have thin layers of gravelly sand below a depth of 40 inches.

Glossudalfs, fine-loamy

Glossudalfs consist of well drained soils on end moraines and ground moraines. These soils formed in loamy deposits. Permeability is moderate. Slopes range from 0 to 30 percent.

Taxonomic classification: Fine-loamy, mixed, mesic Glossudalfs

Reference pedon of Glossudalfs, fine-loamy, rolling; 1,850 feet north and 530 feet west of the southeast corner of sec. 18, T. 17 N., R. 15 W., Logan Township, Mason County, Michigan; USGS Crystal Valley, Michigan, 7.5-minute topographic quadrangle; lat. 43 degrees 51 minutes 52 seconds N. and long. 86 degrees 08 minutes 27 seconds W., NAD 83:

Oe—0 to 1 inch; partially decomposed hardwood leaf litter.

A—1 to 5 inches; black (10YR 2/1) sandy loam, grayish brown (10YR 5/2) dry; weak medium granular structure; very friable; many very fine and fine roots; neutral; abrupt smooth boundary.

E—5 to 11 inches; pale brown (10YR 6/3) sandy loam; moderate medium granular structure; friable; many fine roots; neutral; abrupt wavy boundary.
E/B—11 to 21 inches; about 60 percent pale brown (10YR 6/3) sandy loam (E) surrounding yellowish brown (10YR 5/4) loam (Bt); moderate medium subangular blocky structure; friable; neutral; clear wavy boundary.
Bt—21 to 46 inches; reddish brown (5YR 5/3) sandy clay loam; moderate medium subangular blocky structure; firm; yellowish red (5YR 5/6) clay films on faces of peds; common fine roots; neutral; gradual wavy boundary.
C—46 to 60 inches; brown (7.5YR 5/4) sandy clay loam; moderate medium subangular blocky structure; firm; neutral.

The depth to the C horizon ranges from 30 to 50 inches. The content of gravel and cobbles ranges from 0 to 14 percent throughout.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is sandy loam.

The E horizon and the E part of the E/B horizon have hue of 10YR, value of 5 to 7, and chroma of 2 to 4. They are dominantly sandy loam, but the range includes loamy sand and fine sandy loam. Some pedons have a B/E horizon. The thickness of the glossic horizon ranges from 3 to 30 inches.

The Bt part of the E/B horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. It is sandy loam, loam, or fine sandy loam.

The Bt horizon has hue of 5YR or 7.5YR, value of 3 to 5, and chroma of 3 to 6. It is clay loam, sandy clay loam, silt loam, or silty clay loam.

The C horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. The texture ranges from sandy loam to clay loam.

Goodharbor Series

The Goodharbor series consists of excessively drained soils on beach ridges and stabilized sand dunes. These soils formed in sandy material. Permeability is rapid. Slopes range from 1 to 12 percent.

Taxonomic classification: Mesic, uncoated Typic Quartzipsamments

Typical pedon of Goodharbor sand, 1 to 12 percent slopes; 1,700 feet south and 1,000 feet west of the northeast corner of sec. 22, T. 27 N., R. 15 W., Lake Township, Benzie County, Michigan; USGS Beulah, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 43 minutes 44.8 seconds N. and long. 86 degrees 06 minutes 13.5 seconds W., NAD 83:

A—0 to 1 inch; very dark gray (10YR 3/1) sand, pale brown (10YR 6/2) dry; weak fine granular structure; very friable; many fine and common medium roots; strongly acid; clear wavy boundary.
E—1 to 3 inches; grayish brown (10YR 5/2) sand, gray (10YR 6/1) dry; single grain; loose; common fine and medium roots; slightly acid; gradual wavy boundary.
Bw1—3 to 23 inches; brown (10YR 5/3) sand; single grain; loose; few fine roots; slightly effervescent; slightly alkaline; clear wavy boundary.
Bw2—23 to 40 inches; yellowish brown (10YR 5/4) sand; single grain; loose; very few very fine roots; slightly effervescent; slightly alkaline; diffuse wavy boundary.
C—40 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; strongly effervescent; moderately alkaline.

The depth to carbonates ranges from 3 to 15 inches. The content of gravel ranges from 0 to 14 percent throughout the profile. The profile is sand or fine sand throughout.

The A horizon has hue of 10YR, value of 3, and chroma of 1.

The E horizon has hue of 10YR, value of 5, and chroma of 2.

The Bw horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.
The C horizon has hue of 10YR, value of 6 or 7, and chroma of 3 or 4.

Gorvan Series

The Gorvan series consists of very poorly drained soils on flood plains. These soils formed in loamy deposits over sandy material. Permeability is moderately slow in the loamy material and rapid in the sandy material. Slopes range from 0 to 2 percent.

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, semiactive, mesic Fluvaquentic Endoaquolls

Typical pedon of Gorvan mucky silt loam, in an area of Gorvan-Houghton-Glendora complex, frequently flooded; 700 feet north and 700 feet east of the southwest corner of sec. 20, T. 22 N., R. 15 W., Brown Township, Manistee County, Michigan; USGS Onekama, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 17 minutes 21 seconds N. and long. 86 degrees 09 minutes 34 seconds W., NAD 83:

A1—0 to 4 inches; black (5YR 2.5/1) mucky silt loam, dark gray (7.5YR 4/1) dry; moderate medium granular structure; friable; common fine and few very fine roots; neutral; clear wavy boundary.

A2—4 to 11 inches; dark reddish brown (5YR 3/2) silt loam, brown (7.5YR 5/3) dry; moderate medium subangular blocky structure; friable; few very fine roots; few medium prominent brown (10YR 3/4) masses of iron accumulation in the matrix; neutral; abrupt wavy boundary.

Cg1—11 to 27 inches; dark gray (5Y 4/1) silt loam; moderate medium subangular blocky structure; friable; few medium prominent brown (10YR 4/3) masses of iron accumulation in the matrix; slightly alkaline; abrupt wavy boundary.

2Cg2—27 to 80 inches; grayish brown (10YR 5/2) sand; single grain; loose; slightly alkaline.

The depth to sand ranges from 25 to 35 inches.

The A horizon has hue of 5YR to 2.5Y or is neutral in hue. It has value of 2.5 or 3 and chroma of 0 to 2. It is typically silt loam, mucky silt loam, or loam.

The Cg horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. It is silty clay loam, clay loam, silt loam, or loam and is stratified in some pedons. The content of gravel and cobbles ranges from 0 to 5 percent.

The 2C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 3. It is sand. The content of gravel and cobbles ranges from 0 to 14 percent.

Grattan Series

The Grattan series consists of excessively drained soils on lake plains, outwash plains, and moraines. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 50 percent.

Taxonomic classification: Sandy, mixed, mesic Entic Haplorthods

Typical pedon of Grattan sand, 0 to 6 percent slopes; 600 feet south and 1,200 feet east of the northwest corner of sec. 10, T. 25 N., R. 14 W., Weldon Township, Benzie County, Michigan; USGS Thompsonville, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 35 minutes 04 seconds N. and long. 85 degrees 59 minutes 35 seconds W., NAD 83:

A—0 to 4 inches; black (N 2.5/) sand, dark gray (7.5YR 4/1) dry; weak medium granular structure; very friable; many very fine to medium roots; very strongly acid; clear wavy boundary.

E—4 to 13 inches; 65 percent pinkish gray (7.5YR 6/2) and 35 percent brown (7.5YR 4/2) sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; very friable; many very fine to medium roots; strongly acid; clear irregular boundary.

Bs1—13 to 18 inches; dark brown (7.5YR 3/4) sand; weak medium subangular blocky structure; very friable; many very fine to coarse roots; a tongue of dark brown (7.5YR 3/4) sand extends through this horizon into the top of the BC horizon; the tongue occupies about 10 percent of the horizon; strongly acid; clear irregular boundary.

Bs2—18 to 25 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; many medium roots; a tongue of dark brown (7.5YR 3/4) sand extends through this horizon from the Bs1 horizon and into the top of the BC horizon; the tongue occupies about 10 percent of the horizon; strongly acid; gradual wavy boundary.

BC—25 to 53 inches; brownish yellow (10YR 6/6) sand; single grain; loose; common fine and medium roots; a tongue of dark brown (7.5YR 3/4) sand extends into this horizon from the Bs1 and Bs2 horizons; the tongue occupies about 10 percent of the horizon; a discontinuous lens of strong brown (7.5YR 5/6) sand about 3 inches thick; moderately acid; about 5 percent gravel; gradual wavy boundary.

C—53 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; neutral.

The profile is sand throughout. The content of gravel ranges from 0 to 5 percent throughout the profile.

The A horizon has hue of 7.5YR or 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 3. Some pedons have an Ap horizon. This horizon has the same colors as those in the A horizon.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 or 2.

The Bs1 horizon has hue of 7.5YR, value of 3 or 4, and chroma of 4. The Bs2 horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 6.

The BC horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 3 to 6.

Haplosaprists, dysic

Haplosaprists consist of very poorly drained soils on lake plains, outwash plains, and moraines. These soils formed in organic deposits or organic deposits over mineral deposits. Permeability is moderately rapid or moderate in the organic material and varies in the mineral material. Slopes range from 0 to 2 percent.

Taxonomic classification: Dysic, mesic Haplosaprists

Reference pedon of Haplosaprists, dysic; 1,420 feet south and 1,100 feet east of the northwest corner of sec. 33, T. 21 N., R. 14 W., Norman Township, Manistee County, Michigan; USGS Udell, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 13 minutes 05 seconds N. and long. 85 degrees 59 minutes 20 seconds W., NAD 83:

Oi1—0 to 4 inches; light olive brown (2.5Y 5/6) sphagnum moss; many medium and coarse roots; ultra acid; clear smooth boundary.

Oi2—4 to 7 inches; peat, 90 percent undisturbed dark yellowish brown (10YR 4/4) and 80 percent rubbed dark yellowish brown (10YR 4/4); moderate medium platy structure; many very fine to coarse roots; ultra acid; clear smooth boundary.

Oa1—7 to 13 inches; muck, 60 percent undisturbed very dark brown (10YR 2/2) and 20 percent rubbed dark gray (10YR 4/1); weak thin and medium platy structure; very friable; many very fine to coarse roots; ultra acid; clear smooth boundary.

Oa2—13 to 60 inches; muck, 50 percent undisturbed dark brown (7.5YR 3/3) and 5 percent rubbed very dark brown (7.5YR 2.5/2); strong medium platy structure; friable; many very fine to medium roots; ultra acid; clear smooth boundary.

Oa3—60 to 72 inches; muck, 10 percent undisturbed very light gray (10YR 7/2); 2 percent rubbed light gray (10YR 7/1) muck with bands of brown (10YR 4/2) sand less than 1 inch thick; weak medium subangular blocky structure; very friable; extremely acid; gradual smooth boundary.

Cg—72 to 80 inches; brown (10YR 4/2) sand; a thin lens of very light gray (10YR 7/2 and 7/1), highly decomposed organic material; weak medium and coarse subangular blocky structure; very friable; extremely acid.

The Oi horizon has hue of 5YR to 2.5Y or is neutral in hue. It has value of 2 to 5 and chroma of 0 to 6.

The Oa horizon has hue of 5YR to 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 6.

The mineral horizons have hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 to 4. The texture ranges from sand to clay. Some pedons have mineral deposits at a depth of 16 to 51 inches.

Haplosaprists, euic

Haplosaprists consist of very poorly drained soils on lake plains, outwash plains, and moraines. These soils formed in organic deposits or organic deposits over mineral deposits. Permeability is moderately rapid or moderate in the organic material and varies in the mineral material. Slopes range from 0 to 2 percent.

Taxonomic classification: Euic, mesic Haplosaprists

Reference pedon of Haplosaprists, euic; 2,360 feet south and 2,000 feet west of the northeast corner of sec. 15, T. 21 N., R. 14 W., Norman Township, Manistee County, Michigan; USGS Wellston, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 13 minutes 05 seconds N. and long. 85 degrees 59 minutes 20 seconds W., NAD 83:

Oa1—0 to 6 inches; black (N 2.5/) sapric material; many very fine to coarse roots; neutral; abrupt smooth boundary.

Oa2—6 to 84 inches; black (N 2.5/) sapric material and very dark brown (7.5YR 2.5/3) hemic material; very few very fine to coarse roots; slightly acid.

The organic material typically has hue of 5YR to 10YR or is neutral in hue. It has value of 2 or 2.5 and chroma of 0 to 3.

Some pedons have mineral deposits at a depth of 16 to 51 inches. These deposits have hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 to 4. The textures range from sand to clay.

Healylake Series

The Healylake series consists of moderately well drained soils on outwash plains and lake plains (fig. 18). These soils formed in sandy material. They contain ortstein Permeability is moderately rapid in the ortstein and rapid in the remaining sandy material. Slopes range from 0 to 6 percent.

Taxonomic classification: Sandy, mixed, mesic, ortstein Oxyaquic Haplorthods

Typical pedon of Healylake sand, 0 to 6 percent slopes; 2,580 feet west of the southeast corner of sec. 25, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44

Figure 18.—A profile of a Healylake soil. Depth is marked in feet.

degrees 26 minutes 27 seconds N. and long. 85 degrees 56 minutes 59 seconds W., NAD 83:

A—0 to 4 inches; black (10YR 2/1) sand, dark gray (7.5YR 4/1) dry; weak fine granular structure; very friable; many very fine to coarse roots throughout; very strongly acid; clear wavy boundary.

E—4 to 9 inches; brown (7.5YR 5/2) sand, light gray (7.5YR 7/1) dry; weak medium granular structure; very friable; many fine to coarse roots; very strongly acid; clear irregular boundary.

Bhs—9 to 11 inches; reddish black (2.5YR 2.5/1) sand; weak coarse subangular blocky structure; very friable; many fine and coarse roots; columns of moderately cemented reddish black (2.5YR 2.5/1) and yellowish red (5YR 4/6) ortstein 6 to 22 inches wide and 6 to 12 inches apart extend into the Bs2 horizon; ortstein occupies about 55 percent of the horizon; strongly acid; clear wavy boundary.

Bs1—11 to 14 inches; yellowish red (5YR 4/6) sand; weak coarse subangular blocky structure; very friable; common fine and medium roots; columns of moderately cemented reddish black (2.5YR 2.5/1) and yellowish red (5YR 4/6) ortstein 6 to 20

inches wide and 3 to 10 inches apart extend into this horizon from the Bhs horizon; ortstein occupies about 65 percent of the horizon; strongly acid; clear wavy boundary.

Bs2—14 to 26 inches; strong brown (7.5YR 4/6) sand; weak coarse subangular blocky structure; very friable; few fine and medium roots; columns of moderately cemented reddish black (2.5YR 2.5/1) and yellowish red (5YR 4/6) ortstein 6 to 15 inches wide and 3 to 6 inches apart extend into this horizon from the Bs1 horizon; ortstein occupies about 65 percent of the horizon; strongly acid; clear wavy boundary.

BC—26 to 39 inches; brownish yellow (10YR 6/6) sand; massive; very friable; few fine prominent strong brown (7.5YR 5/8) iron accumulations; moderately acid; clear wavy boundary.

C1—39 to 63 inches; yellow (10YR 7/6) sand; massive; very friable; many fine to coarse prominent yellowish red (5YR 5/8) masses of iron accumulation in the matrix; moderately acid; clear wavy boundary.

C2—63 to 80 inches; yellowish brown (10YR 5/4) sand; massive; very friable; moderately acid.

The profile is sand throughout. The depth to redoximorphic features ranges from 20 to 40 inches.

The A horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. Some pedons have an Ap horizon, which has the same colors as those in the A horizon.

The E horizon has hue of 10YR or 7.5YR, value of 5 to 8, and chroma of 1 to 3.

The Bhs horizon has hue of 2.5YR to 7.5YR, value of 2 or 3, and chroma of 1 to 3. The content of ortstein ranges from 50 to 90 percent.

The Bs horizon has hue of 5YR or 7.5YR, value of 3 or 4, and chroma of 4 to 6. The content of ortstein ranges from 50 to 90 percent.

The BC horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8.

The C horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 2 to 6.

Histosols

Histosols consist of very poorly drained soils on lake plains, outwash plains, till plains, moraines, and flood plains. These soils formed in organic material underlain by mineral deposits. Permeability ranges from moderately slow to moderately rapid in the organic material and varies in the underlying material. Slopes range from 0 to 2 percent.

Taxonomic classification: Histosols

Reference pedon of Histosols, in an area of Histosols and Aquents, ponded; 1,850 feet north and 160 feet east of the southwest corner of sec. 19, T. 23 N., R. 15 W., Bear Lake Township, Manistee County, Michigan; USGS Bear Lake, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 22 minutes 46.7 seconds N. and long. 86 degrees 10 minutes 54.6 seconds W., NAD 83:

Oa1—0 to 10 inches; muck, black (N 2.5/) broken face and rubbed; about 30 percent fiber, 10 percent rubbed; weak fine granular structure; friable; very strongly acid; abrupt smooth boundary.

Oa2—10 to 45 inches; muck, very dark gray (N 3/) broken face and rubbed; about 25 percent fiber, 10 percent rubbed; massive; friable; very strongly acid; clear wavy boundary.

Cg—45 to 80 inches; gray (10YR 6/1) sand; massive; friable; slightly acid.

The thickness of the organic material ranges from 16 to 80 inches. The organic material is sapric or hemic.

The organic material has hue of 5YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2.

The Cg horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 1 or 2. It is dominantly sand, but the range includes all textures.

Houghton Series

The Houghton series consists of very poorly drained soils in depressions on till plains, moraines, and outwash plains. These soils formed in organic material that is more than 51 inches thick. Permeability ranges from moderately slow to moderately rapid. Slopes range from 0 to 2 percent.

Taxonomic classification: Euic, mesic Typic Haplosaprists

Typical pedon of Houghton muck, in an area of Houghton-Adrian mucks; 1,180 feet south and 2,300 feet east of the northwest corner of sec. 27, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 27 minutes 09 seconds N. and long. 85 degrees 59 minutes 28 seconds W., NAD 83:

Oa1—0 to 12 inches; muck, black (10YR 2/1) broken face and rubbed; about 5 percent fiber, 2 percent rubbed; moderate fine and medium subangular blocky structure; very friable; common very fine roots; neutral; clear smooth boundary.

Oa2—12 to 26 inches; muck, black (10YR 2/1) broken face and rubbed; about 10 percent fiber, 2 percent rubbed; moderate thick and very thick platy structure; very friable; common fine roots; neutral; clear smooth boundary.

Oa3—26 to 80 inches; muck, black (10YR 2/1) broken face and rubbed; about 10 percent fiber, 5 percent rubbed; moderate very thick platy structure; very friable; neutral.

The organic layers are more than 51 inches thick.

The surface tier has hue of 5YR to 10YR or is neutral in hue. It has value of 2 and chroma of 0 or 1. It is muck.

The subsurface tiers have hue of 2.5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. They are typically muck, but they contain thin layers of mucky peat in some pedons.

Ithaca Series

The Ithaca series consists of somewhat poorly drained soils on till plains and moraines (fig. 19). These soils formed in loamy and clayey material. Permeability is slow. Slopes range from 0 to 3 percent.

Taxonomic classification: Fine, mixed, semiactive, mesic Aquic Glossudalfs

Typical pedon of Ithaca loam, 0 to 3 percent slopes; 75 feet south and 1,950 feet west of the northeast corner of sec. 9, T. 22 N., R. 15 W., Brown Township, Manistee County, Michigan; USGS Onekama, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 19 minutes 45 seconds N. and long. 86 degrees 07 minutes 43 seconds W., NAD 83:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) loam, grayish brown (10YR 6/2) dry; strong fine and medium subangular blocky structure; friable; common very fine and fine roots; common very fine and fine tubular pores; 3 percent gravel; neutral; abrupt smooth boundary.

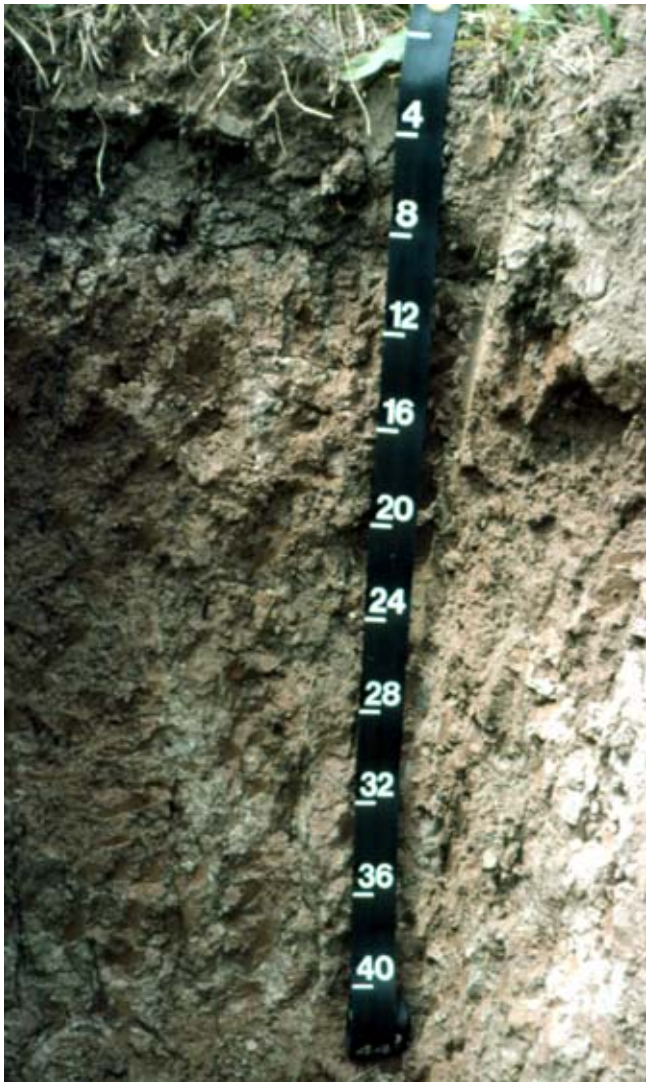

Figure 19.—A profile of an Ithaca soil. Depth is marked in inches.

E/B—9 to 11 inches; about 80 percent brown (10YR 5/3) fine sandy loam (E), light brownish gray (10YR 6/2) dry; moderate fine subangular blocky structure; very friable; surrounding remnants of brown (7.5YR 4/3) clay loam (Bt); weak fine granular structure; firm; common very fine and fine roots; common very fine and fine moderate-continuity tubular pores; common distinct brown (7.5YR 4/3) clay films on faces of peds and pores; 3 percent gravel; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; slightly alkaline; clear broken boundary.

Bt1—11 to 20 inches; brown (7.5YR 4/3) clay; strong medium prismatic structure parting to strong medium subangular blocky; firm; few very fine and fine roots; common very fine and fine moderate-continuity tubular pores; many prominent dark brown (7.5YR 3/4) clay films on faces of peds and pores; 3 percent gravel; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; few fine distinct brown (7.5YR 4/2) iron depletions in the matrix; slightly alkaline; clear wavy boundary.

Bt2—20 to 25 inches; reddish brown (5YR 4/3) clay loam; strong medium and coarse prismatic structure parting to strong medium and coarse subangular blocky; very firm; few fine roots; few very fine and fine moderate-continuity tubular pores; many clay films on faces of peds and pores; common distinct greenish gray (5GY 5/1) carbonate coatings on vertical faces of peds; 1 percent gravel; violently effervescent; moderately alkaline; clear wavy boundary.

Bt3—25 to 31 inches; brown (7.5YR 5/3) clay loam; strong medium and coarse prismatic structure parting to strong medium and coarse subangular blocky; very firm; common clay films on faces of peds and pores; few patchy prominent pink (7.5YR 7/3) carbonate coatings on faces of peds; 1 percent gravel; violently effervescent; moderately alkaline; clear wavy boundary.

BC—31 to 80 inches; light brown (7.5YR 6/3) clay loam; strong medium and coarse prismatic structure parting to strong medium and coarse subangular blocky; very firm; many prominent gray (10Y 6/) and few patchy prominent pink (7.5YR 7/3) carbonate coatings on vertical faces of peds; 1 percent gravel; violently effervescent; moderately alkaline.

The depth to carbonates ranges from 20 to 35 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The Ap horizon has hue of 10YR, value of 3 or 4, and chroma of 2 or 3. It is loam.

The E part of the B/E horizon has hue of 10YR, value of 5, and chroma of 2 or 3. It is fine sandy loam.

The Bt part of the B/E horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 3 or 4. It is loam or clay loam.

The Bt horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 3 or 4. It is clay or clay loam.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4. It is clay or clay loam.

Jebavy Series

The Jebavy series consists of poorly drained soils on lake plains and outwash plains. These soils formed in sandy material. They contain ortstein. Permeability is moderate in the ortstein and rapid in the remaining sandy material. Slopes range from 0 to 2 percent.

Taxonomic classification: Sandy, mixed, mesic, shallow, ortstein Typic Duraquods

Typical pedon of Jebavy sand, in an area of Saugatuck-Jebavy complex, 0 to 3 percent slopes; 400 feet north and 900 feet east of the southwest corner of sec. 25, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 30 seconds N. and long. 85 degrees 57 minutes 23 seconds W., NAD 83:

A—0 to 4 inches; black (10YR 2/1) sand, very dark gray (10YR 3/1) dry; weak fine and medium granular structure; very friable; common fine and medium roots; very strongly acid; clear wavy boundary.

E1—4 to 15 inches; light brownish gray (10YR 6/2) sand, white (10YR 8/1) dry; weak coarse subangular blocky structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

E2—15 to 17 inches; brown (10YR 5/3) sand, light gray (10YR 7/1) dry; weak coarse subangular blocky structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

Bhsm1—17 to 26 inches; reddish black (2.5YR 2.5/1) sand; massive; firm; few fine roots matted at the top of the horizon; more than 90 percent of the horizon

occupied by moderately cemented ortstein in a horizontal pattern; very strongly acid; clear wavy boundary.

Bhsm2—26 to 31 inches; dark reddish brown (5YR 3/3) sand; massive; firm; more than 90 percent of the horizon occupied by strongly cemented ortstein in a horizontal pattern; strongly acid; abrupt smooth boundary.

C—31 to 80 inches; dark yellowish brown (10YR 4/4) fine sand; massive; very friable; moderately acid.

The content of gravel ranges from 0 to 5 percent throughout the profile. The profile is sand or fine sand throughout.

The A horizon has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 1 or 2. Some pedons have a thin organic surface layer or mucky textures.

The E horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2 or 3.

Some pedons have a Bsm horizon. This horizon has hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 4 to 6.

The Bhsm horizon has hue of 2.5YR to 7.5YR, value of 2.5 or 3, and chroma of 1 to 3. The content of ortstein ranges from 90 to 100 percent.

Some pedons have a Bs horizon. This horizon has hue of 7.5YR, value of 3 or 4, and chroma of 4 to 6.

The C horizon has hue of 10YR, value of 4 or 5, and chroma of 4.

Kaleva Series

The Kaleva series consists of excessively drained soils on lake plains, outwash plains, and moraines (fig. 20). These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 50 percent.

Taxonomic classification: Sandy, mixed, mesic Typic Haplorthods

Typical pedon of Kaleva sand, 0 to 6 percent slopes; 100 feet west of the northeast corner of sec. 26, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 27 minutes 20 seconds N. and long. 85 degrees 57 minutes 36 seconds W., NAD 83:

A—0 to 3 inches; very dark gray (10YR 3/1) sand, gray (7.5YR 5/1) dry; weak medium granular structure; very friable; common fine and few medium and coarse roots; very strongly acid; abrupt wavy boundary.

E—3 to 9 inches; 70 percent brown (7.5YR 5/2 and 4/2) sand, light gray (7.5YR 7/1) dry; weak medium subangular blocky structure; very friable; common fine and few medium and coarse roots; very strongly acid; abrupt wavy boundary.

Bhs—9 to 11 inches; dark reddish brown (5YR 3/2) sand; weak medium subangular blocky structure; very friable; common fine and few medium and coarse roots; very strongly acid; clear irregular boundary.

Bs1—11 to 16 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; common fine roots; single column of very weakly cemented, dark reddish brown (5YR 3/2) ortstein about 4 inches wide extends into the Bs2 horizon; ortstein occupies 10 percent of the horizon; strongly acid; clear wavy boundary.

Bs2—16 to 21 inches; dark yellowish brown (10YR 4/6) sand; weak medium subangular blocky structure; very friable; common fine roots; single column of very weakly cemented, dark reddish brown (5YR 3/2) ortstein about 4 inches wide extends from the Bs1 horizon through this horizon and into the upper part of the C1 horizon; ortstein occupies 10 percent of the horizon; moderately acid; clear wavy boundary.

C1—21 to 70 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; single column of very weakly cemented, dark reddish brown (5YR 3/2)

Figure 20.—A profile of a Kaleva soil. Depth is marked in inches.

ortstein about 4 inches wide extends from the Bs2 horizon into this horizon to a depth of 37 inches; ortstein occupies 10 percent of the horizon to a depth of 37 inches; slightly acid; clear wavy boundary.

C2—70 to 80 inches; very pale brown (10YR 7/4) sand; single grain; loose; about 2 percent gravel; slightly acid.

The profile is sand throughout. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 or 3, and chroma of 1 to 3. Some pedons have an Ap horizon, which has the same colors as those in the A horizon.

The E horizon has hue of 5YR to 10YR, value of 4 or 5, and chroma of 1 or 2.

The Bhs horizon has hue of 5YR and value and chroma of 2 or 3. The content of ortstein ranges from 0 to 30 percent.

The Bs horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 to 6. The content of ortstein ranges from 0 to 30 percent.

Some pedons have a BC horizon. This horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 6 or 7.

The C horizon has hue of 10YR, value of 6 or 7, and chroma of 3 to 6.

Lamellic Haplorthods, sandy

Lamellic Haplorthods consist of excessively drained soils on moraines and outwash plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Sandy, mixed, mesic Lamellic Haplorthods

Reference pedon of Lamellic Haplorthods, sandy, in an area of Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, rolling; 230 feet south and 710 feet west of the northeast corner of sec. 5, T. 22 N., R. 13 W., Dickson Township, Mason County, Michigan; USGS Tallman, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 20 minutes 17 seconds N. and long. 85 degrees 54 minutes 12 seconds W., NAD 83:

Oa—0 to 1 inch; well decomposed hardwood leaf litter.

A—1 to 2 inches; very dark gray (10YR 3/1) sand, very dark grayish brown (10YR 3/2) dry; weak very fine subangular blocky structure; very friable; many very fine to coarse roots; extremely acid; abrupt smooth boundary.

E—2 to 4 inches; grayish brown (10YR 5/2) sand; weak very fine subangular blocky structure; very friable; common fine to coarse roots; extremely acid; abrupt smooth boundary.

Bs1—4 to 9 inches; dark brown (7.5YR 3/4) sand; weak very fine subangular blocky structure; friable; common medium and coarse roots; extremely acid; gradual wavy boundary.

Bs2—9 to 24 inches; strong brown (7.5YR 4/6) sand; weak very fine subangular blocky structure; very friable; few fine and medium roots; extremely acid; clear smooth boundary.

Bs3—24 to 29 inches; yellowish brown (10YR 5/6) sand; weak very fine subangular blocky structure; very friable; few fine roots; very strongly acid; clear smooth boundary.

E and Bt—29 to 180 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; six lamellae (1/8 inch thick) of strong brown (7.5YR 4/6) loamy sand; strongly acid.

The profile is sand or loamy sand throughout. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 2 to 4. Some pedons do not have an E horizon.

The Bs1 horizon has hue of 7.5YR and value and chroma of 3 or 4. The Bs2 horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 5 or 6.

Some pedons have a Bhs horizon.

The E part of the E and Bt horizon has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 2 to 4. It is sand.

The Bt part of the E and Bt horizon consists of lamellae that are 1/8 to 1/4 inch thick and have a total thickness of less than 6 inches. The lamellae have hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 4 to 6. They are loamy sand.

Fine-loamy banded substratum, dark subsoil, and very deep water table phases are recognized.

Lamellic Udipsamments

Lamellic Udipsamments consist of excessively drained soils on outwash plains, moraines, and till plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Mixed, mesic Lamellic Udipsamments

Reference pedon of Lamellic Udipsamments, nearly level and undulating; 2,300 feet north and 300 feet east of the southwest corner of sec. 26, T. 18 N., R. 15 W., Branch Township, Mason County, Michigan; USGS Tallman, Michigan, 7.5-minute topographic quadrangle; lat. 43 degrees 55 minutes 29 seconds N. and long. 86 degrees 04 minutes 40 seconds W., NAD 83:

Oe—0 to 1 inch; black (10YR 2/1), partially decomposed hardwood leaf litter.

A—1 to 4 inches; very dark grayish brown (10YR 3/2) sand, grayish brown (10YR 5/2) dry; weak fine granular structure; very friable; many fine roots; strongly acid; clear wavy boundary.

Bw1—4 to 21 inches; dark yellowish brown (10YR 4/6) sand; weak medium subangular blocky structure; very friable; common fine and medium roots; strongly acid; gradual wavy boundary.

Bw2—21 to 31 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine and medium roots; slightly acid; gradual wavy boundary.

E and Bt—31 to 100 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; lamellae of strong brown (7.5YR 4/6) and brown (7.5YR 5/4) loamy sand 1/4 to 1 inch thick with a total thickness of less than 6 inches; about 10 percent gravel; slightly acid.

The content of gravel ranges from 0 to 14 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is sand.

The Bw horizon has hue of 10YR or 7.5YR and value and chroma of 3 to 6. It is sand or coarse sand.

The E part of the E and Bt horizon has hue of 10YR, value of 5 to 7, and chroma of 4 to 6. It is sand or coarse sand.

The Bt part of the E and Bt horizon consists of lamellae 1/4 inch to 2 inches thick. The total thickness of the lamellae is less than 6 inches within a depth of 60 inches. The lamellae have hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. They are loamy sand, loamy fine sand, or coarse sandy loam.

Lumley Series

The Lumley series consists of very poorly drained soils in depressions on lake plains, outwash plains, ground moraines, and end moraines. These soils formed in organic material more than 51 inches thick. Permeability ranges from moderately slow to moderately rapid. Slopes range from 0 to 2 percent.

Taxonomic classification: Dysic, mesic Typic Haplosaprists

Typical pedon of Lumley peat, in an area of Lumley-Makinen complex; 1,800 feet south and 200 feet east of the northwest corner of sec. 31, T. 24 N., R. 15 W., Pleasanton Township, Manistee County, Michigan; USGS Bear Lake, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 28 seconds N. and long. 86 degrees 10 minutes 53 seconds W., NAD 83:

Oi1—0 to 3 inches; peat, dark yellowish brown (10YR 4/4) broken face and brown (7.5YR 4/4) rubbed; about 100 percent fiber, 75 percent rubbed; strong thin and medium platy structure; very friable; few fine and coarse roots; extremely acid; abrupt smooth boundary.

Oi2—3 to 6 inches; peat, dark brown (7.5YR 3/3) broken face and very dark brown (7.5YR 2.5/3) rubbed; about 80 percent fiber, 75 percent rubbed; strong thin and medium platy structure; very friable; few fine roots; extremely acid; abrupt smooth boundary.

Oa1—6 to 8 inches; muck, black (10YR 2/1) broken face and rubbed; about 20 percent fiber, 10 percent rubbed; moderate coarse granular structure; very friable; few fine roots; extremely acid; abrupt smooth boundary.

Oa2—8 to 20 inches; muck, dark brown (7.5YR 3/3) broken face, very dark brown (7.5YR 2.5/3) rubbed; about 30 percent fiber, 10 percent rubbed; weak thin and medium platy structure; very friable; extremely acid; abrupt smooth boundary.

Oa3—20 to 45 inches; muck, dark brown (7.5YR 3/3) broken face and rubbed; about 20 percent fiber, 5 percent rubbed; weak thin and medium platy structure; extremely acid; abrupt smooth boundary.

Oa4—45 to 53 inches; muck, very dark brown (7.5YR 2.5/3) broken face and rubbed; about 40 percent fiber, 10 percent rubbed; weak thin and medium platy structure; extremely acid; abrupt smooth boundary.

Oa5—53 to 80 inches; muck, very dark gray (10YR 3/1) broken face and black (10YR 2/1) rubbed; about 5 percent fiber unrubbed and rubbed; weak thin and medium platy structure; extremely acid.

The organic layers are more than 51 inches thick. The content of woody fragments averages less than 15 percent by volume in the control section.

The surface tier has hue of 10YR to 5YR, value of 2 to 4, and chroma of 1 to 4. The upper part of the surface tier is peat. The lower part of the surface tier is predominantly muck.

The subsurface tier and the bottom tier have hue of 10YR to 5YR, value of 2 to 4, and chroma of 1 to 4. The layers are predominantly muck, but in some pedons mucky peat and peat have a combined thickness of less than 10 inches.

Madaus Series

The Madaus series consists of very poorly drained soils on outwash plains, lake plains, and flood plains. These soils formed in organic deposits over marly, sandy, and clayey material. Permeability ranges from moderately slow to moderately rapid in the organic material. It is slow in the marly material, rapid in the sandy material, and slow or very slow in the clayey material. Slopes are 0 to 1 percent.

Taxonomic classification: Coarse-silty over sandy or sandy-skeletal, carbonatic over mixed, mesic Histic Humaquepts

Typical pedon of Madaus muck; 900 feet north and 50 feet east of the southwest corner of sec. 35, T. 26 N., R. 16 W., Gilmore Township, Benzie County, Michigan; USGS Elberta, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 36 minutes 26 seconds N. and long. 86 degrees 13 minutes 13 seconds W., NAD 83:

Oa—0 to 12 inches; muck, black (7.5YR 2.5/1) broken face and rubbed; moderate medium subangular blocky structure; friable; common medium and many very fine and fine roots throughout; about 1 percent fiber, a trace rubbed; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Lca1—12 to 34 inches; light gray (2.5Y 7/2) marly silt loam; massive; friable; many very fine and fine roots throughout; common coarse prominent yellowish red (5YR 5/8) and common medium prominent reddish yellow (5YR 6/8) masses of iron accumulation in the matrix; violently effervescent; moderately alkaline; abrupt smooth boundary.

Lca2—34 to 38 inches; light gray (2.5Y 7/1) marly silt loam; massive; friable; few very fine and fine roots throughout; violently effervescent; moderately alkaline; abrupt smooth boundary.

2C1—38 to 62 inches; brown (7.5YR 5/3) sand; single grain; loose; strongly effervescent; moderately alkaline; abrupt smooth boundary.

3C2—62 to 80 inches; reddish brown (5YR 5/4) clay; massive; very firm; slightly effervescent; slightly alkaline.

The depth to the sandy material ranges from 16 to 60 inches.

The Oa horizon has hue of 7.5YR or 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is muck.

The Lca horizon has hue of 10YR to 5Y, value of 4 to 8, and chroma of 1 to 3. It is marly silt loam.

The 2C horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 2 to 4. It is sand.

The 3C horizon has hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4. It is clay.

Makinen Series

The Makinen series consists of very poorly drained soils in closed depressions on outwash plains, lake plains, ground moraines, and end moraines. These soils formed in 16 to 51 inches of organic deposits over sandy material. Permeability ranges from moderately slow to moderately rapid in the organic material and is rapid in the sandy material. Slopes range from 0 to 2 percent.

Taxonomic classification: Sandy or sandy-skeletal, mixed, dysic, mesic Terric Haplosaprists

Typical pedon of Makinen muck, in an area of Lumley-Makinen complex; 2,100 feet south and 1,780 feet west of the northeast corner of sec. 34, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 09 seconds N. and long. 85 degrees 59 minutes 09 seconds W., NAD 83:

Oa1—0 to 4 inches; muck, black (5YR 2.5/1) broken face and black (7.5YR 2.5/1) rubbed; about 5 percent fiber, less than 5 percent rubbed; moderate medium subangular blocky structure; very friable; many fine and medium roots; extremely acid; abrupt smooth boundary.

Oa2—4 to 14 inches; muck, black (7.5YR 2.5/1) broken face and rubbed; about 10 percent fiber, less than 5 percent rubbed; weak medium platy structure; extremely acid; abrupt smooth boundary.

Oa3—14 to 22 inches; muck, black (7.5YR 2.5/1) broken face and black (5YR 2.5/1) rubbed; about 20 percent fiber, 5 percent rubbed; weak medium subangular blocky structure; ultra acid; clear wavy boundary.

Oa4—22 to 31 inches; muck, black (7.5YR 2.5/1) broken face and rubbed; about 20 percent fiber, 10 percent rubbed; weak medium subangular blocky structure; ultra acid; clear wavy boundary.

Cg—31 to 80 inches; dark grayish brown (10YR 4/2) sand; single grain; very friable; common medium prominent light olive brown (2.5Y 5/4) masses of iron accumulation in the matrix; very strongly acid.

The depth to the C horizon ranges from 16 to 51 inches. The content of woody fragments averages less than 15 percent by volume in the control section.

The surface tier has hue of 5YR to 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 3. It is dominantly muck. Some pedons have a thin mat (1 to 4 inches thick) of sphagnum moss on the surface.

The subsurface tier and bottom tier have hue of 2.5YR to 10YR or are neutral in hue. They have value of 2 or 3 and chroma of 0 to 3. Some pedons have thin layers (less than 10 inches thick) of mucky peat, and some pedons have thin layers (less than 5 inches thick) of peat.

Some pedons have a layer of sedimentary peat 1 to 2 inches thick directly above the C horizon.

The C horizon has hue of 5YR to 5Y, value of 3 or 4, and chroma of 2 or 3. It is sand.

Marlette Series

The Marlette series consists of moderately well drained soils on moraines and till plains. These soils formed in loamy material. Permeability is moderate or moderately slow. Slopes range from 2 to 12 percent.

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Oxyaquic Glossudalfs

Typical pedon of Marlette fine sandy loam, 2 to 6 percent slopes; 850 feet south and 950 feet east of the northwest corner of sec. 14, T. 21 N., R. 17 W., Filer Township, Manistee County, Michigan; USGS Manistee, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 14 minutes 00 seconds N. and long. 86 degrees 20 minutes 27 seconds W., NAD 83:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/3) fine sandy loam, brown (10YR 5/3) dry; moderate very fine subangular blocky structure; friable; many fine to coarse roots; about 1 percent fine gravel; slightly acid; abrupt smooth boundary.

E/B—7 to 13 inches; about 60 percent light brownish gray (10YR 6/2) sandy loam, light gray (10YR 6/2) dry (E); moderate fine subangular blocky structure; friable; completely surrounded by or penetrated by dark brown (7.5YR 4/4) sandy loam (Bt); moderate medium subangular blocky structure; friable; common medium distinct strong brown (7.5YR 5/6) clay films on faces of peds; common very fine to medium and few coarse roots; about 1 percent fine gravel; slightly acid; clear wavy boundary.

Bt—13 to 27 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; common medium faint brown (7.5YR 4/3) clay films on faces of peds; about 1 percent fine gravel; common medium distinct strong brown (10YR 5/6) masses of iron accumulation in the lower part of the horizon; few fine and medium roots; slightly acid; clear wavy boundary.

C—27 to 80 inches; brown (7.5YR 5/3) clay loam; massive; friable; about 2 percent fine gravel; common medium prominent reddish yellow (7.5YR 6/6) masses of iron accumulation in the matrix; strongly effervescent; slightly alkaline.

The depth to carbonates ranges from 25 to 40 inches. The content of gravel ranges from 1 to 10 percent throughout the profile.

The Ap horizon has hue of 10YR, value of 3 to 5, and chroma of 1 to 3. Pedons in forested areas have an A horizon. This horizon has hue of 10YR, value of 2 or 3, and chroma of 1 or 2. It is fine sandy loam.

The E part of the E/B horizon has hue of 10YR, value of 5 to 7, and chroma of 1 to 3. It is sandy loam, fine sandy loam, or loam.

The Bt part of the E/B horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6. It is sandy loam, loam, or clay loam.

The Bt horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6. It is loam or clay loam.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4. It is loam or clay loam.

Milarch Series

The Milarch series consists of moderately well drained soils on lake plains and deltas. These soils formed in loamy deposits over sandy material. Permeability is moderately slow in the loamy material and rapid in the sandy material. Slopes range from 0 to 3 percent.

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Oxyaquic Glossudalfs

Typical pedon of Milarch loam, 0 to 3 percent slopes; 1,350 feet south and 1,700 feet east of the northwest corner of sec. 35, T. 22 N., R. 16 W., Manistee Township, Manistee County, Michigan; USGS Onekama, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 16 minutes 15.3 seconds N. and long. 86 degrees 13 minutes 01.8 seconds W., NAD 83:

Ap—0 to 9 inches; dark grayish brown (7.5YR 3/2) loam, light brownish gray (10YR 6/2) dry; moderate medium granular structure; friable; common fine roots; slightly acid; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 5/3) loam, light brownish gray (10YR 6/2) dry; weak fine subangular blocky structure; friable; few fine roots; slightly acid; clear wavy boundary.

B/E—13 to 19 inches; about 85 percent brown (7.5YR 4/4) clay loam (Bt) surrounded by pale brown (10YR 6/3) loam (E), light gray (10YR 7/2) dry; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (10YR 4/3) clay films on faces of peds and in root channels; moderately acid; gradual wavy boundary.

Bt1—19 to 27 inches; brown (7.5YR 4/4) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (7.5YR 4/3) clay films on faces of peds and in root channels; slightly acid; clear wavy boundary.

Bt2—27 to 30 inches; brown (7.5YR 4/3) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many distinct brown (7.5YR 4/3) clay films on faces of peds; common medium faint grayish brown (10YR 5/2) and few coarse distinct grayish brown (2.5Y 5/2) iron depletions in the matrix; few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; slightly acid; clear wavy boundary.

2E and Bt1—30 to 39 inches; strong brown (7.5YR 5/6) loamy sand (E); lamellae of brown (7.5YR 4/4) sandy loam (Bt); weak medium subangular blocky structure; friable; very few fine roots; few patchy brown (7.5YR 4/3) clay films on faces of peds in lamellae; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation in the upper part of each lamella; lamellae are 1/4 to 3/4 inch thick and are 1 to 2 inches apart; total thickness of the lamellae is 2 inches; neutral; abrupt wavy boundary.

2E and Bt2—39 to 80 inches; pale brown (10YR 6/3) fine sand (E); single grain; loose in the E part; lamellae of strong brown (7.5YR 4/6) loamy sand and sandy loam (Bt); weak fine subangular blocky structure; friable in the Bt part; patchy faint clay bridging between sand grains in lamellae; lamellae are 1/8 to 1/2 inch thick and are an average of 3 inches apart; total thickness of the lamellae is about 4 inches; neutral.

The depth to the E and Bt horizon ranges from 24 to 36 inches.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 1 to 3. It is loam. Pedons in uncultivated areas have an A horizon, which has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 2.

The E horizon and the E part of the B/E horizon have hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 or 3. They are fine sandy loam, very fine sandy loam, loam, or silt loam. Some pedons do not have an E horizon.

The Bt part of the B/E horizon and the Bt horizon have hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 3 or 4. The texture is clay loam, silty clay loam, or loam.

The E part of the E and Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 6. It is fine sand, sand, or loamy sand.

The Bt part of the E and Bt horizon occurs as lamellae that are 1/8 to 3/4 inch thick and have a total accumulation of 4 to 8 inches to a depth of 80 inches. The lamellae have hue of 5YR, 7.5YR, or 10YR, value of 3 to 5, and chroma of 3 to 6. They are loamy sand or sandy loam.

Milnichol Series

The Milnichol series consists of somewhat poorly drained soils on lake plains and outwash plains. These soils formed in sandy deposits over stratified silty and loamy material. Permeability is rapid in the sandy material and slow in the loamy material. Slopes range from 0 to 4 percent.

Taxonomic classification: Sandy, mixed, mesic Typic Epiaquods

Typical pedon of Milnichol fine sand, 0 to 4 percent slopes; 2,440 feet north and 50 feet west of the southeast corner of sec. 22, T. 25 N., R. 14 W., Weldon Township, Benzie County, Michigan; USGS Thompsonville, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 32 minutes 54.9 seconds N. and long. 85 degrees 58 minutes 41.5 seconds W., NAD 83:

A—0 to 2 inches; black (7.5YR 2.5/1) fine sand, dark gray (10YR 4/1) dry; weak medium granular structure; very friable; many fine and medium roots; 1 percent gravel; moderately acid; abrupt smooth boundary.

E—2 to 12 inches; gray (7.5YR 5/1) fine sand, light gray (7.5YR7/1) dry; weak medium subangular blocky structure; very friable; common fine and medium and few coarse roots; 1 percent gravel; common fine faint light brownish gray (10YR 6/2) iron depletions in the matrix; common medium and fine prominent light yellowish brown (10YR 6/4) masses of iron accumulation in the matrix; very strongly acid; abrupt smooth boundary.

Bhs—12 to 15 inches; dark reddish brown (5YR 3/2) fine sand; weak medium subangular blocky structure; very friable; common fine and medium and few coarse roots; 1 percent gravel; common medium prominent yellowish red (5YR 4/6) iron accumulations in the matrix; strongly acid; clear wavy boundary.

Bs1—15 to 25 inches; brown (7.5YR 4/3) fine sand; weak medium subangular blocky structure; very friable; few fine and medium roots; 1 percent gravel; common medium prominent yellowish red (5YR 4/6) iron accumulations in the matrix; moderately acid; gradual wavy boundary.

Bs2—25 to 33 inches; strong brown (7.5YR 4/6) fine sand; single grain; loose; few fine roots; 1 percent gravel; common medium faint strong brown (7.5YR 5/6) iron accumulations in the matrix; moderately acid; gradual wavy boundary.

C1—33 to 47 inches; pale brown (10YR 6/3) fine sand; single grain; loose; few fine roots; 1 percent gravel; many coarse prominent strong brown (7.5YR 5/8) iron accumulations in the matrix; neutral; abrupt smooth boundary.

2C2—47 to 50 inches; dark brown (7.5YR 5/4), stratified loamy fine sand and fine sandy loam; massive; friable; many medium prominent strong brown (7.5YR 5/8) iron accumulations in the matrix; neutral; abrupt smooth boundary.

2C3—50 to 68 inches; brown (7.5YR 5/3) silty clay loam; massive; firm; many medium distinct gray (7.5YR 6/1) iron depletions and many medium prominent strong

brown (7.5YR 4/6) iron accumulations in the matrix; slightly effervescent; moderately alkaline; clear smooth boundary.

2C4—68 to 80 inches; grayish brown (2.5Y 5/2) silt loam; massive; friable; many coarse distinct light olive brown (2.5Y 5/4) iron accumulations in the matrix; slightly effervescent; slightly alkaline.

The depth to loamy material and the depth to carbonates range from 40 to 60 inches. The content of gravel and cobbles ranges from 0 to 5 percent throughout.

The A horizon has hue of 7.5YR, value of 2.5 or 3, and chroma of 1 or 2. It is fine sand.

The E horizon has hue of 7.5YR, value of 5 to 7, and chroma of 1 to 3. It is fine sand or sand.

The Bhs horizon has hue of 5YR or 7.5YR, value of 3, and chroma of 2. It is fine sand or sand. The content of ortstein ranges from 0 to 25 percent.

The Bs horizon has hue of 7.5YR, value of 3 to 5, and chroma of 3 to 6. It is fine sand or sand. The content of ortstein ranges from 0 to 25 percent.

The C horizon has hue of 10YR, value of 6, and chroma of 3. It is fine sand or sand.

The 2C horizon has hue of 2.5Y to 7.5YR, value of 4 or 5, and chroma of 2 to 4. The texture ranges from fine sandy loam to silty clay loam; strata of coarser material are included.

Mollineaux Series

The Mollineaux series consists of well drained soils on moraines, stream terraces, and lake terraces. These soils formed in sandy and loamy material. Permeability is rapid in the sandy material and moderate or moderately slow in the loamy material. Slopes range from 12 to 45 percent.

Taxonomic classification: Sandy over loamy, mixed, active, mesic Lamellic Haplorthods

Typical pedon of Mollineaux loamy sand, in an area of Mollineax-Remus complex, 18 to 35 percent slopes; about 2,150 feet south and 2,590 feet west of the northeast corner of sec. 29, T. 26 N., R. 15 W., Crystal Lake Township, Benzie County, Michigan; USGS Frankfort, Michigan, topographic quadrangle; lat. 44 degrees 37 minutes 37.4 seconds N. and long. 86 degrees 09 minutes 00 seconds W., NAD 83:

A—0 to 6 inches; dark brown (7.5YR 3/4) loamy sand, brown (7.5YR 4/2) dry; weak fine granular structure; very friable; few very fine and fine roots; moderately acid; abrupt smooth boundary.

E—6 to 9 inches; brown (7.5YR 4/2) loamy sand, brown (7.5YR 5/3) dry; weak fine granular structure; very friable; few very fine and fine roots; moderately acid; clear wavy boundary.

Bs1—9 to 15 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; very friable; few fine and medium roots; moderately acid; clear wavy boundary.

Bs2—15 to 27 inches; dark yellowish brown (10YR 4/6) loamy sand; weak medium subangular blocky structure; very friable; few medium roots; moderately acid; clear wavy boundary.

E and Bt—27 to 38 inches; light brown (7.5YR 6/3) loamy sand, light brown (7.5YR 6/3) dry (E); bands of strong brown (7.5YR 4/6) loamy sand (Bt); moderate medium subangular blocky structure; very friable; few medium roots; few faint reddish brown (5YR 4/4) clay bridges between sand grains (Bt); about 5 percent gravel; moderately acid; clear wavy boundary.

B/E—38 to 64 inches; 80 percent reddish brown (5YR 4/3) clay loam (Bt); surrounded by pinkish gray (7.5YR 6/2) loam (E); moderate medium subangular blocky

structure; friable; few medium roots; few fine reddish brown (5YR 4/4) clay films on faces of peds; about 5 percent gravel; neutral; clear wavy boundary.

E´ and B´t—64 to 80 inches; light yellowish brown (10YR 6/4) sand, light yellowish brown (10YR 6/4) dry; bands of dark yellowish brown (10YR 4/6) loamy sand (Bt); weak medium subangular blocky structure; very friable; few medium roots; few faint reddish brown (5YR 4/4) clay bridges between sand grains (Bt); about 5 percent gravel; slightly acid.

The depth to the loamy material ranges from 20 to 40 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 7.5YR, value of 3 or 4, and chroma of 2 to 4. It is loamy sand.

The E horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 or 3. It is fine sand, loamy fine sand, sand, or loamy sand.

Some pedons have a Bhs horizon. This horizon has hue of 5YR or 7.5YR, value of 3, and chroma of 2 or 3. It is fine sand, loamy fine sand, sand, or loamy sand.

The Bs1 horizon has hue of 5YR or 7.5YR, value of 3 or 4, and chroma of 4. It is fine sand, loamy fine sand, sand, or loamy sand.

The Bs2 horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 6. It is fine sand, loamy fine sand, sand, or loamy sand. Some pedons do not have a Bs2 horizon.

The E part of the E and Bt horizons has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 to 4. It is fine sand, loamy fine sand, sand, or loamy sand.

The Bt part of the E and Bt horizons has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3 to 6. It is loamy sand.

The E part of the B/E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 to 4. It is loam or clay loam.

The Bt part of the B/E horizon has hue of 5YR or 7.5YR and value and chroma of 3 or 4. It is loam or clay loam. Some pedons have an E/B horizon, which has colors and textures similar to those of the B/E horizon.

Nessen Series

The Nessen series consists of well drained soils on lake plains, outwash plains, and moraines. These soils formed in sandy material overlying calcareous sandy and gravelly material. Permeability is rapid. Slopes range from 0 to 35 percent.

Taxonomic classification: Sandy, mixed, mesic Typic Haplorthods

Typical pedon of Nessen sand, 0 to 6 percent slopes; 2,480 feet south and 1,800 feet west of the northeast corner of sec. 18, T. 26 N., R. 13 W., Inland Township, Benzie County, Michigan; USGS Platte River, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 39 minutes 07.1 seconds N. and long. 85 degrees 55 minutes 33.5 seconds W., NAD 83:

A—0 to 4 inches; black (5YR 2.5/1) sand, dark gray (5YR 4/1) dry; weak fine granular structure; very friable; many very fine and fine and common medium and coarse roots; about 5 percent gravel; moderately acid; clear wavy boundary.

E—4 to 11 inches; reddish gray (5YR 5/2) sand, pinkish gray (5YR 7/2) dry; weak very fine subangular blocky structure; very friable; many very fine, fine, medium, and coarse roots; about 5 percent gravel; moderately acid; clear wavy boundary.

Bhs—11 to 15 inches; dark reddish brown (5YR 3/3) sand; weak very fine subangular blocky structure; very friable; common fine and many medium and coarse roots; about 5 percent gravel; moderately acid; clear irregular boundary.

Bs1—15 to 24 inches; reddish brown (5YR 4/4) sand; weak very fine subangular blocky structure; very friable; common medium and coarse roots; about 5 percent gravel; moderately acid; gradual irregular boundary.

Bs2—24 to 39 inches; strong brown (7.5YR 4/6) sand; single grain; loose; few medium and coarse roots; 8 percent gravel; moderately acid; clear irregular boundary.

Bt—39 to 44 inches; dark brown (7.5YR 3/3) gravelly sand; weak fine subangular blocky structure; very friable; common very fine and fine and few medium and coarse roots; patchy faint clay bridging between sand grains; 20 percent gravel; moderately acid; clear wavy boundary.

2C—44 to 80 inches; yellowish brown (10YR 5/4), stratified sand (5 percent gravel) and gravelly sand (20 percent gravel); single grain; loose; few medium and coarse roots in the upper 12 inches; slightly effervescent; moderately alkaline.

The depth to carbonates ranges from 40 to 55 inches.

The A horizon has hue of 7.5YR or 5YR, value of 2 or 3, and chroma of 1 to 3. It is sand. The content of gravel ranges from 2 to 10 percent. Some pedons have an Ap horizon, which has colors and textures similar to those of the A horizon.

The E horizon has hue of 7.5YR or 5YR, value of 4 or 5, and chroma of 2 to 4. It is sand. The content of gravel ranges from 2 to 10 percent.

The Bhs horizon has hue of 7.5YR or 5YR, value of 2.5 or 3, and chroma of 2 or 3. It is sand. The content of gravel ranges from 2 to 10 percent.

The Bs1 horizon has hue of 5YR or 7.5YR, value of 3 to 5, and chroma of 3 or 4. It is sand. The content of gravel ranges from 2 to 10 percent. Value and chroma of 3 do not occur together.

The Bs2 horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. It is sand. The content of gravel ranges from 5 to 10 percent.

The Bt horizon has hue of 5YR or 7.5YR, value of 2.5 or 3, and chroma of 2 or 3. It is gravelly sand, gravelly loamy sand, sand, or stratified gravelly sand and sand. The content of gravel ranges from 12 to 35 percent. The Bt horizon is thin and weakly expressed and does not qualify as an argillic horizon.

The 2C horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 3 to 6. It is gravelly sand, sand, or stratified gravelly sand and sand. The content of gravel ranges from 5 to 35 percent.

Nordhouse Series

The Nordhouse series consists of excessively drained soils on dunes and lake plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Mesic, uncoated Spodic Quartzipsamments

Typical pedon of Nordhouse sand, 6 to 18 percent slopes; 2,600 feet south and 2,850 feet west of the northeast corner of sec. 21, T. 23 N., R. 16 W., Onekama Township, Manistee County, Michigan; USGS Bear Lake, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 22 minutes 54 seconds N. and long. 86 degrees 15 minutes 14.5 seconds W., NAD 83:

A—0 to 3 inches; very dark gray (7.5YR 3/1) sand, dark gray (7.5YR 4/1) dry; weak very fine granular structure; very friable; many very fine to coarse roots; extremely acid; clear wavy boundary.

E—3 to 11 inches; brown (7.5YR 5/2) sand, light gray (7.5YR 7/1) dry; weak medium subangular blocky structure; very friable; many very fine to coarse roots; extremely acid; gradual wavy boundary.

Bs—11 to 40 inches; strong brown (7.5YR 5/6), dark brown (7.5YR 3/4), and brown (7.5YR 5/4) sand; weak medium subangular blocky structure; very friable; few very fine to medium roots; strongly acid; gradual wavy boundary.

C1—40 to 60 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few very fine and medium roots; strongly acid; gradual wavy boundary.

C2—60 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; moderately acid.

The profile is sand throughout.

The A horizon has hue of 7.5YR or 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 1 or 2. Some pedons have an Ap horizon, which has the same colors as those in the A horizon.

The E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 1 or 2.

The Bs horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 6.

Some pedons have a BC horizon. This horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6.

Onekama Series

The Onekama series consists of well drained soils on till plains and moraines. These soils formed in loamy and clayey material. Permeability is slow. Slopes range from 12 to 50 percent.

Taxonomic classification: Fine, mixed, active, mesic Haplic Glossudalfs

Typical pedon of Onekama fine sandy loam, 18 to 35 percent slopes; 1,500 feet south and 1,600 feet west of the northeast corner of sec. 9, T. 22 N., R. 15 W., Brown Township, Manistee County, Michigan; USGS Onekama, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 19 minutes 31 seconds N. and long. 86 degrees 07 minutes 38 seconds W., NAD 83:

A—0 to 6 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; moderate medium granular structure; friable; few coarse and common fine and medium roots; few fine tubular pores; about 2 percent gravel; neutral; clear smooth boundary.

E/B—6 to 13 inches; about 80 percent brown (7.5YR 5/3) fine sandy loam (E), pinkish gray (7.5YR 7/2) dry; weak medium subangular blocky structure; friable; extending into or completely surrounding peds of dark reddish brown (5YR 4/4) clay loam (Bt); strong medium subangular blocky structure; firm; common fine and medium roots; few fine tubular pores; common distinct reddish brown (5YR 4/3) clay films on faces of peds and in pores; about 2 percent gravel; neutral; clear wavy boundary.

Bt1—13 to 20 inches; reddish brown (5YR 4/4) clay loam; strong fine and medium angular blocky structure parting to strong fine and medium granular; very firm; few coarse tubular pores; many prominent reddish brown (5YR 4/3) clay films on faces of peds and in pores; about 2 percent gravel; slightly alkaline; clear wavy boundary.

Bt2—20 to 31 inches; reddish brown (5YR 5/4) clay loam; strong medium and coarse prismatic structure parting to strong medium and coarse subangular blocky; very firm; common faint reddish brown (5YR 5/4) clay films on faces of peds; about 2 percent gravel; violently effervescent; moderately alkaline; gradual wavy boundary.

BC—31 to 80 inches; reddish brown (5YR 5/3) clay loam; strong medium and coarse prismatic structure parting to strong medium and coarse subangular blocky; very firm; few patchy prominent white (7.5YR 8/1) carbonate coatings on vertical faces of peds; about 2 percent gravel; violently effervescent; moderately alkaline.

The depth to carbonates ranges from 20 to 36 inches. The content of gravel ranges from 2 to 10 percent throughout the profile.

The A horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 1 to 3. It is fine sandy loam or loam.

The E part of the E/B horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 to 4. It is fine sandy loam, sandy loam, or loam.

The Bt part of the E/B horizon and the Bt horizon have hue of 5YR or 7.5YR and value and chroma of 4 to 6. They are clay or clay loam.

The BC horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 or 4. It is clay or clay loam.

Oxyaquic Haplorthods, sandy

Oxyaquic Haplorthods consist of moderately well drained soils on outwash plains, moraines, and till plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 6 percent.

Taxonomic classification: Sandy, mixed, mesic Oxyaquic Haplorthods

Reference pedon of Oxyaquic Haplorthods, sandy, nearly level and undulating; 2,260 feet south and 210 feet west of the northeast corner of sec. 32, T. 21 N., R. 14 W., Norman Township, Manistee County, Michigan; USGS Udell, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 10 minutes 35 seconds N. and long. 86 degrees 01 minute 23 seconds W., NAD 83:

A—0 to 2 inches; black (10YR 2/1) sand, very dark gray (10YR 3/1) dry; weak medium subangular blocky structure; very friable; few very fine to medium roots; extremely acid; abrupt smooth boundary.

E—2 to 4 inches; grayish brown (10YR 5/2) sand, light gray (10YR 7/2) dry; weak fine subangular blocky structure; very friable; few very fine to medium roots; very strongly acid; abrupt smooth boundary.

Bs1—4 to 7 inches; brown (7.5YR 4/4) sand; weak medium and coarse subangular blocky structure; very friable; few very fine to coarse roots; very strongly acid; clear irregular boundary.

Bs2—7 to 17 inches; strong brown (7.5YR 4/6) sand; weak medium and coarse subangular blocky structure; very friable; few very fine to medium roots; very strongly acid; gradual smooth boundary.

C1—17 to 23 inches; brownish yellow (10YR 6/6) sand; weak coarse subangular blocky structure; very friable; few very fine roots; moderately acid; gradual wavy boundary.

C2—23 to 30 inches; brownish yellow (10YR 6/6) sand; massive; friable; few very fine roots; few fine prominent yellowish red (5YR 5/8) masses of iron accumulation in the matrix; slightly acid; gradual wavy boundary.

C3—30 to 54 inches; brownish yellow (10YR 6/6) sand; single grain; loose; few fine roots; few medium prominent yellowish red (5YR 5/8) and few coarse distinct dark yellowish brown (10YR 3/6) masses of iron accumulation in the matrix; strongly acid; gradual wavy boundary.

C4—54 to 70 inches; brownish yellow (10YR 6/8) sand; single grain; loose; few fine distinct yellowish red (5YR 5/8) masses of iron accumulation in the matrix; moderately acid; gradual wavy boundary.

C5—70 to 84 inches; yellowish brown (10YR 5/6) and brownish yellow (10YR 6/8) sand; single grain; loose; few fine distinct yellowish red (5YR 5/8) masses of iron accumulation in the matrix; moderately acid.

The profile is sand throughout. The content of gravel ranges from 0 to 14 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2.

The Bs horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 8. Value and chroma of 3 do not occur together.

Some pedons have a Bhs horizon. This horizon has hue of 5YR or 7.5YR, value of 3, and chroma of 2 or 3.

The C horizon has hue of 7.5YR to 5Y, value of 3 to 7, and chroma of 2 to 8. It is dominantly sand, but some pedons have coarse sand, fine sand, loamy sand, or sandy clay loam below a depth of 50 inches.

A dark subsoil phase is recognized.

Oxyaquic Udipsamments

Oxyaquic Udipsamments consist of moderately well drained soils on outwash plains and till plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 6 percent.

Taxonomic classification: Mixed, mesic Oxyaquic Udipsamments

Reference pedon of Oxyaquic Udipsamments, nearly level and undulating; 1,480 feet north and 695 feet west of the southeast corner of sec. 21, T. 21 N., R. 14 W., Norman Township, Manistee County, Michigan; USGS Udell, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 11 minutes 59 seconds N. and long. 86 degrees 00 minutes 18 seconds W., NAD 83:

Oa—0 to 1 inch; well decomposed organic material and leaf litter.

A—1 to 2 inches; black (10YR 2/1) sand, very dark gray (10YR 3/1) dry; weak fine subangular blocky structure; very friable; many very fine to coarse roots; ultra acid; abrupt smooth boundary.

E—2 to 3 inches; brown (10YR 5/3) sand, light gray (10YR 7/2) dry; single grain; loose; many very fine to coarse roots; extremely acid; abrupt irregular discontinuous boundary.

Bw1—3 to 15 inches; dark yellowish brown (10YR 3/6) sand; weak medium subangular blocky structure; very friable; many very fine to medium roots; extremely acid; diffuse smooth boundary.

Bw2—15 to 24 inches; dark yellowish brown (10YR 4/6) sand; weak medium subangular blocky structure; very friable; common very fine to medium roots; extremely acid; diffuse wavy boundary.

BC—24 to 29 inches; brownish yellow (10YR 6/4) sand; weak medium subangular blocky structure; very friable; few very fine and fine roots; extremely acid; diffuse wavy boundary.

C1—29 to 40 inches; light yellowish brown (10YR 6/4) sand; weak medium subangular blocky structure; very friable; very few very fine and fine roots; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation in the matrix; extremely acid; abrupt irregular discontinuous boundary.

C2—40 to 49 inches; light yellowish brown (10YR 6/4) sand; weak fine subangular blocky structure; very friable; very few very fine to medium roots; very few fine prominent dark red (2.5YR 5/8) masses of iron accumulation in the matrix near the bottom of the horizon; extremely acid; abrupt smooth boundary.

C3—49 to 85 inches; very pale brown (10YR 7/3) sand; moderate coarse subangular blocky structure; few medium to coarse prominent dark red (2.5YR 4/8) and common medium to coarse prominent yellowish red (5YR 5/8) masses of iron accumulation in the matrix; very friable; extremely acid.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is sand.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 or 3. It is sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 4 to 8. The content of gravel ranges from 0 to 14 percent, but it is as high as 30 percent in individual strata. This horizon is sand or gravelly sand.

The C horizon has hue of 7.5YR to 5Y, value of 3 to 7, and chroma of 2 to 8. It is dominantly sand, but the range includes coarse sand, fine sand, loamy sand, and gravelly sand. The content of gravel ranges from 0 to 14 percent, but it is as high as 30 percent in individual strata.

Parkhill Series

The Parkhill series consists of poorly drained soils on till plains. These soils formed in loamy material. Permeability is moderate or moderately slow. Slopes range from 0 to 2 percent.

Taxonomic classification: Fine-loamy, mixed, semiactive, nonacid, mesic Mollic Endoaquepts

Typical pedon of Parkhill loam; 950 feet south and 150 feet east of the northwest corner of sec. 14, T. 21 N., R. 17 W., Filer Township, Manistee County, Michigan; USGS Manistee, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 14 minutes 00 seconds N. and long. 86 degrees 20 minutes 39 seconds W., NAD 83:

Ap—0 to 9 inches; very dark gray (10YR 3/1) loam, dark gray (10YR 5/1) dry; moderate medium granular structure; friable; common medium and fine roots; slightly acid; abrupt smooth boundary.

Bg—9 to 20 inches; greenish gray (10Y 6/1) clay loam, moderate medium subangular blocky structure; common medium distinct brown (7.5YR 5/3) and strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium distinct dark gray (10YR 4/1) iron depletions in the matrix; friable; common very fine roots; neutral; clear wavy boundary.

C1—20 to 29 inches; light brown (7.5YR 6/3) clay loam; moderate medium subangular blocky structure; friable; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; common medium distinct greenish gray (10Y 6/1) iron depletions; common fine distinct white (7.5YR 8/1) carbonate coatings; strongly effervescent; moderately alkaline; clear wavy boundary.

C2—29 to 80 inches; light brown (7.5YR 6/3) clay loam; moderate medium subangular blocky structure; friable; common medium distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; common medium distinct greenish gray (10Y 6/1) iron depletions in the matrix; common medium distinct white (7.5YR 8/1) and pinkish white (7.5YR 8/2) carbonate coatings; violently effervescent; moderately alkaline.

The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 or 1. It is loam.

The Bg horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. It is loam or clay loam.

The C horizon has hue of 7.5YR to 5Y or is neutral in hue. It has value of 4 to 6 and chroma of 1 to 4. It is loam or clay loam.

Perrinton Series

The Perrinton series consists of moderately well drained soils on till plains and moraines. These soils formed in clayey or loamy material. Permeability is slow. Slopes range from 2 to 12 percent.

Taxonomic classification: Fine, mixed, active, mesic Oxyaquic Glossudalfs

Typical pedon of Perrinton loam, 6 to 12 percent slopes; 2,200 feet east and 50 feet north of the southwest corner of sec. 3, T. 22 N., R. 15 W., Brown Township, Manistee County, Michigan; USGS Brethren, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 19 minutes 45.5 seconds N. and long. 86 degrees 06 minutes 44.1 seconds W., NAD 83:

Ap—0 to 9 inches; dark brown (7.5YR 3/2) loam, brown (7.5YR 5/2) dry; moderate medium subangular blocky structure; friable; few very coarse and coarse roots; neutral; abrupt smooth boundary.

B/E—9 to 13 inches; about 75 percent reddish brown (5YR 4/4) clay loam (B); 25 percent light brown (7.5YR 6/3) fine sandy loam (E), pinkish gray (7.5YR 7/2) dry; moderate medium subangular blocky structure; friable; medium prominent (5YR 4/2) clay films on surfaces and along pores; few very coarse and coarse roots; moderately acid; gradual broken boundary.

Bt—13 to 28 inches; reddish brown (5YR 4/4) clay; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; medium prominent (5YR 4/2) clay films on surfaces and along pores; few coarse roots; few fine faint strong brown (7.5YR 4/6) masses of iron accumulation in the matrix starting at a depth of 24 inches; moderately acid; clear wavy boundary.

BC—28 to 38 inches; 60 percent reddish brown (5YR 5/4) and 40 percent reddish brown (5YR 5/3) clay; moderate coarse prismatic structure; firm; slightly effervescent; slightly alkaline; clear wavy boundary.

C—38 to 80 inches; reddish brown (5YR 5/3) clay; massive; firm; strongly effervescent; moderately alkaline.

The depth to carbonates ranges from 24 to 36 inches. The content of gravel ranges from 0 to 3 percent throughout the profile.

The Ap horizon has hue of 10YR or 7.5YR, value of 3 or 4, and chroma of 1 to 3. It is loam.

Some pedons have an E horizon below the A horizon. The E horizon, if it occurs, has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 or 3. It is loam or fine sandy loam.

The E part of the B/E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 or 3. It is loam or fine sandy loam.

The Bt part of the B/E horizon and the Bt horizon have hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 or 4. They are silty clay loam, clay loam, silty clay, or clay.

Some pedons have an E/B horizon. This horizon has colors and textures similar to those of the B/E horizon.

The C horizon has hue of 5YR, value of 5, and chroma of 3. It is clay.

Pipestone Series

The Pipestone series consists of somewhat poorly drained soils on outwash plains, lake plains, and beach ridges. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 4 percent.

Taxonomic classification: Sandy, mixed, mesic Typic Endoaquods

Typical pedon of Pipestone sand, 0 to 4 percent slopes; 1,800 feet west and 900 feet south of the northeast corner of sec. 34, T. 26 N., R. 13 W., Inland Township, Benzie County, Michigan; USGS Karlin, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 36 minutes 45 seconds N. and long. 85 degrees 51 minutes 53 seconds W., NAD 83:

A—0 to 2 inches; black (N 2.5/) sand, black (7.5YR 2.5/1) dry; weak medium granular structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

E—2 to 9 inches; brown (7.5YR 5/2) sand, light gray (7.5YR 7/1) dry; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

Bhs—9 to 12 inches; 70 percent dark reddish brown (5YR 3/3 and 2/2) sand; weak medium subangular blocky structure; very friable; ortstein makes up about 30 percent of the horizon and is moderately cemented; ortstein occurs as columns that extend to a depth of 24 inches; many fine roots; common medium distinct dark reddish brown (2.5YR 3/4) masses of iron accumulation in the matrix; few medium prominent dark gray (10YR 4/1) iron depletions in the matrix; strongly acid; clear irregular boundary.

Bs—12 to 24 inches; brown (7.5YR 5/4) sand; many medium prominent dark reddish brown (5YR 3/4) iron accumulations; weak fine subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.

BC—24 to 32 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine roots; common medium distinct strong brown (7.5YR 4/6) masses of iron accumulation in the matrix; strongly acid; gradual wavy boundary.

C—32 to 80 inches; brown (10YR 5/3) sand; single grain; loose; 1 percent gravel; moderately acid.

The profile is sand or fine sand throughout. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 7.5YR or 10YR or is neutral in hue. It has value of 2 to 4 and chroma of 0 to 3.

The E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 or 3.

The Bhs horizon has hue of 5YR or 7.5YR and value and chroma of 2 or 3. The content of ortstein ranges from 0 to 30 percent.

The Bs horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 4 to 6. The content of ortstein ranges from 0 to 30 percent.

The BC and C horizons have hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 6.

Plainfield Series

The Plainfield series consists of excessively drained soils on outwash plains, moraines, and lake plains (fig. 21). These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Mixed, mesic Typic Udipsamments

Typical pedon of Plainfield sand, 0 to 6 percent slopes; 1,900 feet north and 1,450 feet east of the southwest corner of sec. 12, T. 21 N., R. 15 W., Stronach Township, Manistee County, Michigan; USGS Udell, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 13 minutes 53.6 seconds N. and long. 86 degrees 04 minutes 35.8 seconds W., NAD 83:

A—0 to 2 inches; black (N 2.5/) sand, dark gray (10YR 4/1) dry; weak medium granular structure; very friable; many very fine to coarse roots; about 1 percent gravel; extremely acid; clear wavy boundary.

Figure 21.—A profile of a Plainfield soil. Depth is marked in inches.

Bw1—2 to 6 inches; brown (7.5YR 4/3) sand; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 1 percent gravel; very strongly acid; gradual wavy boundary.

Bw2—6 to 19 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; very friable; many very fine to coarse roots; about 1 percent gravel; strongly acid; clear wavy boundary.

BC—19 to 24 inches; yellowish brown (10YR 5/6) sand; single grain; loose; many very fine to coarse roots; about 1 percent gravel; strongly acid; diffuse wavy boundary.

C—24 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; about 1 percent gravel; very few medium roots; slightly acid.

The profile is sand throughout. The content of gravel ranges from 0 to 5 percent throughout the profile.

The A horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2.

Some pedons have an E horizon. This horizon has hue of 10YR, value of 4 to 6, and chroma of 2 or 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 8.

The BC horizon has value of 5 and chroma of 6.

The C horizon has value of 5 or 6 and chroma of 4 to 6.

Banded substratum, loamy substratum, and very deep water table phases are recognized.

Platteriver Series

The Platteriver series consists of moderately well drained soils on low dunes and beach ridges. These soils formed in sandy materials. Permeability is rapid. Slopes range from 0 to 6 percent.

Taxonomic classification: Mixed, mesic Oxyaquic Udipsamments

Typical pedon of Platteriver sand, in an area of Nordhouse-Platteriver-Dair complex, 0 to 6 percent slopes; 1,010 feet north and 1,340 feet west of the southeast corner of sec. 22, T. 27 N., R. 15 W., Platte Township, Benzie County, Michigan; USGS Beulah, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 43 minutes 19 seconds N. and long. 86 degrees 06 minutes 19 seconds W., NAD 83:

Oa—0 to 1 inch; well decomposed plant material.

A—1 to 3 inches; very dark gray (7.5YR 3/1) sand, gray (7.5YR 5/1) dry; weak fine granular structure; very friable; many fine to coarse roots; less than 1 percent gravel; extremely acid; abrupt smooth boundary.

E—3 to 14 inches; pinkish gray (7.5YR 6/2) sand, pinkish gray (7.5YR 7/2) dry; single grain; loose; common fine to medium roots; less than 1 percent gravel; extremely acid; clear wavy boundary.

Bw1—14 to 20 inches; brown (7.5YR 5/4) sand; weak coarse subangular blocky structure; very friable; common fine and medium roots; less than 1 percent gravel; extremely acid; clear smooth boundary.

Bw2—20 to 29 inches; strong brown (7.5YR 5/6) sand; weak coarse subangular blocky structure; very friable; few fine roots; less than 1 percent gravel; common medium distinct brown (7.5YR 5/4) masses of iron accumulation in the matrix; very strongly acid; clear wavy boundary.

C—29 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; less than 1 percent gravel; common medium distinct yellowish brown (10YR 5/6) masses of iron accumulation in the matrix; strongly acid.

The content of gravel ranges from 0 to 5 percent. The profile is sand throughout.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 or 2.

The E horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 2 or 3.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6. In some pedons this horizon has a few small pieces (less than 5 percent) of extremely weakly cemented ortstein.

The C horizon has hue of 10YR, value of 5 or 6, and chroma of 4.

Psamments, moderately wet

Psamments consist of moderately well drained soils on lake plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 2 percent.

Taxonomic classification: Psamments

Reference pedon of Psamments, moderately wet, in an area of Psamments, moderately wet-Beaches complex, nearly level; 1,300 feet west and 2,000 feet north of the southeast corner of sec. 20, T. 26 N., R. 15 W., Crystal Lake Township, Benzie County, Michigan; USGS Frankfort, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 38 minutes 18 seconds N. and long. 86 degrees 08 minutes 39.7 seconds W., NAD 83:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) loamy sand, dark gray (10YR 5/1) dry; weak fine granular structure; very friable; about 1 percent gravel; moderately acid; abrupt smooth boundary.

C—2 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; about 1 percent gravel; slightly acid.

The content of gravel ranges from 0 to 5 percent throughout the profile.

The A horizon has hue of 10YR or is neutral in hue. It has value of 3 or 4 and chroma of 0 to 3. It is loamy sand or sand. Some pedons have an Ap horizon, which has colors and textures similar to those of the A horizon.

Some pedons have a Bw horizon. This horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 4 to 8. In some pedons this horizon has lamellae in the lower part.

The C horizon has hue of 10YR, value of 6 or 7, and chroma of 3 or 4. It is sand, loamy sand, or stratified sand and coarse sand.

Quartzipsamments

Quartzipsamments consist of excessively drained soils on sand dunes. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Quartzipsamments

Reference pedon of Quartzipsamments, in an area of Dune land-Quartzipsamments complex, undulating to hilly; 1,090 feet north and 3,880 feet west of the southeast corner of sec. 2, T. 21 N., R. 17 W., City of Manistee, Manistee County, Michigan; USGS Parkdale, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 15 minutes 09.8 seconds N. and long. 86 degrees 20 minutes 18.3 seconds W., NAD 83:

AC—0 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; strongly acid.

The AC horizon has hue of 10YR or 7.5YR, value of 6 or 7, and chroma of 4 to 6. It is sand or fine sand.

Some pedons have an A horizon. This horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 3. It is sand or fine sand.

Some pedons have a Bw horizon. This horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. It is sand or fine sand.

Some pedons have a C horizon. This horizon has hue of 10YR or 7.5YR, value of 6 or 7, and chroma of 4 to 6. It is sand or fine sand.

Remus Series

The Remus series consists of well drained soils on ground moraines and end moraines. These soils formed in loamy and sandy material. Permeability is moderate or moderately slow. Slopes range from 0 to 35 percent.

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Haplic Glossudalfs

Typical pedon of Remus fine sandy loam, in an area of Remus-Spinks complex, 0 to 6 percent slopes; 2,400 feet south and 1,440 feet west of the northeast corner of sec. 34, T. 24 N., R. 16 W., Arcadia Township, Manistee County, Michigan; USGS Bear Lake, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 24 seconds N. and long. 86 degrees 13 minutes 40 seconds W., NAD 83:

Ap—0 to 9 inches; dark brown (10YR 3/3) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium subangular blocky structure; friable; few fine and coarse roots; about 5 percent gravel; neutral; abrupt smooth boundary.

Bw—9 to 15 inches; light yellowish brown (10YR 5/4) fine sandy loam; moderate medium subangular blocky structure; friable; few fine and coarse roots; about 5 percent gravel; slightly acid; clear wavy boundary.

E/B—15 to 24 inches; brown (7.5YR 5/3) loamy sand (E); brown (5YR 4/6) loam (Bt); moderate medium subangular blocky structure; firm; very weak; few fine and coarse roots; about 5 percent gravel; neutral; clear irregular boundary.

B/E—24 to 35 inches; yellowish red (5YR 4/6) sandy clay loam (Bt); light reddish brown (5YR 6/3) sandy loam (E); moderate medium prismatic structure; firm; very weak; few fine and coarse roots; few distinct reddish brown (5YR 4/4) clay films on faces of peds; about 5 percent gravel; neutral; clear irregular boundary.

Bt—35 to 66 inches; reddish brown (5YR 4/4) sandy clay loam; moderate medium prismatic structure; firm; few fine and coarse roots; few faint reddish brown (5YR 4/3) clay films on faces of peds; about 5 percent gravel; neutral; clear wavy boundary.

C—66 to 80 inches; reddish brown (5YR 4/3) loam; massive; friable; about 5 percent gravel; moderately alkaline.

The depth to carbonates ranges from 40 to more than 60 inches. The content of gravel ranges from 1 to 14 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 2 or 3. Some pedons have an E horizon. The A and E horizons are sandy loam, fine sandy loam, or loamy sand.

The Bw horizon has hue of 7.5YR or 10YR, value of 5, and chroma of 3 or 4. It is sandy loam, fine sandy loam, or loamy sand.

The E part of the E/B and B/E horizons has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 or 4. It is sandy loam, fine sandy loam, or loamy sand.

The Bt part of the E/B and B/E horizons and the Bt horizon have hue of 5YR to 10YR, value of 3 to 5, and chroma of 4 to 6. They are sandy clay loam or loam.

The C horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 or 4. It is sandy loam, loam, or sandy clay loam.

Saugatuck Series

The Saugatuck series consists of somewhat poorly drained soils on lake plains and outwash plains. These soils formed in sandy material. They contain ortstein. Permeability is moderate in the ortstein layer and rapid in the remaining sandy material. Slopes range from 0 to 3 percent.

Taxonomic classification: Sandy, mixed, mesic, shallow, ortstein Typic Duraquods

Typical pedon of Saugatuck sand, in an area of Saugatuck-Jebavy complex, 0 to 3 percent slopes; 2,540 feet south and 1,640 feet west of the northeast corner of sec. 26, T. 24 N., R. 14 W., Springdale Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 26 minutes 54 seconds N. and long. 85 degrees 57 minutes 56 seconds W., NAD 83:

A—0 to 5 inches; black (N 2.5/) sand, very dark gray (5YR 3/1) dry; weak fine granular structure; very friable; common fine to coarse roots; very strongly acid; abrupt smooth boundary.

E—5 to 8 inches; dark grayish brown (10YR 4/2) sand, pinkish gray (7.5YR 7/2) dry; weak fine subangular blocky structure; very friable; common fine to coarse roots; few fine faint grayish brown (10YR 5/2) iron depletions in the matrix; very strongly acid; abrupt smooth boundary.

Bhsm1—8 to 11 inches; black (5YR 2/1) sand; massive; more than 90 percent of the horizon is occupied by strongly cemented ortstein in a horizontal pattern; few medium roots; strongly acid; abrupt wavy boundary.

Bhsm2—11 to 15 inches; dark reddish brown (5YR 2/2) sand; massive; firm; more than 90 percent of the horizon is occupied by strongly cemented ortstein in a horizontal pattern; strongly acid; abrupt smooth boundary.

Bs1—15 to 22 inches; dark brown (7.5YR 3/4) sand; weak medium subangular blocky structure; very friable; common fine and medium roots; strongly acid; clear wavy boundary.

Bs2—22 to 26 inches; strong brown (7.5YR 4/6) sand; single grain; loose; common fine and medium roots; strongly acid; clear wavy boundary.

BC—26 to 55 inches; yellowish brown (10YR 5/4) sand; single grain; loose; common fine distinct dark yellowish brown (10YR 4/6) iron accumulations in the matrix; moderately acid; clear wavy boundary.

C—55 to 80 inches; brown (10YR 5/3) sand; single grain; loose; slightly acid.

The content of gravel ranges from 0 to 5 percent throughout the profile. The profile is sand throughout.

The A horizon has hue of 5YR to 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 or 2.

The Bhsm horizon has hue of 5YR or 7.5YR, value of 2 or 3, and chroma of 1 to 3. The content of ortstein ranges from 90 to 100 percent.

The Bs horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6. Value and chroma of 3 do not occur together.

The BC horizon has hue of 10YR, value of 5, and chroma of 4.

The C horizon has hue of 10YR, value of 5 or 6, and chroma of 3 or 4.

Shavenaugh Series

The Shavenaugh series consists of well drained soils on lake plains, outwash plains, and moraines. These soils formed in sandy deposits over sandy and gravelly material. Slopes range from 0 to 50 percent.

Taxonomic classification: Mixed, mesic Psammentic Hapludalfs

Typical pedon of Shavenaugh sand, 0 to 6 percent slopes; 2,280 feet north and 1,760 feet east of the southwest corner of sec. 33, T. 27 N., R. 13 W., Almira Township, Benzie County, Michigan; USGS Platte River, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 41 minutes 43 seconds N. and long. 85 degrees 53 minutes 31 seconds W., NAD 83:

A—0 to 5 inches; very dark grayish brown (10YR 3/2) sand, grayish brown (10YR 5/2) dry; weak medium granular structure; very friable; common fine and very fine roots; about 5 percent gravel; slightly acid; abrupt wavy boundary.

E—5 to 8 inches; grayish brown (10YR 5/2) sand, light gray (10YR 7/2) dry; weak medium subangular blocky structure; very friable; common fine and few medium and coarse roots; about 5 percent gravel; slightly acid; abrupt wavy boundary.

Bw1—8 to 16 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; common fine and very fine and few medium roots; about 5 percent gravel; neutral; clear irregular boundary.

Bw2—16 to 28 inches; dark yellowish brown (10YR 4/6) sand; single grain; loose; few fine and very fine and common medium roots; about 5 percent gravel; neutral; clear wavy boundary.

Bw3—28 to 34 inches; strong brown (7.5YR 4/6) sand; single grain; friable; few fine and very fine and coarse roots; about 5 percent gravel; neutral; clear wavy boundary.

Bt—34 to 44 inches; very dark brown (7.5YR 2.5/2) loamy sand; moderate medium subangular blocky structure; friable; clay bridging of sand grains; common fine to coarse roots; about 5 percent gravel; neutral; clear wavy boundary.

2C—44 to 80 inches; light yellowish brown (10YR 6/4) very gravelly sand; single grain; loose; few fine roots; about 50 percent gravel; violently effervescent; moderately alkaline.

The depth to carbonates ranges from 30 to 50 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 to 3. It is sand. The content of gravel ranges from 2 to 10 percent. Some pedons have an Ap horizon, which has colors and textures similar to those of the A horizon.

The E horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4. It is sand or gravelly sand. The content of gravel ranges from 2 to 20 percent.

The Bw horizon has hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3 to 6. It is sand or gravelly sand. The content of gravel ranges from 2 to 20 percent.

The Bt horizon has hue of 7.5YR, value of 2 to 5, and chroma of 2 to 4. It is loamy sand or gravelly loamy sand. The content of gravel ranges from 5 to 30 percent.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. It is gravelly sand, very gravelly sand, very gravelly loamy sand, sand, or stratified gravelly sand and sand. The content of gravel ranges from 12 to 55 percent.

Spinks Series

The Spinks series consists of well drained soils on moraines and outwash plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Sandy, mixed, mesic Lamellic Hapludalfs

Typical pedon of Spinks sand, in an area Spinks-Tekinink, sandy substratum, complex, 6 to 12 percent slopes; 1,800 feet north and 560 feet east of the southwest corner of sec. 14, T. 22 N., R. 16 W., Manistee Township, Manistee County, Michigan; USGS Onekama, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 18 minutes 27 seconds N. and long. 86 degrees 13 minutes 16 seconds W., NAD 83:

Ap—0 to 5 inches; dark brown (10YR 3/3) sand, yellowish brown (10YR 5/2) dry; weak medium granular structure; very friable; few very fine roots; about 2 percent gravel; slightly acid; abrupt smooth boundary.

Bw1—5 to 10 inches; strong brown (7.5YR 5/6) sand; weak medium subangular blocky structure; very friable; about 2 percent gravel; slightly acid; clear wavy boundary.

Bw2—10 to 17 inches; yellowish brown (10YR 5/6) sand; weak medium subangular blocky structure; very friable; few very fine roots; about 2 percent gravel; slightly acid; clear wavy boundary.

E and Bt1—17 to 62 inches; pale brown (10YR 6/3) sand, pink (7.5YR 7/3) dry (E); single grain; loose; lamellae of brown (7.5YR 4/6) loamy sand (Bt); massive; very friable; lamellae are 1/4 to 1/2 inch thick and about 4 to 6 inches apart; the total

accumulation of lamellae is 6 to 8 inches; faint brown (7.5YR 4/4) clay bridges between sand grains; few very fine roots; about 2 percent gravel; neutral; gradual wavy boundary.

E and Bt2—62 to 72 inches; light brown (7.5YR 4/6) sand, pinkish gray (7.5YR 7/2) dry (E); single grain; loose; lamellae of brown (7.5YR 5/4) loamy sand (Bt); massive; very friable; lamellae are 1/4 to 1/2 inch thick and about 4 to 6 inches apart; the total accumulation of lamellae is 1 to 2 inches; faint brown (7.5YR 4/4) clay bridges between sand grains; about 2 percent gravel; neutral; abrupt smooth boundary.

C—72 to 80 inches; brown (7.5YR 5/4) sand; single grain; loose; about 14 percent gravel; neutral.

The depth to the first lamellae ranges from 20 to 40 inches.

The Ap horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 4. It is sand. The content of gravel ranges from 0 to 10 percent.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8. It is sand or fine sand. The content of gravel ranges from 0 to 10 percent.

The E part of the E and Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8. It is sand or fine sand. The content of gravel ranges from 0 to 10 percent.

The Bt part of the E and Bt horizon has hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6. It is made up of lamellae 1/8 inch to 4 inches thick and 4 to 12 inches apart. The total accumulation of lamellae ranges from 6 to 12 inches. The texture is loamy sand or loamy fine sand with thin lamellae of sandy loam. The content of gravel ranges from 0 to 10 percent.

The C horizon has hue of 7.5YR or 10YR, value of 5 or 6, and chroma of 3 to 6. It is sand or fine sand. The content of gravel ranges from 0 to 14 percent.

Tatches Series

The Tatches series consists of well drained soils on outwash plains and lake plains (fig. 22). These soils formed in loamy and sandy material. Permeability is moderately rapid in the upper part of the profile and rapid in the lower part. Slopes range from 0 to 6 percent.

Taxonomic classification: Sandy, isotic, mesic Lamellic Dystrudepts

Typical pedon of Tatches sandy loam, in an area of Coloma-Tatches complex, 0 to 6 percent slopes; 1,850 feet north and 1,150 feet west of the southeast corner of sec. 22, T. 22 N., R. 15 W., Brown Township, Manistee County, Michigan; USGS Brethren, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 17 minutes 25 seconds N. and long. 86 degrees 06 minutes 23 seconds W., NAD 83:

A—0 to 4 inches; very dark gray (10YR 3/1) sandy loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many fine and few coarse roots; about 5 percent gravel; strongly acid; abrupt wavy boundary.

Bw1—4 to 9 inches; strong brown (7.5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; common fine and few coarse roots; about 5 percent gravel; strongly acid; clear wavy boundary.

Bw2—9 to 15 inches; strong brown (7.5YR 5/6) sandy loam; weak medium subangular blocky structure; friable; common fine and few coarse roots; about 5 percent gravel; strongly acid; clear wavy boundary.

Bw3—15 to 23 inches; reddish yellow (7.5YR 6/6) sand; weak medium subangular blocky structure; very friable; common fine and few coarse roots; about 5 percent gravel; strongly acid; clear wavy boundary.

E—23 to 31 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; about 5 percent gravel; strongly acid; gradual wavy boundary.

Figure 22.—A profile of a Tatches soil. Depth is marked in inches.

E and Bt1—31 to 43 inches; pale brown (10YR 6/3) sand (E); single grain; loose; lamellae of yellowish brown (10YR 5/6) loamy sand (Bt); weak medium subangular blocky structure; very friable; wavy and discontinuous lamellae 1/8 to 1/2 inch thick with a combined thickness of about 1 inch; few fine roots; patchy faint clay bridging between sand grains in lamellae; about 5 percent gravel; neutral; gradual wavy boundary.

E and Bt2—43 to 80 inches; light yellowish brown (10YR 6/4) sand (E); single grain; loose; lamellae of yellowish brown (10YR 5/6) loamy sand (Bt); weak medium subangular blocky structure; very friable; wavy and discontinuous lamellae 1/8 to 1/2 inch thick with a combined thickness of about 2 inches; few fine roots; patchy faint clay bridging between sand grains in lamellae; about 5 percent gravel; neutral.

The depth to the underlying sandy material ranges from 11 to 25 inches. The content of gravel ranges from 0 to 5 percent throughout the profile.

The A horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. It is sandy loam. Pedons in cultivated areas have an Ap horizon, which has value of 4 and chroma of 2 or 3.

The Bw horizon has hue of 7.5YR or 10YR and value and chroma of 4 to 6. The upper part of the Bw horizon is sandy loam or fine sandy loam. The lower part is sand.

The E horizon and the E part of the E and Bt horizons have hue of 10YR, value of 5 or 6, and chroma of 3 or 4. They are sand.

The Bt part of the E and Bt horizons has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6. It is made up of lamellae 1/8 to 3/4 inch thick. The combined thickness of the lamellae ranges from 1 to 5 inches. The texture is loamy sand or sandy loam. The content of gravel ranges from 0 to 5 percent, but it is as high as 20 percent in individual strata.

Tekenink Series

The Tekenink series consists of well drained soils on till plains and moraines. These soils formed in loamy and sandy material. Permeability is moderately rapid in the loamy material and rapid in the sandy material. Slopes range from 0 to 50 percent.

Taxonomic classification: Coarse-loamy, mixed, semiactive, mesic Typic Glossudalfs

Typical pedon of Tekenink loamy fine sand, in an area of Spinks-Tekenink, sandy substratum, complex, 6 to 12 percent slopes; 200 feet south and 1,200 feet east of the northwest corner of sec. 27, T. 23 N., R. 15 W., Bear Lake Township, Manistee County, Michigan; USGS Bear Lake, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 22 minutes 21 seconds N. and long. 86 degrees 07 minutes 01 second W., NAD 83:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) loamy fine sand, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine and fine roots; moderately acid; abrupt smooth boundary.

E—8 to 16 inches; brown (7.5YR 5/3) loamy fine sand, light brown (7.5YR 6/3) dry; moderate medium subangular blocky structure; friable; many very fine and fine roots; moderately acid; clear wavy boundary.

Bw—16 to 21 inches; brown (7.5YR 5/4) sandy loam; moderate medium subangular blocky structure; friable; common fine to coarse roots; slightly acid; clear wavy boundary.

E/B—21 to 49 inches; about 60 percent light brown (7.5YR 6/3) loamy sand (E) surrounded by brown (7.5YR 4/4) sandy loam (Bt); moderate coarse subangular blocky structure; friable; common distinct reddish brown (5YR 4/4) clay films on faces of peds; neutral; clear irregular boundary.

Bt—49 to 62 inches; reddish brown (5YR 4/4) sandy loam; moderate medium subangular blocky structure; friable; common distinct reddish brown (5YR 5/4) clay films on faces of peds; slightly effervescent; slightly alkaline; clear wavy boundary.

2C1—62 to 72 inches; reddish brown (5YR 5/4) loamy sand; weak fine subangular blocky structure; slightly effervescent; 3 percent gravel; slightly alkaline; clear wavy boundary.

2C2—72 to 80 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; slightly effervescent; slightly alkaline.

The depth to the glossic horizon ranges from 20 to 45 inches.

The A horizon has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy fine sand. The content of gravel ranges from 0 to 5 percent.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 or 3. It is loamy sand or loamy fine sand. The content of gravel ranges from 0 to 5 percent.

The Bw horizon has hue of 7.5YR and value and chroma of 4 or 5. It is sandy loam. The content of gravel ranges from 0 to 5 percent.

The E part of the E/B horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 or 3. It is loamy sand or loamy fine sand.

The Bt part of the E/B horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6. It is sandy loam.The content of gravel ranges from 0 to 5 percent. Some pedons have a B/E horizon.

The Bt horizon has hue of 5YR or 7.5YR and value and chroma of 4 or 5. It is sandy loam. The content of gravel ranges from 0 to 5 percent.

The 2C horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 3 to 5. It is loamy sand or sand. The content of gravel ranges from 0 to 12 percent.

Thompsonville Series

The Thompsonville series consists of moderately well drained soils on outwash terraces, outwash plains, and glacial lake plains. These soils formed in sandy deposits over loamy and clayey material. Permeability is rapid in the sandy material and slow in the loamy and clayey material. Slopes range from 0 to 6 percent.

Taxonomic classification: Sandy, mixed, mesic Alfic Oxyaquic Haplorthods

Typical pedon of Thompsonville fine sand, 0 to 6 percent slopes; 2,200 feet south and 55 feet west of the northeast corner of sec. 22, T. 25 N., R. 14 W., Weldon Township, Manistee County, Michigan; USGS Thompsonville, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 33 minutes 02.4 seconds N. and long. 85 degrees 58 minutes 42.9 seconds W., NAD 83:

A—0 to 5 inches; very dark gray (7.5YR 3/1) fine sand, dark gray (7.5YR 4/1) dry; weak fine granular structure; very friable; many very fine and fine roots; strongly acid; clear smooth boundary.

E—5 to 15 inches; brown (7.5YR 5/2) fine sand, light gray (7.5YR 7/1) dry; weak very fine subangular blocky structure; very friable; common very fine and fine and many medium and coarse roots; very strongly acid; clear wavy boundary.

Bs1—15 to 29 inches; dark brown (7.5YR 3/4) fine sand; weak very fine subangular blocky structure; very friable; few fine and common medium and coarse roots; strongly acid; gradual wavy boundary.

Bs2—29 to 37 inches; dark brown (7.5YR 4/4) fine sand; single grain; loose; few medium roots; few fine distinct yellowish red (5YR 5/6) iron accumulations; moderately acid; clear wavy boundary.

Bs3—37 to 55 inches; brown (7.5YR 5/4) sand; single grain; loose; few medium roots; few fine prominent yellowish red (5YR 5/6) iron accumulations; moderately acid; abrupt wavy boundary.

2B/E—55 to 72 inches; brown (7.5YR 4/4) silty clay loam (Bt) surrounding pinkish gray (7.5YR 6/2) silty clay loam (E), light gray (7.5YR 7/1) dry; weak fine subangular blocky structure; firm; common very fine and fine roots; few faint brown (7.5YR 5/4) clay films on faces of peds; common medium prominent strong brown (7.5YR 5/8) iron accumulations in the matrix; slightly acid; abrupt wavy boundary.

2C—72 to 80 inches; brown (7.5YR 5/4), stratified very fine sandy loam and silty clay loam; massive; friable; many coarse prominent reddish yellow (7.5YR 6/8) masses of iron accumulation in the matrix; common medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; slightly acid.

The thickness of the sandy material ranges from 40 to 60 inches. Redoximorphic features are within a depth of 40 inches.

The A horizon has hue of 7.5YR or 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is fine sand. The content of gravel ranges from 0 to 14 percent.

The E horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 to 3. It is fine sand or sand. The content of gravel ranges from 0 to 14 percent.

The Bs1 and Bs2 horizons have hue of 5YR or 7.5YR and value and chroma of 3 or 4. Value and chroma of 3 do not occur together. These horizons are fine sand or sand. Some pedons do not have a Bs2 horizon.

The Bs3 horizon has hue of 5YR or 7.5YR and value and chroma of 5 or 6. It is fine sand or sand. The content of gravel ranges from 0 to 14 percent.

The E part of the 2B/E horizon has hue of 7.5YR or 10YR, value of 5 to 7, and chroma of 2 or 3. It is silty clay loam. The content of gravel ranges from 0 to 5 percent.

The Bt part of the 2B/E horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4. It is silty clay loam. The content of gravel ranges from 0 to 5 percent.

The 2C horizon has hue of 5YR to 10YR, value of 4 to 7, and chroma of 3 to 6. The texture ranges from very fine sandy loam to silty clay loam with strata of coarser materials. The content of gravel ranges from 0 to 5 percent.

Typic Duraquods, sandy, ortstein

Typic Duraquods consist of somewhat poorly drained soils on outwash plains and lake plains. These soils formed in sandy deposits. They contain ortstein. Permeability is rapid in the sandy material and moderate or moderately rapid in the ortstein. Slopes range from 0 to 3 percent.

Taxonomic classification: Sandy, mixed, mesic, ortstein Typic Duraquods

Typical pedon of Typic Duraquods, sandy, ortstein, nearly level; 2,350 feet north and 590 feet west of the southeast corner of sec. 16, T. 21 N., R. 15 W., Stronach Township, Manistee County, Michigan; USGS Star Corners, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 13 minutes 11 seconds N. and long. 86 degrees 07 minutes 31 seconds W., NAD 83:

A—0 to 2 inches; reddish black (2.5YR 2.5/1) sand, gray (7.5YR 5/1) dry; weak medium granular structure; very friable; many medium and coarse roots; extremely acid; clear irregular boundary.

E—2 to 12 inches; light brownish gray (10YR 6/2) sand, white (10YR 8/1) dry; weak medium subangular blocky structure; very friable; common fine roots; extremely acid; abrupt wavy boundary.

Bhsm—12 to 16 inches; 70 percent reddish gray (5YR 5/3) sand and 30 percent dark reddish brown (5YR 3/2) sand; massive; firm; few fine roots; more than 90 percent of the horizon is occupied by strongly cemented ortstein in a horizontal pattern; very strongly acid; clear irregular boundary.

Bsm—16 to 18 inches; dark reddish brown (5YR 3/4) sand; massive; firm; few fine roots; more than 90 percent of the horizon is occupied by strongly cemented ortstein in a horizontal pattern; very strongly acid; clear wavy boundary.

BC—18 to 52 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; very strongly acid; clear wavy boundary.

C—52 to 66 inches; yellowish brown (10YR 5/4) sand; single grain; loose; very strongly acid.

The content of gravel ranges from 0 to 14 percent throughout the profile. The ortstein is weakly to strongly cemented and occurs in continuous or nearly continuous layers.

The A horizon has hue of 2.5YR to 10YR, value of 2 or 3, and chroma of 1 or 2. It is sand, loam, or fine sand,

The E horizon has hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 2. It is sand.

The Bhsm horizon has hue of 5YR or 7.5YR and value and chroma of 2 or 3. It is sand.

The Bsm horizon has hue of 5YR or 7.5YR, value of 3 to 6, and chroma of 3 or 4. It is sand. Value and chroma of 3 do not occur together.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 7, and chroma of 3 to 6. It is typically sand, but some pedons have thin layers of fine sand.

Typic Endoaquods, sandy

Typic Endoaquods consist of very poorly drained soils on lake plains and outwash plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 2 percent.

Taxonomic classification: Sandy, mixed, mesic Typic Endoaquods

Reference pedon of Typic Endoaquods, sandy; 2,350 feet north and 1,050 feet west of the southeast corner of sec. 15, T. 20 N., R. 17 W., Grant Township, Mason County, Michigan; USGS Manistee, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 07 minutes 49 seconds N. and long. 86 degrees 19 minutes 27 seconds W., NAD 83:

A—0 to 4 inches; black (10YR 2/1) mucky sand, very dark gray (10YR 3/1) dry; weak medium granular structure; very friable; many very fine and fine roots; strongly acid; clear smooth boundary.

E—4 to 7 inches; grayish brown (10YR 5/2) sand; weak medium granular structure; very friable; common fine roots; few fine faint brown (7.5YR 5/2) iron depletions in the matrix; strongly acid; abrupt irregular boundary.

Bhs—7 to 9 inches; dark reddish brown (5YR 2.5/2) sand; moderate medium subangular blocky structure; friable; strongly acid; clear wavy boundary.

Bs—9 to 25 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; friable; strongly acid; gradual wavy boundary.

C—25 to 60 inches; yellowish brown (10YR 5/4) sand; single grain; loose; strongly acid.

The depth to the C horizon ranges from 20 to 50 inches.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. It is mucky sand, sand, fine sand, or loamy sand.

The E horizon has hue of 10YR or 7.5YR, value of 5 to 7, and chroma of 2 to 4. It is sand.

The Bhs horizon has hue of 5YR or 7.5YR, value of 2 to 3, and chroma of 1 to 3. It is sand. The content of ortstein ranges from 0 to 30 percent.

The Bs horizon has hue of 7.5YR, value of 3 to 5, and chroma of 3 to 6. It is sand. Value and chroma of 3 do not occur together.

The C horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 4. It is sand. Some pedons have strata of loamy fine sand to coarse sand in or below the C horizon.

Typic Epiaquolls, sandy over loamy

Typic Epiaquolls consist of very poorly drained soils on till plains and lake plains. These soils formed in sandy deposits over loamy deposits. Permeability is rapid in the sandy material and moderately slow or slow in the loamy material. Slopes range from 0 to 2 percent.

Taxonomic classification: Sandy over loamy, mixed, mesic Typic Epiaquolls

Reference pedon of Typic Epiaquolls, sandy over loamy; 2,160 feet east and 900 feet north of the southwest corner of sec. 36, T. 20 N., R. 18 W., Grant Township, Mason County, Michigan; USGS Hamlin Lake, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 05 minutes 03 seconds N. and long. 86 degrees 24 minutes 36 seconds W., NAD 83:

Oa—0 to 4 inches; muck, black (10YR 2/1) broken face and rubbed; about 20 percent fiber, less than 15 percent rubbed; weak fine granular structure; neutral; abrupt smooth boundary.

A—4 to 14 inches; black (10YR 2/1) loamy fine sand, very dark gray (10YR 3/1) dry; weak medium granular structure; very friable; many very fine and fine roots; slightly alkaline; clear smooth boundary.

Bg—14 to 19 inches; reddish gray (5YR 5/2) fine sand; few medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the matrix; weak medium granular structure; very friable; many fine roots; slightly alkaline; gradual wavy boundary.

Cg1—19 to 29 inches; grayish brown (10YR 5/2) fine sand; few medium distinct dark yellowish brown (10YR 4/4) masses of iron accumulation in the matrix; single grain; loose; slightly alkaline; clear wavy boundary.

2Cg2—29 to 44 inches; brown (7.5YR 5/2) silt loam; massive; firm; moderately alkaline; clear wavy boundary.

2Cg3—44 to 60 inches; grayish brown (10YR 5/2) silty clay loam; massive; firm; moderately alkaline.

The depth to loamy material ranges from 20 to 35 inches.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is loamy fine sand.

The B horizon has hue of 5YR or 7.5YR, value of 4 to 6, and chroma of 2 to 4. It is loamy fine sand, fine sand, loamy sand, or sand.

The Cg horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2. It is loamy fine sand, fine sand, loamy sand, or sand. Some pedons do not have a Cg horizon.

The 2Cg horizon has hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 1 or 2. It is sandy clay loam, silty clay loam, or silt loam. In some pedons it has strata of fine sand, sand, or loamy sand 1 to 3 inches thick.

Typic Haplorthods, sandy

Typic Haplorthods consist of somewhat excessively drained soils on moraines and outwash plains. These soils formed in sandy deposits. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Sandy, mixed, mesic Typic Haplorthods

Reference pedon of Typic Haplorthods, sandy, rolling; 2,610 feet south and 1,050 feet east of the northwest corner of sec. 24, T. 23 N., R. 13 W., Marilla Township, Manistee County, Michigan; USGS Yuma, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 22 minutes 27 seconds N. and long. 85 degrees 50 minutes 08 seconds W., NAD 83:

Oa—0 to 1 inch; well decomposed hardwood leaf litter.

A—1 to 3 inches; very dark gray (10YR 3/1) sand, very dark gray (10YR 4/1) dry; single grain; loose; many very fine and fine roots; extremely acid; abrupt smooth boundary.

E—3 to 7 inches; grayish brown (10YR 5/2) sand, light brownish gray (10YR 6/2) dry; single grain; loose; common very fine to coarse roots; extremely acid; clear irregular boundary.

Bhs—7 to 8 inches; dark brown (7.5YR 3/3) sand; weak fine subangular blocky structure; very friable; very strongly acid; abrupt broken boundary.

Bs—8 to 15 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; very friable; common very fine and fine roots; strongly acid; clear irregular boundary.

BC—15 to 23 inches; light yellowish brown (10YR 6/4) sand; weak fine subangular blocky structure; very friable; few roots; strongly acid; diffuse wavy boundary.
C1—23 to 85 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; moderately acid; diffuse wavy boundary.
C2—85 to 157 inches; light yellowish brown (10YR 6/4) sand and coarse sand; single grain; loose; diffuse wavy boundary.
C3—157 to 175 inches; pale brown (10YR 6/3) sand and coarse sand; single grain; loose; slightly alkaline; diffuse wavy boundary.
C4—175 to 180 inches; pale brown (10YR 6/3) gravelly sand; single grain; loose; slightly alkaline.

The depth to the C horizon ranges from 20 to 50 inches.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is dominantly sand, but the range includes fine sandy loam and fine sand. The content of gravel ranges from 0 to 10 percent.

The E horizon has hue of 10YR or 7.5YR, value of 4 to 6, and chroma of 2. It is dominantly sand, but the range includes fine sand. The content of gravel ranges from 0 to 10 percent.

The Bhs horizon has hue of 7.5YR or 5YR and value and chroma of 3. It is dominantly sand, but the range includes fine sand. The content of gravel ranges from 0 to 10 percent.

The Bs horizon has hue of 10YR, 7.5YR, or 5YR and value and chroma of 4 to 6. It is dominantly sand, but the range includes fine sand. The content of gravel ranges from 0 to 10 percent.

The BC horizon has hue of 10YR, value of 6, and chroma of 4. It is dominantly sand, but the range includes fine sand. The content of gravel ranges from 0 to 10 percent.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 3 to 6. It is sand, coarse sand, or gravelly sand. The content of gravel ranges from 0 to 20 percent.

Loamy substratum, very deep water table, and banded substratum phases are recognized.

Typic Psammaquents

Typic Psammaquents consist of poorly drained soils on flood plains, outwash plains, lake plains, and till plains. These soils formed in sandy material. Permeability is rapid. Slopes range from 0 to 2 percent.

Taxonomic classification: Mixed, mesic Typic Psammaquents

Reference pedon of Typic Psammaquents; 460 feet south and 1,320 feet west of the northeast corner of sec. 22, T. 20 N., R. 17 W., Grant Township, Mason County, Michigan; USGS Kings Corner, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 07 minutes 22 seconds N. and long. 86 degrees 19 minutes 31 seconds W., NAD 83:

Oa—0 to 3 inches; muck, black (10YR 2/1) broken face and rubbed; about 20 percent fiber, less than 15 percent rubbed; weak fine granular structure; neutral; abrupt smooth boundary.
A—3 to 6 inches; black (10YR 2/1) fine sandy loam; weak medium granular structure; very friable; many very fine and fine roots; neutral; clear smooth boundary.
Cg—6 to 9 inches; light brownish gray (10YR 6/2) loamy sand; common fine distinct strong brown (7.5YR 5/6) masses of iron accumulation in the matrix; single grain; friable; many fine roots; neutral; abrupt irregular boundary.

C1—9 to 18 inches; brown (10YR 4/3) sand; single grain; very friable; neutral; clear wavy boundary.
C2—18 to 60 inches; dark yellowish brown (10YR 4/4) sand; single grain; loose; neutral.

The O horizon has hue of 10YR, value of 2, and chroma of 1. It is muck.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. It is dominantly fine sandy loam, but the range includes loamy sand.

The Cg horizon has hue of 10YR, value of 4 to 6, and chroma of 2. It is loamy sand or sand.

The C horizon has hue of 10YR, value of 4 or 5, and chroma of 3 or 4. It is dominantly sand or loamy sand, but the range includes fine sand and coarse sand.

Typic Udipsamments

Typic Udipsamments consist of excessively drained soils on outwash plains, stream terraces, and moraines. These soils formed in sandy deposits. Slopes range from 0 to 70 percent.

Taxonomic classification: Mixed, mesic Typic Udipsamments

Reference pedon of Typic Udipsamments, nearly level and undulating; 2,460 feet west and 400 feet south of the northeast corner of sec. 25, T. 18 N., R. 15 W., Branch Township, Mason County, Michigan; USGS Tallman, Michigan, 7.5-minute topographic quadrangle; lat. 43 degrees 55 minutes 50 seconds N. and long. 86 degrees 02 minutes 54 seconds W., NAD 83:

Oi—0 to 1 inch; undecomposed hardwood and coniferous leaf litter.
A—1 to 3 inches; very dark gray (10YR 3/1) sand, dark grayish brown (10YR 4/2) dry; weak medium granular structure; very friable; many very fine and fine roots; strongly acid; abrupt wavy boundary.
Bw—3 to 23 inches; dark yellowish brown (10YR 4/6) sand; weak coarse subangular blocky structure; very friable; strongly acid; clear wavy boundary.
BC—23 to 41 inches; yellowish brown (10YR 5/6) sand; single grain; loose; strongly acid; gradual wavy boundary.
C—41 to 180 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; strongly acid.

The depth to the C horizon ranges from 20 to 50 inches. The content of gravel ranges from 0 to 10 percent throughout the profile.

The A horizon has hue of 10YR, value of 2 to 4, and chroma of 1 to 3. It is sand.

The Bw horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. It is sand.

The C horizon has hue of 10YR or 7.5YR, value of 6 or 7, and chroma of 4 to 6. It is sand or coarse sand.

Loamy substratum, banded substratum, and very deep water table phases are recognized.

Udipsamments

Udipsamments consist of excessively drained to moderately well drained soils on outwash plains, deltas, stream terraces, and lake plains. These soils formed in sandy material that has been disturbed by human activity. Permeability is rapid. Slopes range from 0 to 70 percent.

Taxonomic classification: Udipsamments

Typical pedon of Udipsamments, nearly level and undulating; 2,550 feet east and 2,200 feet north of the southwest corner of sec. 1, T. 23 N., R. 14 W., Maple Grove Township, Manistee County, Michigan; USGS Copemish, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 25 minutes 02.8 seconds N. and long. 85 degrees 56 minutes 58.5 seconds W., NAD 83:

Ap—0 to 2 inches; very dark grayish brown (10YR 3/2) loamy sand, dark gray (10YR 4/1) dry; weak fine granular structure; very friable; about 1 percent gravel; moderately acid; abrupt smooth boundary.

Bw—2 to 32 inches; yellowish brown (10YR 5/6) sand; single grain; loose; about 1 percent gravel; strongly acid; clear wavy boundary.

C—32 to 80 inches; pale brown (10YR 6/3) sand; single grain; loose; about 1 percent gravel; slightly acid.

The content of gravel ranges from 0 to 5 percent throughout the profile.

The Ap horizon has hue of 10YR or is neutral in hue. It has value of 2 or 3 and chroma of 0 to 2. It is loamy sand or sand. Some pedons have an A horizon, which has colors and textures similar to those of the Ap horizon.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 8. Some pedons have lamellae in the lower part of the Bw horizon.

The C horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. It is sand, loamy sand, or stratified sand and coarse sand.

Udorthents

Udorthents consist of well drained and moderately well drained soils on till plains and moraines. These soils formed in loamy material that has been disturbed by human activity. Permeability ranges from moderate to slow. Slopes range from 35 to 70 percent.

Taxonomic classification: Udorthents

Typical pedon of Udorthents, in an area of Udorthents-Udipsamments complex, very steep; 1,740 feet west and 2,530 feet south of the northeast corner of sec. 15, T. 21 N., R. 17 N., Filer Township, Manistee County, Michigan; USGS Manistee, Michigan, 7.5-minute topographic quadrangle; lat. 44 degrees 13 minutes 42.5 seconds N. and long. 86 degrees 21 minutes 05.7 seconds W., NAD 83:

A—0 to 12 inches; very dark grayish brown (10YR 3/2) clay loam, light gray (10YR 6/1) dry; moderate medium subangular blocky structure; friable; about 5 percent gravel; neutral; abrupt smooth boundary.

C1—12 to 45 inches; dark brown (7.5YR 5/3) clay loam; moderate medium subangular blocky structure; friable; about 5 percent gravel; strongly effervescent; moderately alkaline; clear wavy boundary.

C2—45 to 80 inches; strong brown (5YR 5/4) clay loam; massive; firm; about 5 percent gravel; violently effervescent; strongly alkaline.

The content of gravel ranges from 0 to 14 percent throughout the profile.

The A horizon has hue of 10YR or 7.5YR, value of 2 or 3, and chroma of 1 or 2. It is silty clay loam, silty clay, loam, clay loam, or sandy loam. Some pedons do not have an A horizon.

The C horizon has hue of 10YR or 7.5YR, value of 3 to 6, and chroma of 3 or 4. It is sandy loam, silty clay, clay, loam, clay loam, or sandy clay loam.

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in the survey area. It also describes the processes of soil formation.

Factors of Soil Formation

Soil forms through the interaction of five major factors. These are the physical, chemical, and mineral composition of the parent material; the climate under which the soil material has accumulated and has existed since accumulation; the plant and animal life on and in the soil; the relief, or topography; and the length of time that the processes of soil formation have acted on the parent material (Jenny, 1941).

Climate and plant and animal life are the active forces of soil formation. They slowly change the parent material into a natural body of soil that has genetically related layers, called horizons. The effects of climate and plant and animal life are conditioned by relief. The nature of the parent material affects the kind of soil profile that is formed and in extreme cases determines it almost entirely. Finally, time changes the parent material into a soil. Generally, a long time is required for the formation of distinct horizons.

The factors of soil formation are so closely interrelated in their effects on the soil hat few generalizations can be made about the effect of any one factor unless conditions are specified for the others. Many of the processes of soil formation are unknown.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. The parent material of the soils in Benzie and Manistee Counties was deposited by glaciers or by meltwater from the glaciers. Some of this material was subsequently reworked by water and wind. The glaciers covered the county about 12,000 years ago. Parent material determines the chemical and mineralogical composition of the soil. Although the soils in the survey area have parent material of common glacial origin, the properties of the parent material vary greatly, sometimes within a small area, depending on how the material was deposited. The dominant parent materials in Benzie and Manistee Counties were deposited as glacial till, outwash material, lake sediment, alluvium, or organic material.

Till is material that was deposited directly by glaciers with a minimum of water action. It consists of a mixture of particles of different sizes. The small pebbles in till have sharp corners, indicating that they have not been worn by water. The till in Benzie and Manistee Counties generally is calcareous sandy loam and loam or acid sands. Remus soils formed in till. Typically, these soils are loamy and have moderately developed structure. Spinks soils are sandy and have moderately developed structure.

Outwash material was deposited by running water from melting glaciers. The size of the particles that make up outwash material depends on the speed of the water that carried them. When the water slows down, the coarser particles are deposited. The finer particles, such as very fine sand, silt, and clay, are carried by slowly moving water. Outwash deposits generally consist of layers of particles of similar size, such as sand. Kaleva soils are examples of soils that formed in outwash material.

Lake sediment is material that settled from still or slowly moving, deep lake water and from shallow, high-energy water near shorelines. Lake sediments are well sorted, and the size of the particles depends on the speed of the water that suspended them. Pipestone soils are examples of sandy soils that formed in parent material deposited in sandbars on a shallow lake bottom.

Alluvial material has been deposited by floodwater of present streams in recent time. The texture of this material depends on the speed of the water that deposited the material. Gorvan and Glendora soils are alluvial soils.

Organic material is made up of plant remains. After the glaciers receded from the area, water was left standing in depressions on outwash plains, flood plains, and till plains. Grasses and sedges that grew around the edge of these depressions died. Because of the wetness, when the plants died their remains did not decompose but accumulated around the edge of the depressions. Later, water-tolerant trees grew in these areas. As these trees died, their residue became part of the organic accumulation. Consequently, the depressions were eventually filled with organic material and developed into areas of muck. Adrian and Houghton soils are examples of soils that formed in organic material.

Plant and Animal Life

Green plants have been the principal organisms influencing the soils in Benzie and Manistee Counties. Bacteria, fungi, earthworms, and humans also have been important. 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 kinds of plants that grew on the soil. The residue of these plants accumulates on the surface of the soil. It decays and eventually becomes organic matter. Plant roots provide channels for the downward movement of water through the soil and add organic material to the soil as they decay. Bacteria in the soil help to break down the organic material into a form that can be used by plants.

The vegetation in Benzie and Manistee Counties was a mixture of coniferous and deciduous forest. Differences in natural soil drainage and in parent material affect the composition of forests.

In general, the well drained upland soils, such as Grattan and Kaleva soils, were covered with red oak and white pine. Plainfield soils were covered with northern pin oak and jack pine. The very poorly drained soils were covered with cedar, black spruce, and aspen. Adrian and Houghton soils, which formed under wet conditions, contain a considerable amount of organic matter.

Climate

Climate is important in the formation of soils. It determines the kind of plant and animal life on and in the soil and determines the amount of water available for the weathering of minerals and the transporting of soil materials. Through its influence on soil temperature, climate determines the rate of chemical reactions in the soil. These climate influences generally affect areas larger than a county.

The climate in Benzie and Manistee Counties is cool and humid. Presumably, it is similar to the climate under which the soils formed. The soils in this survey area differ from soils that formed in a dry, warm climate or from those that formed in a moist, hot climate. Climate is uniform throughout the area, but its effect is modified locally by the proximity to Lake Michigan. The minor differences in the soils in Benzie and Manistee Counties are partially the result of climatic differences.

Relief

Relief, or topography, has had a marked influence on the formation of the soils in Benzie and Manistee Counties through its influence on natural drainage, erosion, plant cover, and soil temperature. In this survey area, slopes range from 0 to 70 percent. Natural drainage ranges from excessively drained on hilltops to very poorly drained in depressions.

Relief influences the formation of soil by affecting runoff and drainage. Drainage in turn, through its effect on aeration of the soil, determines the color of the soil. Runoff is most rapid on the steeper slopes, but in low areas, water can be temporarily ponded.

Water and air move freely through well drained soils but slowly through very poorly drained soils. In soils that are well aerated, the iron and aluminum compounds that give most soils their color are brightly colored and are oxidized. Poorly aerated soils are dull gray and mottled. Spinks soils are examples of well drained, well aerated soils; Dair soils are examples of poorly drained, poorly aerated soils. Both soils formed in similar parent material.

Time

Generally, a long time is required for the development of distinct horizons in a soil. The differences in the length of time that the parent material has been in place are commonly reflected in the degree of development of the soil profile. Some soils form rapidly; others form slowly.

The soils of Benzie and Manistee Counties range from young to mature. The glacial deposits in which many of the soils formed have been exposed to soil-forming factors long enough for distinct horizons to develop. Some soils that formed in recent alluvial sediments have not been in place long enough for the development of distinct horizons. Glendora soils, which formed in alluvial materials, are young soils. Benzonia soils show the effects of leaching of lime from the soil, which has taken place over a long period of time.

Processes of Soil Formation

The processes responsible for the development of soil horizons from unconsolidated parent material are referred to as soil genesis. Soil morphology describes the physical, chemical, and biological properties of these horizons.

Several processes were involved in the development of soil horizons in Benzie and Manistee Counties. These processes include the accumulation of organic matter; the leaching of lime (calcium carbonate) and other bases; the reduction and transfer of iron; and the formation and translocation of clay minerals. In most soils, more than one of these processes have been active in the development of horizons.

Organic matter accumulates at the surface to form an A horizon. If the soil is plowed, the A horizon is mixed into a plow layer, or Ap horizon. In the soils of Benzie and Manistee Counties, the content of organic matter in the surface layer ranges from high to low. For example, Adrian soils have a high content of organic matter in the surface layer, and Plainfield soils have a low content of organic matter.

Leaching of carbonates and other bases has occurred in most of the soils. Soil scientists generally agree that leaching of bases in soils precedes the translocation of clay minerals. Many of the soils in Benzie and Manistee Counties are moderately or strongly leached. Marlette soils are leached of carbonates to a depth of 25 to 40 inches. Milarch soils are leached to a depth of more than 60 inches. This difference in the depth of leaching is a result of time, relief, and parent material.

The reduction and transfer of iron, a process called gleying, is evident in the somewhat poorly drained, poorly drained, and very poorly drained soils. The gray or dull color in the subsoil indicates the reduction and loss of iron. Parkhill soils are examples of soils in which the gleying processes are evident.

Translocation of clay minerals has contributed to horizon development. An eluviated, or leached, E horizon above an illuviated B horizon has a lower content of clay than the B horizon and typically is lighter in color. The B horizon typically has an accumulation of clay and clay films in pores and on the faces of peds. The soils displaying this translocation of clay were probably leached of carbonates and soluble salts to a considerable extent before the translocation of clay took place. The leaching of bases and the translocation of clays are among the more important processes of horizon differentiation. In Perrinton soils, translocated clay in the form of clay films has accumulated in the B horizon.

In some soils, iron, aluminum, and humus have moved from the surface layer to the B horizon. The B horizon in such soils commonly is dark brown or dark reddish brown. Kaleva and Fogg soils are examples of soils in which translocated iron, aluminum, and humus have affected the B horizon.

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Driscoll, R.S., and others. 1984. An ecological land classification framework for the United States. United States Department of Agriculture, Forest Service, Miscellaneous Publication 1439.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hannah, P.R., and R. Zahner. 1970. Nonpedogenic texture bands in outwash sands of Michigan: Their origin and influence on tree growth. Soil Science Society of America Journal 34: 134-136.

Host, G.E., and others. 1988. Variation in overstory biomass among glacial landforms and ecological land units in northern lower Michigan. Canadian Journal of Forest Resources 18: 659-668.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Jenny, Hans. 1941. Factors of soil formation.

Michigan Department of Agriculture. 1997. Michigan agricultural statistics.

Michigan State University, Departments of Crop and Soil Sciences and Horticulture. 1992. Fertilizer recommendations for vegetables and field crops in Michigan. Extension Bulletin E-550A, E-550B.

Michigan United Conservation Clubs. Michigan mapped lakes. Quadrangle maps, Great Lakes nautical charts index.

Mokma, D.L. 1982. Soil management units and land use planning. Michigan State University Extension Bulletin E-1262.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Pregitzer, K.S., G.E. Host, and P.J. Greaney. 1987. An ecological classification of the state upland forests in northern lower Michigan. Department of Forestry, Michigan State University.

Schoeneberger, P.J., D.A. Wysocki, E.C. Benham, and W.D. Broderson, editors. 2002. Field book for describing and sampling soils. Version 2.0. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18 (online at http://soils.usda.gov/technical/).

Soil Survey Staff. 1998. Keys to soil taxonomy. 8th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, National Agriculture Statistics Service. Agricultural statistics (online at http://www.nass.usda.gov/census).

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual (online at http://soils.usda.gov/technical/).

United States Department of Agriculture, Natural Resources Conservation Service. National list of common plant names (online at http://plants.usda.gov).

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (Available in the State Office of the Natural Resources Conservation Service at East Lansing, Michigan, or online at http://soils.usda.gov)

United States Department of Agriculture, Natural Resources Conservation Service. 1996. Soil survey laboratory methods manual. Soil Survey Investigations Report 42.

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

United States Department of Commerce, Bureau of the Census. 2003. Census data (online at http://quickfacts.census.gov/qfd/states/26000 html).

Voss, Edward G. 1972, 1985, 1996. Michigan flora, parts I, II, and III. Cranbrook Institute of Science and University of Michigan Herbarium.

Wheeting, L.C., and S.G. Bergquist. 1926. Soil survey of Manistee County, Michigan. U.S. Department of Agriculture, Bureau of Soils, and Michigan Agricultural Experiment Station.

Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook" (available in local offices of the Natural Resources Conservation Service or on the Internet).

Ablation till. Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

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. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl. A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

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 toward which a slope faces. Also called slope aspect.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

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.

Basal till. Compact till deposited beneath the glacial ice.

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.

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.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed; the adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Blowout (map symbol). A small saucer-, cup-, or trough-shaped hollow or depression formed by wind erosion on a preexisting sand deposit. The areas are typically 1 to 3 acres.

Board foot. A unit of measurement represented by a board 1 foot wide, 1 foot long, and 1 inch thick.

Bog (map symbol). Waterlogged, spongy ground, consisting primarily of mosses, containing acidic, decaying vegetation (such as sphagnum, sedges, and heaths) that develops into peat. Typically 1 to 3 acres.

Borrow pit (map symbol). An open excavation from which soil and underlying material have been removed, usually for construction purposes. The areas are typically 1 to 3 acres.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

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 and under similar climatic conditions but that 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.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

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. See Redoximorphic features.

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.

Clay spot (map symbol). An area in which the surface layer is silty clay or clay. Typically 1 to 3 acres.

Clayey textures (in map unit descriptions). Equipment use and other uses are limited because of the clayey textures in the surface layer and subsoil.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Closed depression (map symbol). A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and is without a natural outlet for surface drainage. Typically 1 to 3 acres.

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.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

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. See Redoximorphic features.

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.

Cord. A unit of measurement of stacked wood. A standard cord occupies 128 cubic feet with dimensions of 4 feet by 4 feet by 8 feet.

Corrosion (geomorphology). A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations). 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.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

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.

Cut and fill spot (map symbol). A small area where the original soil profile has been altered by the addition or removal of more than about 1 foot of soil material. The area is typically 1 to 3 acres.

Cutbanks caving (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression. Any relatively sunken part of the earth's surface; especially a low-lying area surrounded by higher ground. A closed depression has no natural outlet for surface drainage. An open depression has a natural outlet for surface drainage.

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.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Disintegration moraine. A drift topography characterized by chaotic mounds and pits, generally randomly oriented, developed in supraglacial drift by collapse and flow as the underlying stagnant ice melted. Slopes may be steep and unstable. Abrupt changes between materials of differing lithology are common.

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. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Drift. A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Droughtiness (in map unit descriptions). The soil holds too little water for plants during dry periods.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

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.

End moraine. A ridgelike accumulation produced at the outer margin of an actively flowing glacier at any given time.

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 deposit. Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

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. Most commonly applied to cliffs produced by differential erosion.

Escarpment, nonbedrock (map symbol). A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Exposed material is nonsoil or very shallow, poorly developed soil.

Esker. A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

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*.

Fill slope. A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms. A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

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.

Flood-plain step. An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Footslope. The concave surface at the base of a hillslope. 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.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

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 outwash. Stratified and sorted sediments (chiefly sand and gravel) removed or "washed out" from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Glaciofluvial deposits. Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded 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.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

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.

Gravel pit (map symbol). An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel. Typically 1 to 3 acres.

Gravel strata spot (map symbol). An area where the soils have strata of gravel in the subsoil. Typically 1 to 3 acres.

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.

Gravelly spot (map symbol). An area where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter. The area is typically 1 to 3 acres.

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. Water filling all the unblocked pores of the material below the water table.

Ground-water pollution (in map unit descriptions). Because of rapid or very rapid permeability, nutrients, fertilizers, pesticides, or other agricultural chemicals may enter the ground water.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. 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 (geomorphology). 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.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

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.

L horizon.—A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

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.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

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. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

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.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame. A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Knoll. A small, low, rounded hill rising above adjacent landforms.

Ksat. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lamellae. Thin layers in the soil where illuviated clay particles have accumulated. These layers generally form in sandy soils and are commonly irregular or discontinuous.

Landfill (map symbol). An area of accumulated waste products of human habitation. Can be above or below natural ground level. The area is typically 1 to 3 acres.

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Levee (map symbol). An embankment built to confine or control water, especially one built along the banks of a river to prevent overflow onto lowlands.

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.

Loam at depth (map symbol). Refers to areas of dominantly sandy soils that have loamy material at a depth between 20 and 40 inches. The areas are typically 1 to 3 acres.

Loess. Material transported and deposited by wind and consisting dominantly of silt-sized particles.
Low strength. The soil is not strong enough to support loads.
Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.
Marl spot (map symbol). An area that has surface textures of organic marl deposits and is surrounded by areas of mineral soils or mucky textures. Typically less than 3 acres.
Marsh or swamp (map symbol). A water-saturated, very poorly drained area, intermittently or permanently covered by water. Marsh areas are dominantly covered by sedges, cattails, or rushes. Swamps are dominantly covered by trees or shrubs. Not used in map units where poorly drained or very poorly drained soils are the named components. Typically 1 to 3 acres.
Masses. See Redoximorphic features.
Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.
Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.
Mine or quarry (map symbol). An open excavation from which soil and underlying material are removed, exposing the bedrock. Also used to denote surface openings to underground mines. The areas are typically less than 3 acres.
Mine spoil. An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.
Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.
Mineral spot (map symbol). A small area of mineral soils within an area of dominantly organic soils. Typically 1 to 3 acres.
Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.
Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.
Miscellaneous water (map symbol). Small manmade areas of water that are used for industrial, sanitary, or mining applications and that contain water most of the year. Typically 1 to 2 acres.
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. In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.
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. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient loss (in map unit descriptions). The soil may lose nutrients, fertilizers, or pesticides as a result of either surface-water runoff or percolation.

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

Organic spot (map symbol). An area of nonacid organic soil more than 9 inches thick surrounded by soils that have a mineral surface layer. Typically 1 to 3 acres.

Outwash plain. An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, hardpan, fragipan, claypan, plowpan, and traffic pan.

Parent material. The unconsolidated organic and mineral material in which soil forms.

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 layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

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.

Perennial water (map symbol). A small, natural or constructed lake, pond, or pit that contains water most of the year. The areas are typically 1 to 2 acres.

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.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

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.

Ponding (in map unit descriptions). The water table is at or above the surface.

Poor filtering capacity (in map unit descriptions). Effluent moves through the soil too rapidly for adequate filtration or treatment.

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.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

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.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

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.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as 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. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:

   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*

   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*

   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:

   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*

   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Restricted permeability (in map unit descriptions). The soil has a slowly or very slowly permeable layer within a depth of 80 inches.

Restrictive feature (in map unit descriptions). The soil has a layer that inhibits the movement of water and/or roots. Examples include bedrock, ortstein, and dense layers.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock fragments (in map unit descriptions). Equipment use and other uses are limited because of excess gravel or cobbles within a depth of 12 inches.

Rock outcrop (map symbol). 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. The areas are typically less than 3 acres.

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.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol). An area where the surface layer contains more than 75 percent sand and where the named soils of the surrounding map unit have less than about 25 percent sand. The area is typically 1 to 3 acres.

Sandy textures (in map unit descriptions). Equipment use and other uses are limited because of sandy textures in the surface layer.

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 (Ksat). 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.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Seasonal wetness (in map unit descriptions). Equipment use and other uses are limited because the water table is at a depth between 6 and 40 inches during some part of the year.

Sedimentary rock. A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

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.

Severe wetness (in map unit descriptions). Equipment use and other uses are limited because the water table is at or near the surface during some part of the year.

Severely eroded spot (map symbol). An area where, on the average, 75 percent or more of the original surface layer has been lost as a result of accelerated erosion. Typically 1 to 3 acres.

Shale. Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short steep slope (map symbol). A narrow area of soil that is at least two slope classes steeper than the surrounding map unit.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

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 (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

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.

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.

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.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

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 rutting (in map unit descriptions). Ruts form easily during the spring and other wet periods.

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.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

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.

Stony spot (map symbol). An area where 0.01 to 3.0 percent of the surface is covered with rock fragments more than 10 inches in diameter. Typically 1 to 3 acres.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial 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.

Subsidence (in map unit descriptions). In organic soils, subsidence is a limitation if the organic material subsides more than 24 inches when the soils are drained.

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. Any surface soil horizon (A, E, AB, or EB) below the 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.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Swale. A slight depression in the midst of generally level land. A shallow depression in an undulating ground moraine caused by uneven glacial deposition.

Terminal moraine. An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation). 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 (geomorphology). A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

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. Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain. An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. 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.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water erosion (in map unit descriptions). The soil is susceptible to erosion as a result of surface-water runoff.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered 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.

Wet spot (map symbol). An area of somewhat poorly drained to very poorly drained soil at least two drainage classes wetter than the named soils in the surrounding map unit. The area is typically 1 to 3 acres.

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 Frankfort, in Benzie County, and at Manistee, in Manistee County)

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
FRANKFORT:											
January----	27.9	16.9	22.4	47	-5	0	2.77	1.98	3.51	9	36.6
February---	30.5	17.9	24.2	51	-5	4	1.98	1.17	2.81	6	21.8
March------	39.3	24.6	31.9	67	3	35	2.34	1.16	3.44	6	13.7
April------	51.2	34.0	42.6	77	17	146	2.56	1.63	3.45	6	4.5
May--------	64.0	43.6	53.8	84	29	426	2.69	1.45	3.93	6	.2
June-------	72.5	52.4	62.5	87	36	666	3.24	1.73	4.55	6	.0
July-------	77.1	58.4	67.7	89	44	832	3.04	1.61	4.48	5	.0
August-----	75.3	58.7	67.0	89	44	803	3.49	2.04	4.58	6	.0
September--	68.0	51.7	59.8	84	34	593	4.03	2.05	5.87	7	.0
October----	57.0	41.8	49.4	76	26	297	3.18	1.94	4.33	7	.5
November---	43.6	31.9	37.7	66	16	65	2.98	1.76	4.14	8	9.2
December---	32.5	22.1	27.3	52	2	5	2.80	1.92	3.72	9	28.5
Yearly:											
Average---	53.2	37.8	45.5	---	---	---	---	---	---	---	---
Extreme---	95	-15	---	90	-7	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,872	35.13	30.71	38.13	81	115.0
MANISTEE:											
January----	29.5	16.9	23.2	49	-5	1	2.18	1.30	2.95	6	22.2
February---	32.8	17.3	25.1	53	-10	4	1.41	.68	2.06	4	12.5
March------	41.5	24.4	33.0	69	-3	45	2.17	.80	3.51	5	6.4
April------	54.4	34.5	44.5	79	17	184	2.74	1.84	3.59	6	1.2
May--------	66.4	43.8	55.1	87	25	462	2.62	1.39	3.79	6	.0
June-------	75.7	52.7	64.2	91	34	722	3.35	1.70	4.83	6	.0
July-------	79.9	58.3	69.1	93	41	885	3.06	1.33	4.66	5	.0
August-----	77.5	57.7	67.6	90	39	852	3.90	2.38	5.30	6	.0
September--	70.3	50.9	60.6	88	31	619	3.57	1.82	5.28	7	.0
October----	58.9	41.4	50.1	78	24	325	3.25	1.92	4.42	7	.1
November---	44.8	31.8	38.3	68	13	78	2.82	1.49	4.10	7	2.7
December---	33.8	22.2	28.0	53	0	6	2.20	1.31	3.10	7	12.3
Yearly:											
Average---	55.4	37.7	46.6	---	---	---	---	---	---	---	---
Extreme---	98	-22	---	94	-11	---	---	---	---	---	---
Total-----	---	---	---	---	---	4,183	33.27	28.33	35.31	72	57.4

* 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 (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1971-2000 at Frankfort, in Benzie County, and at Manistee, in Manistee County)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
FRANKFORT:			
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 20	May 5	May 24
2 years in 10 later than--	Apr. 16	May 1	May 18
5 years in 10 later than--	Apr. 8	Apr. 22	May 6
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 28	Oct. 21	Sept. 25
2 years in 10 earlier than--	Nov. 2	Oct. 26	Oct. 1
5 years in 10 earlier than--	Nov. 12	Nov. 4	Oct. 13
MANISTEE:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 5	May 23	May 30
2 years in 10 later than--	Apr. 29	May 16	May 24
5 years in 10 later than--	Apr. 18	May 3	May 14
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 19	Oct. 6	Sept. 15
2 years in 10 earlier than--	Oct. 27	Oct. 12	Sept. 22
5 years in 10 earlier than--	Nov. 10	Oct. 24	Oct. 7

Table 3.--Growing Season

(Recorded in the period 1971-2000 at Frankfort, in Benzie County, and at Manistee, in Manistee County)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
FRANKFORT:			
9 years in 10	195	174	135
8 years in 10	202	181	144
5 years in 10	216	195	160
2 years in 10	230	208	176
1 year in 10	237	215	185
MANISTEE:			
9 years in 10	173	143	113
8 years in 10	184	154	124
5 years in 10	205	174	146
2 years in 10	226	194	168
1 year in 10	238	204	179

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Benzie County	Manistee County	Total Acres	Total Percent
1	Beaches	364	242	606	0.1
3A	Psamments, moderately wet-Beaches complex, nearly level	484	18	502	*
5F	Udorthents-Udipsamments complex, very steep	268	166	434	*
10B	Perrinton loam, 2 to 6 percent slopes	97	2,073	2,170	0.4
10C	Perrinton loam, 6 to 12 percent slopes	182	1,446	1,628	0.3
11A	Ithaca loam, 0 to 3 percent slopes	105	789	894	0.2
13B	Marlette fine sandy loam, 2 to 6 percent slopes	232	764	996	0.2
13C	Marlette fine sandy loam, 6 to 12 percent slopes	150	532	682	0.1
14A	Capac loam, 0 to 3 percent slopes	94	735	829	0.1
15	Parkhill loam	62	535	597	0.1
18B	Fern-Spinks sands, 0 to 6 percent slopes	72	630	702	0.1
18C	Fern-Spinks sands, 6 to 12 percent slopes	302	610	912	0.2
21B	Coloma-Tatches complex, 0 to 6 percent slopes	112	6,513	6,625	1.1
25	Gorvan-Houghton-Glendora complex, frequently flooded	535	4,704	5,239	0.9
29B	Fogg-Benzonia sands, 0 to 6 percent slopes	913	1,120	2,033	0.4
29C	Fogg-Benzonia sands, 6 to 12 percent slopes	1,872	590	2,462	0.4
29D	Fogg-Benzonia sands, 12 to 18 percent slopes	1,070	160	1,230	0.2
29E	Fogg-Benzonia sands, 18 to 35 percent slopes	1,445	427	1,872	0.3
29F	Fogg-Benzonia sands, 35 to 50 percent slopes	1,718	225	1,943	0.3
32B	Fern sand, 0 to 6 percent slopes	620	947	1,567	0.3
32C	Fern sand, 6 to 12 percent slopes	267	100	367	*
36B	Fern-Remus complex, 0 to 6 percent slopes	290	185	475	*
36C	Fern-Remus complex, 6 to 12 percent slopes	145	172	317	*
38B	Remus-Spinks complex, 0 to 6 percent slopes	---	545	545	*
38C	Remus-Spinks complex, 6 to 12 percent slopes	79	502	581	0.1
38D	Remus-Spinks complex, 12 to 18 percent slopes	116	203	319	*
38E	Remus-Spinks complex, 18 to 35 percent slopes	340	155	495	*
43B	Thompsonville fine sand, 0 to 6 percent slopes	814	544	1,358	0.2
44B	Milnichol fine sand, 0 to 4 percent slopes	323	439	762	0.1
47B	Spinks-Coloma sands, 0 to 6 percent slopes	2,101	9,744	11,845	2.0
47C	Spinks-Coloma sands, 6 to 12 percent slopes	2,508	9,669	12,177	2.1
47D	Spinks-Coloma sands, 12 to 18 percent slopes	1,096	4,088	5,184	0.9
47E	Spinks-Coloma sands, 18 to 35 percent slopes	1,116	2,810	3,926	0.7
47F	Spinks-Coloma sands, 35 to 70 percent slopes	312	490	802	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Benzie County	Manistee County	Total Acres	Total Percent
52C	Copemish sand, 3 to 12 percent slopes	319	784	1,103	0.2
52E	Copemish sand, 12 to 35 percent slopes	---	125	125	*
53A	Saugatuck-Jebavy complex, 0 to 3 percent slopes	2,203	3,537	5,740	1.0
54B	Kaleva sand, 0 to 6 percent slopes	25,427	13,704	39,131	6.7
54C	Kaleva sand, 6 to 12 percent slopes	3,899	1,198	5,097	0.9
54D	Kaleva sand, 12 to 18 percent slopes	1,628	875	2,503	0.4
54E	Kaleva sand, 18 to 35 percent slopes	990	321	1,311	0.2
54F	Kaleva sand, 35 to 50 percent slopes	240	83	323	*
55B	Brethren sand, 0 to 6 percent slopes	4,087	9,047	13,134	2.3
57B	Grattan sand, 0 to 6 percent slopes	6,139	5,841	11,980	2.1
57C	Grattan sand, 6 to 12 percent slopes	1,405	1,560	2,965	0.5
57D	Grattan sand, 12 to 18 percent slopes	650	617	1,267	0.2
57E	Grattan sand, 18 to 35 percent slopes	1,023	904	1,927	0.3
57F	Grattan sand, 35 to 50 percent slopes	941	51	992	0.2
58B	Covert sand, 0 to 6 percent slopes	2,913	4,744	7,657	1.3
59B	Pipestone sand, 0 to 4 percent slopes	517	1,615	2,132	0.4
60	Dair muck	1,552	6,290	7,842	1.4
63B	Coloma sand, 0 to 6 percent slopes	296	12,037	12,333	2.1
63C	Coloma sand, 6 to 12 percent slopes	139	3,840	3,979	0.7
63D	Coloma sand, 12 to 18 percent slopes	93	1,313	1,406	0.2
63E	Coloma sand, 18 to 35 percent slopes	129	1,013	1,142	0.2
63F	Coloma sand, 35 to 70 percent slopes	72	417	489	*
64B	Benona sand, 0 to 6 percent slopes	6,675	12,705	19,380	3.3
64C	Benona sand, 6 to 12 percent slopes	3,188	4,805	7,993	1.4
64D	Benona sand, 12 to 18 percent slopes	1,909	2,676	4,585	0.8
64E	Benona sand, 18 to 35 percent slopes	2,866	2,831	5,697	1.0
64F	Benona sand, 35 to 70 percent slopes	783	68	851	0.1
67B	Plainfield sand, 0 to 6 percent slopes	134	27,595	27,729	4.8
67C	Plainfield sand, 6 to 12 percent slopes	22	1,736	1,758	0.3
67E	Plainfield sand, 12 to 35 percent slopes	---	1,373	1,373	0.2
67F	Plainfield sand, 35 to 70 percent slopes	---	452	452	*
73	Houghton-Adrian mucks	12,685	8,853	21,538	3.7
81	Lumley-Makinen complex	146	750	896	0.2
83	Histosols and Aquents, ponded	441	1,130	1,571	0.3
86D	Dune land-Quartzipsamments complex, undulating to hilly	662	83	745	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Benzie County	Manistee County	Total Acres	Total Percent
86F	Dune land-Quartzipsamments complex, hilly to very steep	431	72	503	*
88B	Udipsamments, nearly level and undulating	294	984	1,278	0.2
91	Pits, sand and gravel	158	266	424	*
96C	Goodharbor sand, 1 to 12 percent slopes	250	161	411	*
100A	Dair-Pipestone complex, 0 to 2 percent slopes	1,826	3,045	4,871	0.8
102A	Thompsonville-Milnichol fine sands, 0 to 3 percent slopes	784	762	1,546	0.3
104B	Covert-Pipestone sands, 0 to 6 percent slopes	2,100	2,089	4,189	0.7
106B	Covert-Dair complex, 0 to 6 percent slopes	2,606	2,635	5,241	0.9
107B	Benzonia sand, 0 to 6 percent slopes	17,351	12,217	29,568	5.1
107C	Benzonia sand, 6 to 12 percent slopes	10,491	6,475	16,966	2.9
107D	Benzonia sand, 12 to 18 percent slopes	4,743	2,418	7,161	1.2
107E	Benzonia sand, 18 to 35 percent slopes	5,500	3,271	8,771	1.5
107F	Benzonia sand, 35 to 50 percent slopes	1,686	1,850	3,536	0.6
108A	Saugatuck sand, 0 to 3 percent slopes	494	1,004	1,498	0.3
109B	Shavenaugh sand, 0 to 6 percent slopes	5,723	3,302	9,025	1.6
109C	Shavenaugh sand, 6 to 12 percent slopes	983	932	1,915	0.3
109D	Shavenaugh sand, 12 to 18 percent slopes	590	452	1,042	0.2
109E	Shavenaugh sand, 18 to 35 percent slopes	551	918	1,469	0.3
109F	Shavenaugh sand, 35 to 50 percent slopes	108	34	142	*
110B	Healylake sand, 0 to 6 percent slopes	78	1,491	1,569	0.3
111D	Onekama fine sandy loam, 12 to 18 percent slopes	135	412	547	*
111E	Onekama fine sandy loam, 18 to 35 percent slopes	264	535	799	0.1
111F	Onekama fine sandy loam, 35 to 50 percent slopes	88	604	692	0.1
114B	Nordhouse-Platteriver-Dair complex, 0 to 6 percent slopes	1,038	53	1,091	0.2
115B	Nordhouse sand, 0 to 6 percent slopes	1,441	83	1,524	0.3
115D	Nordhouse sand, 6 to 18 percent slopes	2,107	449	2,556	0.4
115F	Nordhouse sand, 18 to 70 percent slopes	1,935	437	2,372	0.4
118B	Spinks-Shavenaugh sands, 0 to 6 percent slopes	980	1,237	2,217	0.4
118C	Spinks-Shavenaugh sands, 6 to 12 percent slopes	512	502	1,014	0.2
118D	Spinks-Shavenaugh sands, 12 to 18 percent slopes	561	203	764	0.1
118E	Spinks-Shavenaugh sands, 18 to 35 percent slopes	471	216	687	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Benzie County	Manistee County	Total Acres	Total Percent
118F	Spinks-Shavenaugh sands, 35 to 50 percent slopes	332	2	334	*
119	Madaus muck	507	632	1,139	0.2
120B	Boyer-Shavenaugh complex, 0 to 6 percent slopes	1,021	1,791	2,812	0.5
120C	Boyer-Shavenaugh complex, 6 to 12 percent slopes	212	480	692	0.1
120D	Boyer-Shavenaugh complex, 12 to 18 percent slopes	149	129	278	*
120E	Boyer-Shavenaugh complex, 18 to 35 percent slopes	161	96	257	*
120F	Boyer-Shavenaugh complex, 35 to 50 percent slopes	141	132	273	*
122	Dair-Adrian mucks	3,428	4,934	8,362	1.4
123B	Platteriver-Pipestone sands, 0 to 4 percent slopes	708	385	1,093	0.2
125B	Spinks-Tekenink, sandy substratum, complex, 0 to 6 percent slopes	529	2,683	3,212	0.6
125C	Spinks-Tekenink, sandy substratum, complex, 6 to 12 percent slopes	991	2,242	3,233	0.6
125D	Spinks-Tekenink, sandy substratum, complex, 12 to 18 percent slopes	384	932	1,316	0.2
125E	Spinks-Tekenink, sandy substratum, complex, 18 to 35 percent slopes	440	1,054	1,494	0.3
125F	Spinks-Tekenink, sandy substratum, complex, 35 to 50 percent slopes	183	439	622	0.1
126D	Filer fine sandy loam, 12 to 18 percent slopes	52	90	142	*
126E	Filer fine sandy loam, 18 to 35 percent slopes	32	197	229	*
127B	Kaleva sand, deep water table, 0 to 6 percent slopes	377	2,201	2,578	0.4
130A	Glendora-Algansee-Abscota complex, 0 to 3 percent slopes, frequently flooded	333	1,265	1,598	0.3
131A	Milarch loam, 0 to 3 percent slopes	---	293	293	*
132A	Milnichol-Dair complex, 0 to 3 percent slopes	1,136	351	1,487	0.3
135B	Nessen sand, 0 to 6 percent slopes	3,544	56	3,600	0.6
135C	Nessen sand, 6 to 12 percent slopes	550	---	550	*
136B	Nessen-Kaleva sands, 0 to 6 percent slopes	12,738	1,536	14,274	2.5
136C	Nessen-Kaleva sands, 6 to 12 percent slopes	1,962	200	2,162	0.4
136D	Nessen-Kaleva sands, 12 to 18 percent slopes	1,081	32	1,113	0.2
136E	Nessen-Kaleva sands, 18 to 35 percent slopes	864	50	914	0.2
138D	Mollineaux-Spinks complex, 12 to 18 percent slopes	109	164	273	*
138E	Mollineaux-Spinks complex, 18 to 35 percent slopes	169	520	689	0.1
139D	Mollineaux-Remus complex, 12 to 18 percent slopes	439	89	528	*
139E	Mollineaux-Remus complex, 18 to 35 percent slopes	600	144	744	0.1
210B	Plainfield sand, nearly level and undulating	---	15,613	15,613	2.7
210C	Plainfield sand, rolling	---	524	524	*
210D	Plainfield sand, hilly	---	46	46	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Benzie County	Manistee County	Total Acres	Total Percent
211B	Plainfield sand, banded substratum, nearly level and undulating	---	1,516	1,516	0.3
212B	Plainfield sand, very deep water table, nearly level and undulating	---	2,764	2,764	0.5
215B	Plainfield sand, loamy substratum, nearly level and undulating	---	813	813	0.1
220B	Typic Udipsamments, nearly level and undulating	---	8,638	8,638	1.5
220C	Typic Udipsamments, rolling	---	2,152	2,152	0.4
220D	Typic Udipsamments, hilly	---	1,010	1,010	0.2
220E	Typic Udipsamments, steep	---	1,108	1,108	0.2
220F	Typic Udipsamments, very steep	---	614	614	0.1
221B	Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, nearly level and undulating	---	5,472	5,472	0.9
221C	Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, rolling	---	1,127	1,127	0.2
221D	Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, hilly	---	490	490	*
221E	Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, steep	---	141	141	*
221F	Typic Udipsamments, banded substratum-Lamellic Udipsamments complex, very steep	---	98	98	*
222B	Typic Udipsamments, very deep water table, nearly level and undulating	---	3,361	3,361	0.6
222C	Typic Udipsamments, very deep water table, rolling	---	89	89	*
223B	Lamellic Udipsamments-Typic Udipsamments, banded substratum, complex, nearly level and undulating	---	669	669	0.1
223C	Lamellic Udipsamments-Typic Udipsamments, banded substratum, complex, rolling	---	450	450	*
224B	Oxyaquic Udipsamments, nearly level and undulating	---	3,142	3,142	0.5
225B	Typic Udipsamments, loamy substratum, nearly level and undulating	---	978	978	0.2
225C	Typic Udipsamments, loamy substratum, rolling	---	511	511	*
225D	Typic Udipsamments, loamy substratum, hilly	---	82	82	*
230B	Entic Haplorthods, sandy, nearly level and undulating	---	434	434	*
230C	Entic Haplorthods, sandy, rolling	---	1,354	1,354	0.2
230D	Entic Haplorthods, sandy, hilly	---	745	745	0.1
230E	Entic Haplorthods, sandy, steep	---	447	447	*
230F	Entic Haplorthods, sandy, very steep	---	562	562	*
231B	Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, nearly level and undulating	---	1,120	1,120	0.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Benzie County	Manistee County	Total Acres	Total Percent
231C	Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, rolling	---	2,031	2,031	0.4
231D	Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, hilly	---	1,274	1,274	0.2
231E	Entic Haplorthods, banded substratum-Lamellic Haplorthods complex, sandy, steep	---	513	513	*
232B	Entic Haplorthods-Lamellic Haplorthods complex, sandy, very deep water table, nearly level and undulating	---	492	492	*
233B	Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, nearly level and undulating	---	156	156	*
233C	Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, rolling	---	572	572	*
233D	Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, hilly	---	188	188	*
233E	Lamellic Haplorthods-Entic Haplorthods, banded substratum, complex, sandy, steep	---	215	215	*
234B	Oxyaquic Haplorthods, sandy, nearly level and undulating	---	539	539	*
235B	Alfic Haplorthods-Lamellic Haplorthods complex, sandy, nearly level and undulating	---	1,496	1,496	0.3
235C	Alfic Haplorthods-Lamellic Haplorthods complex, sandy, rolling	---	1,753	1,753	0.3
235D	Alfic Haplorthods-Lamellic Haplorthods complex, sandy, hilly	---	1,511	1,511	0.3
235E	Alfic Haplorthods-Lamellic Haplorthods complex, sandy, steep	---	287	287	*
235F	Alfic Haplorthods-Lamellic Haplorthods complex, sandy, very steep	---	160	160	*
237B	Glossudalfs, fine-loamy, nearly level and undulating	---	50	50	*
237C	Glossudalfs, fine-loamy, rolling	---	320	320	*
237D	Glossudalfs, fine-loamy, hilly	---	151	151	*
240B	Typic Haplorthods, sandy, nearly level and undulating	---	230	230	*
240C	Typic Haplorthods, sandy, rolling	---	467	467	*
240D	Typic Haplorthods, sandy, hilly	---	356	356	*
240E	Typic Haplorthods, sandy, steep	---	239	239	*
240F	Typic Haplorthods, sandy, very steep	---	423	423	*
241B	Typic Haplorthods, banded substratum-Lamellic Haplorthods, dark subsoil, complex, sandy, nearly level and undulating	---	331	331	*
241C	Typic Haplorthods, banded substratum-Lamellic Haplorthods, dark subsoil, complex, sandy, rolling	---	293	293	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Benzie County	Manistee County	Total Acres	Total Percent
242B	Typic Haplorthods, sandy, very deep water table, nearly level and undulating	---	245	245	*
243C	Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum, rolling	---	98	98	*
244B	Oxyaquic Haplorthods, sandy, dark subsoil, nearly level and undulating	---	263	263	*
245C	Typic Haplorthods, loamy substratum-Alfic Haplorthods, dark subsoil, complex, sandy, rolling	---	159	159	*
245D	Typic Haplorthods, loamy substratum-Alfic Haplorthods, dark subsoil, complex, sandy, hilly	---	125	125	*
245E	Typic Haplorthods, loamy substratum-Alfic Haplorthods, dark subsoil, complex, sandy, steep	---	63	63	*
246B	Alfic Oxyaquic Haplorthods-Typic Haplorthods, loamy substratum, complex, sandy, nearly level and undulating	---	950	950	0.2
250	Typic Psammaquents-Aquic Udipsamments-Haplosaprists, euic, complex, frequently flooded	---	310	310	*
252	Typic Endoaquods, sandy, wet-Haplosaprists, dysic, complex	---	291	291	*
253A	Typic Duraquods, sandy, ortstein-Aquic Udipsamments complex, nearly level	---	366	366	*
255B	Aquic Udipsamments-Oxyaquic Haplorthods, sandy, complex, nearly level and undulating	---	176	176	*
257	Endoaquolls-Haplosaprists, euic-Typic Psammaquents complex, frequently flooded	---	3,217	3,217	0.6
262A	Typic Duraquods, sandy, ortstein, nearly level	---	2,173	2,173	0.4
263B	Aquic Udipsamments, nearly level and undulating	---	767	767	0.1
264A	Typic Endoaquods, sandy, nearly level	---	287	287	*
272	Typic Endoaquods, sandy, wet	---	549	549	*
273	Typic Psammaquents	---	303	303	*
274	Typic Epiaquolls, sandy over loamy	---	403	403	*
280	Aquents and Histosols, ponded	---	40	40	*
281	Haplosaprists, dysic	---	979	979	0.2
282	Haplosaprists, euic	---	3,834	3,834	0.7
380	Access denied	836	1,099	1,935	0.3
W	Water	18,523	10,143	28,666	4.9
	Total	223,187	357,030	580,217	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops

(Only the soils that are commonly available for use as cropland are listed. 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	Alfalfa hay	Corn	Corn silage	Oats	Winter wheat
		Tons	Bu	Tons	Bu	Bu
10B---------- Perrinton	2e	5.0	100	15	80	45
10C---------- Perrinton	3e	4.5	100	15	75	45
11A---------- Ithaca	2w	5.5	110	16	95	50
13B---------- Marlette	2e	4.5	110	19	90	50
13C---------- Marlette	3e	4.5	110	16	90	55
14A---------- Capac	2w	5.5	120	18	115	65
15---------- Parkhill	5w	---	---	---	---	---
18B----------		---	95	16	72	35
Fern----------	3s					
Spinks----------	3s					
18C----------		---	---	---	---	---
Fern----------	3e					
Spinks----------	3e					
21B----------		---	90	16	70	35
Coloma----------	4s					
Tatches----------	2e					
25----------		---	---	---	---	---
Gorvan----------	6w					
Houghton----------	5w					
Glendora----------	6w					
29B----------		---	---	---	---	---
Fogg----------	3s					
Benzonia----------	4s					
29C----------		---	---	---	---	---
Fogg----------	6s					
Benzonia----------	6s					
29D----------		---	---	---	---	---
Fogg----------	7s					
Benzonia----------	6s					
29E----------		---	---	---	---	---
Fogg----------	7s					
Benzonia----------	7s					
29F----------		---	---	---	---	---
Fogg----------	7s					
Benzonia----------	7s					

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Corn silage	Oats	Winter wheat
		Tons	Bu	Tons	Bu	Bu
32B	3s	5.0	105	16	100	60
Fern						
32C	3e	3.5	95	15	70	40
Fern						
36B		4.5	110	18	90	50
Fern	3s					
Remus	2e					
36C		4.0	105	16	80	45
Fern	3e					
Remus	3e					
38B		4.0	85	15	70	35
Remus	2e					
Spinks	3s					
38C		4.0	80	14	70	35
Remus	3e					
Spinks	3e					
38D		---	---	---	---	---
Remus	4e					
Spinks	4e					
38E		---	---	---	---	---
Remus	7e					
Spinks	6e					
43B	4s	---	---	---	---	---
Thompsonville						
44A	4w	---	---	---	---	---
Milnichol						
47B		---	---	---	---	---
Spinks	3s					
Coloma	4s					
47C		---	---	---	---	---
Spinks	3e					
Coloma	6s					
47D		---	---	---	---	---
Spinks	4e					
Coloma	6s					
47E		---	---	---	---	---
Spinks	6e					
Coloma	7s					
47F		---	---	---	---	---
Spinks	7e					
Coloma	7s					
52C	6s	---	---	---	---	---
Copemish						
52E	6s	---	---	---	---	---
Copemish						

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Corn silage	Oats	Winter wheat
		Tons	Bu	Tons	Bu	Bu
53A----------		---	---	---	---	---
Saugatuck----------	4w					
Jebavy----------	5w					
54B----------	4s	---	---	---	---	---
Kaleva						
54C----------	6s	---	---	---	---	---
Kaleva						
54D----------	7s	---	---	---	---	---
Kaleva						
54E----------	7s	---	---	---	---	---
Kaleva						
54F----------	7s	---	---	---	---	---
Kaleva						
55B----------	4s	---	---	---	---	---
Brethren						
57B----------	4s	---	---	---	---	---
Grattan						
57C----------	6s	---	---	---	---	---
Grattan						
57D----------	6s	---	---	---	---	---
Grattan						
57E----------	7s	---	---	---	---	---
Grattan						
57F----------	7s	---	---	---	---	---
Grattan						
58B----------	4s	---	---	---	---	---
Covert						
59B----------	4w	---	---	---	---	---
Pipestone						
60----------	5w	---	---	---	---	---
Dair						
63B----------	4s	---	---	---	---	---
Coloma						
63C----------	6s	---	---	---	---	---
Coloma						
63D----------	6s	---	---	---	---	---
Coloma						
63E----------	7s	---	---	---	---	---
Coloma						
63F----------	7s	---	---	---	---	---
Coloma						

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Corn silage	Oats	Winter wheat
		Tons	Bu	Tons	Bu	Bu
64B	4s	---	---	---	---	---
Benona						
64C	6s	---	---	---	---	---
Benona						
64D	6s	---	---	---	---	---
Benona						
64E	7s	---	---	---	---	---
Benona						
64F	7s	---	---	---	---	---
Benona						
67B	4s	---	---	---	---	---
Plainfield						
67C	6s	---	---	---	---	---
Plainfield						
67E	7s	---	---	---	---	---
Plainfield						
67F	7s	---	---	---	---	---
Plainfield						
73		---	---	---	---	---
Houghton	5w					
Adrian	5w					
81		---	---	---	---	---
Lumley	6w					
Makinen	6w					
96C	6s	---	---	---	---	---
Goodharbor						
100A		---	---	---	---	---
Dair	5w					
Pipestone	4w					
102A		---	---	---	---	---
Thompsonville	4s					
Milnichol	4w					
104B		---	---	---	---	---
Covert	4s					
Pipestone	4w					
106B		---	---	---	---	---
Covert	4s					
Dair	5w					
107B	4s	---	---	---	---	---
Benzonia						
107C	6s	---	---	---	---	---
Benzonia						
107D	6s	---	---	---	---	---
Benzonia						

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Corn silage	Oats	Winter wheat
		Tons	Bu	Tons	Bu	Bu
107E---------- Benzonia	7s	---	---	---	---	---
107F---------- Benzonia	7s	---	---	---	---	---
108A---------- Saugatuck	4w	---	---	---	---	---
109B---------- Shavenaugh	4s	3.5	75	12	65	35
109C---------- Shavenaugh	6s	3.0	70	11	60	30
109D---------- Shavenaugh	6s	---	---	---	---	---
109E---------- Shavenaugh	7s	---	---	---	---	---
109F---------- Shavenaugh	7s	---	---	---	---	---
110B---------- Healylake	4s	---	---	---	---	---
111D---------- Onekama	4e	---	---	---	---	---
111E---------- Onekama	7e	---	---	---	---	---
111F---------- Onekama	7e	---	---	---	---	---
114B----------		---	---	---	---	---
Nordhouse----------	4s					
Platteriver----------	4s					
Dair----------	5w					
115B---------- Nordhouse	4s	---	---	---	---	---
115D---------- Nordhouse	7s	---	---	---	---	---
115F---------- Nordhouse	7s	---	---	---	---	---
118B----------		3.5	75	12	35	65
Spinks----------	3s					
Shavenaugh----------	4s					
118C----------		3.0	70	11	60	30
Spinks----------	3e					
Shavenaugh----------	6s					
118D----------		---	---	---	---	---
Spinks----------	4e					
Shavenaugh----------	6s					

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Corn silage	Oats	Winter wheat
		Tons	Bu	Tons	Bu	Bu
118E		---	---	---	---	---
Spinks	6e					
Shavenaugh	7s					
118F		---	---	---	---	---
Spinks	7e					
Shavenaugh	7s					
119	5w	---	---	---	---	---
Madaus						
120B		4.0	80	14	65	35
Boyer	3s					
Shavenaugh	4s					
120C		3.5	75	12	60	30
Boyer	3e					
Shavenaugh	6s					
120D		---	---	---	---	---
Boyer	4e					
Shavenaugh	6s					
120E		---	---	---	---	---
Boyer	7e					
Shavenaugh	7s					
120F		---	---	---	---	---
Boyer	7e					
Shavenaugh	7s					
122		---	---	---	---	---
Dair	5w					
Adrian	5w					
123B		---	---	---	---	---
Platteriver	4s					
Pipestone	4w					
125B		---	---	---	---	---
Spinks	3s					
Tekenink, sandy substratum	2e					
125C		---	---	---	---	---
Spinks	3e					
Tekenink, sandy substratum	3e					
125D		---	---	---	---	---
Spinks	4e					
Tekenink, sandy substratum	4e					
125E		---	---	---	---	---
Spinks	6e					
Tekenink, sandy substratum	6e					
125F		---	---	---	---	---
Spinks	7e					
Tekenink, sandy substratum	7e					

Table 5.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Alfalfa hay	Corn	Corn silage	Oats	Winter wheat
		Tons	Bu	Tons	Bu	Bu
126D---------- Filer	4e	---	---	---	---	---
126E---------- Filer	7e	---	---	---	---	---
127B---------- Kaleva, deep water table	4s	3.0	60	10	30	45
130A----------		---	---	---	---	---
Glendora----------	6w					
Algansee----------	3w					
Abscota----------	3s					
131A---------- Milarch	2e	---	---	---	---	---
132A----------		---	---	---	---	---
Milnichol----------	4w					
Dair----------	5w					
135B---------- Nessen	4s	---	---	---	---	---
135C---------- Nessen	6s	---	---	---	---	---
136B----------		---	---	---	---	---
Nessen----------	4s					
Kaleva----------	4s					
136C----------		---	---	---	---	---
Nessen----------	6s					
Kaleva----------	6s					
136D----------		---	---	---	---	---
Nessen----------	6s					
Kaleva----------	7s					
136E----------		---	---	---	---	---
Nessen----------	7s					
Kaleva----------	7s					
138D----------		---	---	---	---	---
Mollineaux----------	4e					
Spinks----------	4e					
138E----------		---	---	---	---	---
Mollineaux----------	7e					
Spinks----------	6e					
139D----------		---	---	---	---	---
Mollineaux----------	4e					
Remus----------	4e					
139E----------		---	---	---	---	---
Mollineaux----------	7e					
Remus----------	7e					

Table 6.--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
10B	Perrinton loam, 2 to 6 percent slopes
11A	Ithaca loam, 0 to 3 percent slopes (where drained)
13B	Marlette fine sandy loam, 2 to 6 percent slopes
14A	Capac loam, 0 to 3 percent slopes (where drained)
15	Parkhill loam (where drained)
38B	Remus-Spinks complex, 0 to 6 percent slopes
131A	Milarch loam, 0 to 3 percent slopes

Table 7.--Forestland Management and Productivity

(Only the soils suitable for production of commercial trees are listed. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for further explanation of ratings in this table)

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
3A:								
Psamments, moderately wet----------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Beaches.								
5F:								
Udorthents----	Very severe Slope	Unsuited Slope	Slight	Low	---	---	---	---
Udipsamments--	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
10B:								
Perrinton-----	Slight	Well suited	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					Northern red oak----	69	57	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
10C:								
Perrinton-----	Slight	Well suited	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					Northern red oak----	69	57	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
11A:								
Ithaca--------	Slight	Poorly suited Wetness	Slight	High Wetness	---	---	---	Eastern white pine, northern whitecedar, white spruce.
13B:								
Marlette------	Slight	Well suited	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					Northern red oak----	69	57	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
13C:								
Marlette------	Slight	Well suited	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					Northern red oak----	69	57	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
14A:								
Capac---------	Slight	Well suited	Slight	High Wetness	---	---	---	Eastern white pine, northern red oak, white spruce.
15:								
Parkhill------	Slight	Well suited	Severe Wetness	High Wetness	---	---	---	Eastern white pine, northern whitecedar, white spruce.
18B:								
Fern----------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
Spinks--------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
18C:								
Fern----------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
Spinks--------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
21B:								
Coloma--------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
Tatches-------	Slight	Well suited	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
25:								
Gorvan--------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Green ash----------	---	---	Northern whitecedar.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Tamarack----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
25:								
Houghton------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Green ash----------	---	---	Northern whitecedar.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Tamarack----------	---	---	
Glendora------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness Droughty	Green ash----------	---	---	Northern whitecedar.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Tamarack----------	---	---	
29B:								
Fogg----------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Benzonia------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	74	43	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Sugar maple---------	72	43	
					White ash----------	76	43	
29C:								
Fogg----------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Benzonia------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	74	43	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Sugar maple---------	72	43	
					White ash----------	76	43	
29D:								
Fogg----------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Benzonia------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	74	43	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Sugar maple---------	72	43	
					White ash----------	76	43	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
29E:								
Fogg----------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Benzonia------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	74	43	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Sugar maple---------	72	43	
					White ash----------	76	43	
29F:								
Fogg----------	Slight	Unsuited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Benzonia------	Slight	Unsuited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Black cherry--------	74	43	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Sugar maple---------	72	43	
					White ash----------	76	43	
32B:								
Fern----------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
32C:								
Fern----------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
36B:								
Fern----------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
Remus---------	Slight	Well suited	Slight	Low	American beech------	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Eastern hemlock-----	---	---	
					Paper birch---------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
36C:								
Fern	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
Remus	Slight	Well suited	Slight	Low	American beech	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Eastern hemlock	---	---	
					Paper birch	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
38B:								
Remus	Slight	Well suited	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
Spinks	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
38C:								
Remus	Slight	Well suited	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
38C:								
Spinks--------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
38D:								
Remus---------	Slight	Poorly suited Slope	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Spinks--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
38E:								
Remus---------	Slight	Poorly suited Slope	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
38E:								
Spinks	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, sugar maple, white spruce.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
43B:								
Thompsonville	Slight	Well suited	Slight	Moderate Droughty	Black cherry	---	---	Red pine.
					Northern red oak	67	58	
					Pin cherry	---	---	
					Quaking aspen	---	---	
					Red maple	66	38	
					Red pine	---	---	
44A:								
Milnichol	Slight	Well suited	Slight	High Wetness	American beech	56	43	Eastern white pine, white spruce.
					Balsam fir	---	---	
					Black cherry	---	---	
					Eastern white pine	64	129	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	65	43	
47B:								
Spinks	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
Coloma	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
47C:								
Spinks	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
Coloma	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
47D:								
Spinks	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
Coloma	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
47E:								
Spinks	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
47E:								
Coloma	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
47F:								
Spinks	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
Coloma	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
52C:								
Copemish	Slight	Well suited	Severe Rooting depth	Moderate Droughty	Balsam fir	---	---	Red pine.
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
52E:								
Copemish	Slight	Poorly suited Slope	Severe Rooting depth	Moderate Droughty	Balsam fir	---	---	Red pine.
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
53A:								
Saugatuck	Slight	Well suited	Moderate Rooting depth	High Wetness	American beech	56	43	Eastern white pine.
					Balsam fir	---	---	
					Black cherry	---	---	
					Eastern white pine	64	129	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	65	43	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
53A:								
Jebavy	Slight	Poorly suited Wetness	Severe Wetness Rooting depth	High Wetness	Balsam fir	---	---	Eastern white pine.
					Balsam poplar	---	---	
					Eastern hemlock	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
54B:								
Kaleva	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					Yellow birch	---	---	
54C:								
Kaleva	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					Yellow birch	---	---	
54D:								
Kaleva	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					Yellow birch	---	---	
54E:								
Kaleva	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
54F:								
Kaleva	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					Yellow birch	---	---	
55B:								
Brethren	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Red pine.
					Black cherry	---	---	
					Eastern white pine	---	---	
					Northern red oak	67	57	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	66	43	
57B:								
Grattan	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	62	124	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sassafras	---	---	
					Sugar maple	59	34	
					White oak	---	---	
57C:								
Grattan	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	62	124	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sassafras	---	---	
					Sugar maple	59	34	
					White oak	---	---	
57D:								
Grattan	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	62	124	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sassafras	---	---	
					Sugar maple	59	34	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
57E:								
Grattan-------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	62	124	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sassafras----------	---	---	
					Sugar maple---------	59	34	
					White oak----------	---	---	
57F:								
Grattan-------	Slight	Unsuited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine.
					Bigtooth aspen------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	62	124	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sassafras----------	---	---	
					Sugar maple---------	59	34	
					White oak----------	---	---	
58B:								
Covert--------	Slight	Well suited	Slight	Moderate Droughty	Black cherry--------	---	---	Red pine.
					Northern red oak----	67	58	
					Pin cherry----------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	66	38	
					Red pine----------	---	---	
59B:								
Pipestone-----	Slight	Well suited	Slight	High Wetness	American beech------	56	43	Eastern white pine, white spruce.
					Balsam fir----------	---	---	
					Black cherry--------	---	---	
					Eastern white pine--	64	129	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	65	43	
60:								
Dair----------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	Northern whitecedar.
					Balsam poplar-------	---	---	
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Quaking aspen-------	60	57	
					Red maple----------	64	43	
					Yellow birch--------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
63B:								
Coloma	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Jack pine, red pine.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black oak	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern pin oak	49	30	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sassafras	---	---	
63C:								
Coloma	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Jack pine, red pine.
					Bigtooth aspen	---	---	
					Black oak	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern pin oak	49	30	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sassafras	---	---	
63D:								
Coloma	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech	---	---	Jack pine, red pine.
					Bigtooth aspen	---	---	
					Black oak	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern pin oak	49	30	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sassafras	---	---	
63E:								
Coloma	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech	---	---	Jack pine, red pine.
					Bigtooth aspen	---	---	
					Black oak	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern pin oak	49	30	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sassafras	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
63F:								
Coloma	Slight	Unsuited Slope	Slight	Moderate Droughty	American beech	---	---	Jack pine, red pine.
					Bigtooth aspen	---	---	
					Black oak	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern pin oak	49	30	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sassafras	---	---	
64B:								
Benona	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Northern red oak, sugar maple.
					American beech	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Northern red oak	67	58	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
64C:								
Benona	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Northern red oak, sugar maple.
					American beech	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Northern red oak	67	58	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
64D:								
Benona	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Northern red oak, sugar maple.
					American beech	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Northern red oak	67	58	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
64E:								
Benona	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Northern red oak, sugar maple.
					American beech	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Northern red oak	67	58	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
64F:								
Benona	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood	---	---	Northern red oak, sugar maple.
					American beech	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Northern red oak	67	58	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
67B:								
Plainfield	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen	---	---	Jack pine, red pine.
					Black oak	---	---	
					Eastern white pine	58	112	
					Jack pine	49	62	
					Northern pin oak	---	---	
					Northern red oak	---	---	
					Red maple	---	---	
					Red pine	55	85	
					Sassafras	---	---	
					White oak	---	---	
67C:								
Plainfield	Slight	Well suited	Slight	Moderate Droughty	Bigtooth aspen	---	---	Jack pine, red pine.
					Black oak	---	---	
					Eastern white pine	58	112	
					Jack pine	49	62	
					Northern pin oak	---	---	
					Northern red oak	---	---	
					Red maple	---	---	
					Red pine	55	85	
					Sassafras	---	---	
					White oak	---	---	
67E:								
Plainfield	Slight	Poorly suited Slope	Slight	Moderate Droughty	Bigtooth aspen	---	---	Jack pine, red pine.
					Black oak	---	---	
					Eastern white pine	58	112	
					Jack pine	49	62	
					Northern pin oak	---	---	
					Northern red oak	---	---	
					Red maple	---	---	
					Red pine	55	85	
					Sassafras	---	---	
					White oak	---	---	
67F:								
Plainfield	Slight	Unsuited Slope	Slight	Moderate Droughty	Bigtooth aspen	---	---	Jack pine, red pine.
					Black oak	---	---	
					Eastern white pine	58	112	
					Jack pine	49	62	
					Northern pin oak	---	---	
					Northern red oak	---	---	
					Red maple	---	---	
					Red pine	55	85	
					Sassafras	---	---	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
73:								
Houghton------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	Northern whitecedar.
					Eastern hemlock-----	---	---	
					Green ash----------	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Tamarack----------	---	---	
Adrian--------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	Northern whitecedar.
					Eastern hemlock-----	---	---	
					Green ash----------	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Tamarack----------	---	---	
81:								
Lumley--------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	---
					Black spruce--------	15	29	
					Green ash----------	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
					Tamarack----------	---	---	
Makinen-------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	---
					Black spruce--------	15	29	
					Green ash----------	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
					Tamarack----------	---	---	
83:								
Histosols-----	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
Aquents-------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
86D:								
Dune land.								
Quartzi-psamments----	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
86F:								
Dune land.								
Quartzi-psamments----	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
88B:								
Udipsamments--	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
91.								
Pits, sand and gravel								
96C:								
Goodharbor----	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, northern red oak.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
100A:								
Dair----------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	Northern whitecedar.
					Balsam poplar-------	---	---	
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Quaking aspen-------	60	57	
					Red maple----------	64	43	
					Yellow birch--------	---	---	
Pipestone-----	Slight	Well suited	Slight	High Wetness	American beech------	56	43	Eastern white pine, white spruce.
					Balsam fir----------	---	---	
					Black cherry--------	---	---	
					Eastern white pine--	64	129	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	65	43	
102A:								
Thompsonville	Slight	Well suited	Slight	Moderate Droughty	Black cherry--------	---	---	Eastern white pine, white spruce.
					Northern red oak----	67	58	
					Pin cherry----------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	66	38	
					Red pine----------	---	---	
Milnichol-----	Slight	Well suited	Slight	High Wetness	American beech------	56	43	Eastern white pine, white spruce.
					Balsam fir----------	---	---	
					Black cherry--------	---	---	
					Eastern white pine--	64	129	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	65	43	
104B:								
Covert--------	Slight	Well suited	Slight	Moderate Droughty	Black cherry--------	---	---	Eastern white pine, white spruce.
					Northern red oak----	67	58	
					Pin cherry----------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	66	38	
					Red pine----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
104B:								
Pipestone-----	Slight	Well suited	Slight	High Wetness	American beech------	56	43	Eastern white pine, white spruce.
					Balsam fir----------	---	---	
					Black cherry--------	---	---	
					Eastern white pine--	64	129	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	65	43	
106B:								
Covert--------	Slight	Well suited	Slight	Moderate Droughty	Black cherry--------	---	---	Eastern white pine, white spruce.
					Northern red oak----	67	58	
					Pin cherry----------	---	---	
					Quaking aspen-------	---	---	
					Red maple-----------	66	38	
					Red pine------------	---	---	
Dair----------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	Northern whitecedar.
					Balsam poplar-------	---	---	
					Black ash-----------	---	---	
					Eastern hemlock-----	---	---	
					Northern whitecedar	---	---	
					Quaking aspen-------	60	57	
					Red maple-----------	64	43	
					Yellow birch--------	---	---	
107B:								
Benzonia------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, sugar maple.
					Bigtooth aspen------	---	---	
					Black cherry--------	74	43	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Jack pine-----------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	72	43	
					White ash-----------	76	43	
107C:								
Benzonia------	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, sugar maple.
					Bigtooth aspen------	---	---	
					Black cherry--------	74	43	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Jack pine-----------	---	---	
					Red maple-----------	---	---	
					Sugar maple---------	72	43	
					White ash-----------	76	43	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
107D:								
Benzonia------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, sugar maple.
					Bigtooth aspen------	---	---	
					Black cherry--------	74	43	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Jack pine----------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	72	43	
					White ash----------	76	43	
107E:								
Benzonia------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, sugar maple.
					Bigtooth aspen------	---	---	
					Black cherry--------	74	43	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Jack pine----------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	72	43	
					White ash----------	76	43	
107F:								
Benzonia------	Slight	Unsuited Slope	Slight	Moderate Droughty	American beech------	---	---	Eastern white pine, red pine, sugar maple.
					Bigtooth aspen------	---	---	
					Black cherry--------	74	43	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	75	172	
					Jack pine----------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	72	43	
					White ash----------	76	43	
108A:								
Saugatuck-----	Slight	Well suited	Moderate Rooting depth	High Wetness	Balsam fir----------	---	---	Eastern white pine, white spruce.
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	56	56	
					Quaking aspen-------	56	57	
					Red maple----------	45	26	
109B:								
Shavenaugh----	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
109C:								
Shavenaugh----	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
109D:								
Shavenaugh----	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
109E:								
Shavenaugh----	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
109F:								
Shavenaugh----	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
110B:								
Healylake	Slight	Well suited	Severe Rooting depth	Moderate Droughty	Eastern hemlock	---	---	Eastern white pine, red pine, white spruce.
					Jack pine	---	---	
					Paper birch	---	---	
					Quaking aspen	65	72	
					Red maple	---	---	
					Red pine	---	---	
111D:								
Onekama	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, white spruce.
					Northern red oak	69	57	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
111E:								
Onekama	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, white spruce.
					Northern red oak	69	57	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
111F:								
Onekama	Slight	Unsuited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, white spruce.
					Northern red oak	69	57	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
114B:								
Nordhouse	Slight	Well suited	Slight	Moderate Droughty	American beech	---	---	Jack pine, red pine.
					Bigtooth aspen	---	---	
					Black oak	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
Platteriver	Slight	Well suited	Slight	Moderate Droughty Wetness	American beech	---	---	Eastern white pine, red pine.
					Bigtooth aspen	---	---	
					Black oak	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Jack pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
Dair	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	American basswood	---	---	Northern whitecedar.
					Balsam fir	---	---	
					Northern whitecedar	---	---	
					Quaking aspen	60	57	
					Red maple	64	43	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
115B:								
Nordhouse-----	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Jack pine, red pine.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
115D:								
Nordhouse-----	Slight	Well suited	Slight	Moderate Droughty	American beech------	---	---	Jack pine, red pine.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
115F:								
Nordhouse-----	Slight	Unsuited Slope	Slight	Moderate Droughty	American beech------	---	---	Jack pine, red pine.
					Eastern hemlock-----	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Red maple----------	---	---	
118B:								
Spinks--------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
Shavenaugh----	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
118C:								
Spinks	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Shavenaugh	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Black cherry, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
118D:								
Spinks	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Shavenaugh	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Black cherry, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
118E:								
Spinks	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Black cherry, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Shavenaugh	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Black cherry, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
118F:								
Spinks	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood	---	---	Black cherry, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Shavenaugh	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood	---	---	Black cherry, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
119:								
Madaus	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Northern whitecedar	---	---	Northern whitecedar.
					Quaking aspen	---	---	
					Red maple	---	---	
120B:								
Boyer	Slight	Well suited	Slight	Low	American basswood	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					American elm	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Black oak	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	66	57	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Shavenaugh	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					American elm	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Black oak	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	66	57	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
120C:								
Boyer	Slight	Well suited	Slight	Low	American basswood	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					American elm	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Black oak	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	66	57	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
120C:								
Shavenaugh----	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					American elm--------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Black oak----------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	66	57	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
120D:								
Boyer---------	Slight	Poorly suited Slope	Slight	Low	American basswood---	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					American elm--------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Black oak----------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	66	57	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
Shavenaugh----	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					American elm--------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Black oak----------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	66	57	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
120E:								
Boyer	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					American elm	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Black oak	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	66	57	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Shavenaugh	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					American elm	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Black oak	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	66	57	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
120F:								
Boyer	Slight	Unsuited Slope	Slight	Low	American basswood	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					American elm	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Black oak	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	66	57	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
120F:								
Shavenaugh----	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood---	---	---	Black cherry, eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					American elm--------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Black oak----------	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	66	57	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
122:								
Dair----------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	Northern whitecedar.
					Balsam poplar-------	---	---	
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Green ash----------	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	57	
					Red maple----------	64	43	
					Silver maple--------	---	---	
					Tamarack----------	---	---	
					Yellow birch--------	---	---	
Adrian--------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	Balsam fir----------	---	---	Northern whitecedar.
					Balsam poplar-------	---	---	
					Black ash----------	---	---	
					Eastern hemlock-----	---	---	
					Green ash----------	---	---	
					Northern whitecedar	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	60	57	
					Red maple----------	64	43	
					Silver maple--------	---	---	
					Tamarack----------	---	---	
					Yellow birch--------	---	---	
123B:								
Platteriver---	Slight	Well suited	Slight	Moderate Droughty Wetness	Bigtooth aspen------	69	86	Eastern white pine, red pine.
					Black oak----------	---	---	
					Jack pine----------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
Pipestone-----	Slight	Well suited	Slight	High Wetness	American beech------	56	43	Eastern white pine, white spruce.
					Balsam fir----------	---	---	
					Black cherry--------	---	---	
					Eastern white pine--	64	129	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	65	43	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
125B:								
Spinks	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
Tekenink, sandy substratum	Slight	Well suited	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
125C:								
Spinks	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
Tekenink, sandy substratum	Slight	Well suited	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
125D:								
Spinks--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Tekenink, sandy substratum---	Slight	Poorly suited Slope	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
125E:								
Spinks--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
Tekenink, sandy substratum---	Slight	Poorly suited Slope	Slight	Low	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
125F:								
Spinks	Slight	Unsuited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
Tekenink, sandy substratum	Slight	Unsuited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
126D:								
Filer	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Northern red oak	69	57	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
126E:								
Filer	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					Northern red oak	69	57	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
127B:								
Kaleva, deep water table	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					Yellow birch	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
130A:								
Glendora------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness Droughty	Green ash----------	---	---	Northern whitecedar.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Swamp white oak-----	---	---	
					Tamarack----------	---	---	
Algansee------	Slight	Well suited	Slight	High Wetness	Green ash----------	---	---	Northern whitecedar.
					Northern whitecedar	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Swamp white oak-----	---	---	
					Tamarack----------	---	---	
Abscota-------	Slight	Well suited	Slight	Low	Green ash----------	---	---	Eastern white pine, paper birch.
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Silver maple--------	---	---	
					Swamp white oak-----	---	---	
131A:								
Milarch-------	Slight	Well suited	Slight	Low	---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
132A:								
Milnichol-----	Slight	Well suited	Slight	High Wetness	American beech------	56	43	Eastern white pine.
					Balsam fir----------	---	---	
					Black cherry--------	---	---	
					Eastern white pine--	64	129	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	65	43	
Dair----------	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	American basswood---	---	---	Northern whitecedar.
					Balsam fir----------	---	---	
					Northern whitecedar	---	---	
					Quaking aspen-------	60	57	
					Red maple----------	64	43	
135B:								
Nessen--------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
135C:								
Nessen	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
136B:								
Nessen	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					White ash	---	---	
					White oak	---	---	
Kaleva	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					White ash	---	---	
					White oak	---	---	
136C:								
Nessen	Slight	Well suited	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					White ash	---	---	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
136C:								
Kaleva--------	Slight	Well suited	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	80	100	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	63	43	
					Sugar maple---------	64	43	
					White ash----------	---	---	
					White oak----------	---	---	
136D:								
Nessen--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	80	100	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	63	43	
					Sugar maple---------	64	43	
					White ash----------	---	---	
					White oak----------	---	---	
Kaleva--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	80	100	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	63	43	
					Sugar maple---------	64	43	
					White ash----------	---	---	
					White oak----------	---	---	
136E:								
Nessen--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	80	100	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	63	43	
					Sugar maple---------	64	43	
					White ash----------	---	---	
					White oak----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
136E:								
Kaleva	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	80	100	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	63	43	
					Sugar maple	64	43	
					White ash	---	---	
					White oak	---	---	
138D:								
Mollineaux	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Spinks	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
138E:								
Mollineaux----	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
Spinks--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	
139D:								
Mollineaux----	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood---	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech------	---	---	
					Bigtooth aspen------	---	---	
					Black cherry--------	---	---	
					Eastern hemlock-----	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine--	---	---	
					Northern red oak----	---	---	
					Paper birch---------	---	---	
					Quaking aspen-------	---	---	
					Red maple----------	---	---	
					Red pine----------	---	---	
					Sugar maple---------	---	---	
					White ash----------	---	---	
					White oak----------	---	---	

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
139D:								
Remus	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
139E:								
Mollineaux	Slight	Poorly suited Slope	Slight	Moderate Droughty	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
Remus	Slight	Poorly suited Slope	Slight	Low	American basswood	---	---	Eastern white pine, northern red oak, red pine, sugar maple.
					American beech	---	---	
					Bigtooth aspen	---	---	
					Black cherry	---	---	
					Eastern hemlock	---	---	
					Eastern hophornbeam	---	---	
					Eastern white pine	---	---	
					Northern red oak	---	---	
					Paper birch	---	---	
					Quaking aspen	---	---	
					Red maple	---	---	
					Red pine	---	---	
					Sugar maple	---	---	
					White ash	---	---	
					White oak	---	---	
210B:								
Plainfield	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
210C:								
Plainfield	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
210D:								
Plainfield----	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
211B:								
Plainfield, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
212B:								
Plainfield, very deep water table--	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
215B:								
Plainfield, loamy substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
220B:								
Typic Udipsamments	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
220C:								
Typic Udipsamments	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
220D:								
Typic Udipsamments	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
220E:								
Typic Udipsamments	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
220F:								
Typic Udipsamments	Slight	Unsuited Slope	Slight	Low	---	---	---	---
221B:								
Typic Udipsamments, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Udipsamments	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
221C:								
Typic Udipsamments, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Udipsamments	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
221D:								
Typic Udipsamments, banded substratum---	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
Lamellic Udipsamments	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
221E:								
Typic Udipsamments, banded substratum---	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
Lamellic Udipsamments	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
221F:								
Typic Udipsamments, banded substratum---	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
Lamellic Udipsamments	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
222B:								
Typic Udipsamments, very deep water table--	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
222C:								
Typic Udipsamments, very deep water table--	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
223B:								
Lamellic Udipsamments	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Typic Udipsamments, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
223C:								
Lamellic Udipsamments	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Typic Udipsamments, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
224B:								
Oxyaquic Udipsamments	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
225B:								
Typic Udipsamments, loamy substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
225C:								
Typic Udipsamments, loamy substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
225D:								
Typic Udipsamments, loamy substratum---	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
230B:								
Entic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
230C:								
Entic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
230D:								
Entic Haplorthods, sandy--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
230E:								
Entic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
230F:								
Entic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
231B:								
Entic Haplorthods, sandy, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
231C:								
Entic Haplorthods, sandy, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
231D:								
Entic Haplorthods, sandy, banded substratum---	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
231D:								
Lamellic Haplorthods, sandy--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
231E:								
Entic Haplorthods, sandy, banded substratum---	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
232B:								
Entic Haplorthods, sandy, very deep water table--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy, very deep water table--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
233B:								
Lamellic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Entic Haplorthods, sandy, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
233C:								
Lamellic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Entic Haplorthods, sandy, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
233D:								
Lamellic Haplorthods, sandy	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
Entic Haplorthods, sandy, banded substratum	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
233E:								
Lamellic Haplorthods, sandy	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
Entic Haplorthods, sandy, banded substratum	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
234B:								
Oxyaquic Haplorthods, sandy	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
235B:								
Alfic Haplorthods, sandy	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
235C:								
Alfic Haplorthods, sandy	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
235D:								
Alfic Haplorthods, sandy--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
235E:								
Alfic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
235F:								
Alfic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
237B:								
Glossudalfs, fine-loamy---	Slight	Well suited	Slight	Low	---	---	---	---
237C:								
Glossudalfs, fine-loamy---	Slight	Well suited	Slight	Low	---	---	---	---
237D:								
Glossudalfs, fine-loamy---	Slight	Poorly suited Slope	Slight	Low	---	---	---	---
240B:								
Typic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
240C:								
Typic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
240D:								
Typic Haplorthods, sandy--------	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
240E:								
Typic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
240F:								
Typic Haplorthods, sandy--------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
241B:								
Typic Haplorthods, sandy, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy, dark subsoil------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
241C:								
Typic Haplorthods, sandy, banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Lamellic Haplorthods, sandy, dark subsoil------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
242B:								
Typic Haplorthods, sandy, very deep water table--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
243C:								
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
244B:								
Oxyaquic Haplorthods, sandy, dark subsoil------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
245C:								
Typic Haplorthods, sandy, loamy substratum---	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Alfic Haplorthods, sandy, dark subsoil------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
245D:								
Typic Haplorthods, sandy, loamy substratum---	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
Alfic Haplorthods, sandy, dark subsoil------	Slight	Poorly suited Slope	Slight	Moderate Droughty	---	---	---	---
245E:								
Typic Haplorthods, sandy, loamy substratum---	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---
Alfic Haplorthods, sandy, dark subsoil------	Slight	Unsuited Slope	Slight	Moderate Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
246B:								
Alfic Oxyaquic Haplorthods, sandy	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
Typic Haplorthods, sandy, loamy substratum	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
250:								
Typic Psammaquents	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
Aquic Udipsamments	Slight	Well suited	Slight	High Wetness Droughty	---	---	---	---
Haplosaprists, euic	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
252:								
Typic Endoaquods, sandy, wet	Slight	Well suited	Severe Wetness	High Wetness Droughty	---	---	---	---
Haplosaprists, dysic	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
253A:								
Typic Duraquods, sandy, ortstein	Slight	Well suited	Severe Rooting depth	High Wetness	---	---	---	---
Aquic Udipsamments	Slight	Well suited	Slight	High Wetness Droughty	---	---	---	---
255B:								
Aquic Udipsamments	Slight	Well suited	Slight	High Wetness Droughty	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber*	Suggested trees to plant
255B:								
Oxyaquic Haplorthods, sandy--------	Slight	Well suited	Slight	Moderate Droughty	---	---	---	---
257:								
Endoaquolls---	Slight	Poorly suited Wetness	Severe Wetness	High Wetness	---	---	---	---
Haplosaprists, euic---------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
Typic Psammaquents	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
262A:								
Typic Duraquods, sandy, ortstein-----	Slight	Well suited	Severe Rooting depth	High Wetness	---	---	---	---
263B:								
Aquic Udipsamments	Slight	Well suited	Slight	High Wetness Droughty	---	---	---	---
264A:								
Typic Endoaquods, sandy--------	Slight	Well suited	Slight	High Wetness	---	---	---	---
272:								
Typic Endoaquods, sandy, wet---	Slight	Well suited	Severe Wetness	High Wetness Droughty	---	---	---	---
273:								
Typic Psammaquents	Slight	Well suited	Severe Wetness	High Wetness	---	---	---	---
274:								
Typic Epiaquolls, sandy over loamy--------	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---

See footnote at end of table.

Table 7.--Forestland Management and Productivity--Continued

Map symbol and soil name	Erosion hazard	Site preparation	Windthrow hazard	Seedling mortality	Potential productivity: Common trees	Site index	Volume of wood fiber*	Suggested trees to plant
280:								
Aquents	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
Histosols	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
281:								
Haplosaprists, dysic	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---
282:								
Haplosaprists, euic	Slight	Unsuited Wetness	Severe Wetness	High Wetness	---	---	---	---

* Volume is the yield in cubic feet per acre per year at the age of culmination of the mean annual increment for fully stocked stands.

Table 8.--Equipment Limitations on Forestland

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. See text for further explanation of ratings in this table)

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
1. Beaches							
3A: Psamments, moderately wet--	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	---	Well suited	Well suited	Well suited
Beaches.							
5F: Udorthents-------	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	---	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Udipsamments-----	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	---	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
10B: Perrinton--------	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength	Summer, fall, winter	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength
10C: Perrinton--------	Moderately suited: Strength	Moderately suited: Strength Slope	Moderately suited: Strength	Summer, fall, winter	Moderately suited: Strength	Moderately suited: Slope Strength	Moderately suited: Strength
11A: Ithaca----------	Poorly suited: Wetness Strength	Poorly suited: Wetness Strength	Poorly suited: Wetness Strength	Summer, winter	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength
13B: Marlette---------	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
13C: Marlette---------	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
14A: Capac----------	Poorly suited: Wetness	Poorly suited: Wetness Strength	Poorly suited: Wetness Strength	Summer, winter	Well suited	Moderately suited: Strength	Moderately suited: Strength

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
15:							
Parkhill	Poorly suited: Wetness Strength	Poorly suited: Ponding Wetness Strength	Poorly suited: Wetness Strength	Summer, winter	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength
18B:							
Fern	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
18C:							
Fern	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
21B:							
Coloma	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Tatches	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
25:							
Gorvan	Poorly suited: Wetness Flooding	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Strength	Summer, winter	Well suited	Moderately suited: Strength	Moderately suited: Strength
Houghton	Poorly suited: Wetness Flooding	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
Glendora	Poorly suited: Wetness Flooding Sandiness	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
29B:							
Fogg	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
29B:							
Benzonia---------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
29C:							
Fogg----------	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Benzonia---------	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
29D:							
Fogg----------	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
Benzonia---------	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
29E:							
Fogg----------	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Benzonia---------	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
29F:							
Fogg----------	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Benzonia---------	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
32B:							
Fern----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
32C:							
Fern----------	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
36B:							
Fern	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Remus	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
36C:							
Fern	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Remus	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
38B:							
Remus	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
38C:							
Remus	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
38D:							
Remus	Moderately suited: Slope	Moderately suited: Slope	Well suited	Year round	Moderately suited: Slope	Moderately suited: Slope	Well suited
Spinks	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
38E:							
Remus	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Spinks	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
43B:							
Thompsonville	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Year round	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
44A:							
Milnichol	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
47B:							
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Coloma	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
47C:							
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Coloma	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
47D:							
Spinks	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
Coloma	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
47E:							
Spinks	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Coloma	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
47F:							
Spinks	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Coloma	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
52C:							
Copemish	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
52E:							
Copemish	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
53A:							
Saugatuck	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
Jebavy	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
54B:							
Kaleva	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
54C:							
Kaleva	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
54D:							
Kaleva	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
54E:							
Kaleva	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
54F:							
Kaleva	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
55B:							
Brethren	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
57B:							
Grattan	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
57C:							
Grattan	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
57D:							
Grattan	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
57E:							
Grattan	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
57F:							
Grattan	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
58B:							
Covert	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
59B:							
Pipestone	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
60:							
Dair	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
63B:							
Coloma	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
63C:							
Coloma	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
63D:							
Coloma	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
63E:							
Coloma	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
63F:							
Coloma	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
64B:							
Benona	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
64C:							
Benona	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
64D:							
Benona	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
64E:							
Benona	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
64F:							
Benona	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
67B:							
Plainfield	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
67C:							
Plainfield	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
67E:							
Plainfield	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
67F:							
Plainfield	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
73:							
Houghton	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
Adrian	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
81:							
Lumley	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
Makinen	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
83:							
Histosols	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
Aquents	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
86D:							
Dune land.							
Quartzipsamments	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	---	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
86F:							
Dune land.							
Quartzipsamments	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	---	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
88B:							
Udipsamments-----	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	---	Well suited	Well suited	Well suited
91.							
Pits, sand and gravel							
96C:							
Goodharbor-------	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
100A:							
Dair----------	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
Pipestone--------	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
102A:							
Thompsonville----	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Year round	Well suited	Well suited	Well suited
Milnichol--------	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
104B:							
Covert----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Pipestone--------	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
106B:							
Covert	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Dair	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
107B:							
Benzonia	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
107C:							
Benzonia	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
107D:							
Benzonia	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
107E:							
Benzonia	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
107F:							
Benzonia	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
108A:							
Saugatuck	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
109B:							
Shavenaugh	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
109C:							
Shavenaugh	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
109D:							
Shavenaugh	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
109E:							
Shavenaugh	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
109F:							
Shavenaugh	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
110B:							
Healylake	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
111D:							
Onekama	Moderately suited: Slope Strength	Moderately suited: Slope	Well suited	Summer, fall, winter	Moderately suited: Slope Strength	Moderately suited: Slope	Well suited
111E:							
Onekama	Moderately suited: Slope Strength	Poorly suited: Slope	Moderately suited: Slope	Summer, fall, winter	Moderately suited: Slope Strength	Poorly suited: Slope	Moderately suited: Slope
111F:							
Onekama	Poorly suited: Slope Strength	Poorly suited: Slope	Poorly suited: Slope	Summer, fall, winter	Poorly suited: Slope Strength	Poorly suited: Slope	Poorly suited: Slope
114B:							
Nordhouse	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Platteriver	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Dair	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
115B:							
Nordhouse	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
115D:							
Nordhouse	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
115F:							
Nordhouse	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
118B:							
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Shavenaugh	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
118C:							
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Shavenaugh	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
118D:							
Spinks	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
Shavenaugh	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
118E:							
Spinks	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Shavenaugh	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
118F:							
Spinks	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Shavenaugh	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
119:							
Madaus	Poorly suited: Wetness Strength	Poorly suited: Ponding Wetness Strength	Poorly suited: Wetness Strength	Winter	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength
120B:							
Boyer	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
Shavenaugh	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
120C:							
Boyer	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
Shavenaugh	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
120D:							
Boyer	Moderately suited: Slope	Moderately suited: Slope	Well suited	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
Shavenaugh	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
120E:							
Boyer	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Shavenaugh	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
120F:							
Boyer	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Shavenaugh	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
122:							
Dair	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
Adrian	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
123B:							
Platteriver	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Moderately suited: Wetness Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Pipestone	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
125B:							
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Tekenink, sandy substratum	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
125C:							
Spinks	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Tekenink, sandy substratum	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
125D:							
Spinks	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
125D:							
Tekenink, sandy substratum	Moderately suited: Slope	Moderately suited: Slope	Well suited	Year round	Moderately suited: Slope	Moderately suited: Slope	Well suited
125E:							
Spinks	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Tekenink, sandy substratum	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
125F:							
Spinks	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Tekenink, sandy substratum	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
126D:							
Filer	Moderately suited: Slope Strength	Moderately suited: Slope	Well suited	Summer, fall, winter	Moderately suited: Slope Strength	Moderately suited: Slope	Well suited
126E:							
Filer	Moderately suited: Slope Strength	Poorly suited: Slope	Moderately suited: Slope	Summer, fall, winter	Moderately suited: Slope Strength	Poorly suited: Slope	Moderately suited: Slope
127B:							
Kaleva, deep water table	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
130A:							
Glendora	Poorly suited: Wetness Flooding Sandiness	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
Algansee	Poorly suited: Wetness Flooding	Poorly suited: Wetness Flooding	Poorly suited: Wetness	Summer, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
130A:							
Abscota	Moderately suited: Flooding Sandiness	Moderately suited: Flooding Sandiness	Moderately suited: Sandiness	---	Well suited	Well suited	Well suited
131A:							
Milarch	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength	Summer, fall, winter	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength
132A:							
Milnichol	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
Dair	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
135B:							
Nessen	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
135C:							
Nessen	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
136B:							
Nessen	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Kaleva	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
136C:							
Nessen	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Kaleva	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
136D:							
Nessen	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
Kaleva	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
136E:							
Nessen	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Kaleva	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
138D:							
Mollineaux	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
Spinks	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
138E:							
Mollineaux	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Spinks	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
139D:							
Mollineaux	Moderately suited: Slope Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Moderately suited: Slope	Well suited
Remus	Moderately suited: Slope	Moderately suited: Slope	Well suited	Year round	Moderately suited: Slope	Moderately suited: Slope	Well suited
139E:							
Mollineaux	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
139E:							
Remus	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
210B:							
Plainfield	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
210C:							
Plainfield	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
210D:							
Plainfield	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
211B:							
Plainfield, banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Year round	Well suited	Well suited	Well suited
212B:							
Plainfield, very deep water table	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
215B:							
Plainfield, loamy substratum	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
220B:							
Typic Udipsamments	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
220C:							
Typic Udipsamments	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
220D:							
Typic Udipsamments----	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
220E:							
Typic Udipsamments----	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
220F:							
Typic Udipsamments----	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	---	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
221B:							
Typic Udipsamments, banded substratum------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Lamellic Udipsamments----	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
221C:							
Typic Udipsamments, banded substratum------	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Lamellic Udipsamments----	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
221D:							
Typic Udipsamments, banded substratum------	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
221D:							
Lamellic Udipsamments----	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
221E:							
Typic Udipsamments, banded substratum------	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Lamellic Udipsamments----	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
221F:							
Typic Udipsamments, banded substratum------	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Lamellic Udipsamments----	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
222B:							
Typic Udipsamments, very deep water table----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
222C:							
Typic Udipsamments, very deep water table----------	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
223B:							
Lamellic Udipsamments----	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
223B: Typic Udipsamments, banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
223C: Lamellic Udipsamments	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Typic Udipsamments, banded substratum	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
224B: Oxyaquic Udipsamments	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
225B: Typic Udipsamments, loamy substratum	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
225C: Typic Udipsamments, loamy substratum	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
225D: Typic Udipsamments, loamy substratum	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
230B: Entic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
230C: Entic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
230D: Entic Haplorthods, sandy	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
230E: Entic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
230F: Entic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
231B: Entic Haplorthods, sandy, banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Lamellic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
231C: Entic Haplorthods, sandy, banded substratum	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
231C:							
Lamellic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
231D:							
Entic Haplorthods, sandy, banded substratum	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Lamellic Haplorthods, sandy	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
231E:							
Entic Haplorthods, sandy, banded substratum	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Lamellic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
232B:							
Entic Haplorthods, sandy, very deep water table	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Lamellic Haplorthods, sandy, very deep water table	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
233B:							
Lamellic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Entic Haplorthods, sandy, banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
233C:							
Lamellic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Entic Haplorthods, sandy, banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
233D:							
Lamellic Haplorthods, sandy	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Entic Haplorthods, sandy, banded substratum	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
233E:							
Lamellic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
233E:							
Entic Haplorthods, sandy, banded substratum------	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
234B:							
Oxyaquic Haplorthods, sandy----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
235B:							
Alfic Haplorthods, sandy----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Year round	Well suited	Well suited	Well suited
Lamellic Haplorthods, sandy----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
235C:							
Alfic Haplorthods, sandy----------	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Year round	Well suited	Moderately suited: Slope	Well suited
Lamellic Haplorthods, sandy----------	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
235D:							
Alfic Haplorthods, sandy----------	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Lamellic Haplorthods, sandy----------	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
235E:							
Alfic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Lamellic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
235F:							
Alfic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Lamellic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
237B:							
Glossudalfs, fine-loamy	Well suited	Well suited	Well suited	Year round	Well suited	Well suited	Well suited
237C:							
Glossudalfs, fine-loamy	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited
237D:							
Glossudalfs, fine-loamy	Moderately suited: Slope Strength	Poorly suited: Slope	Moderately suited: Slope	Summer, fall, winter	Moderately suited: Slope Strength	Poorly suited: Slope	Moderately suited: Slope
240B:							
Typic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
240C:							
Typic Haplorthods, sandy	Moderately suited: Sandiness	Moderately suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
240D:							
Typic Haplorthods, sandy	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness Slope	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
240E:							
Typic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
240F:							
Typic Haplorthods, sandy	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
241B:							
Typic Haplorthods, sandy, banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Lamellic Haplorthods, sandy, dark subsoil	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
241C:							
Typic Haplorthods, sandy, banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
241C: Lamellic Haplorthods, sandy, dark subsoil	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
242B: Typic Haplorthods, sandy, very deep water table	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
243C: Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
244B: Oxyaquic Haplorthods, sandy, dark subsoil	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
245C: Typic Haplorthods, sandy, loamy substratum	Moderately suited: Sandiness	Moderately suited: Sandiness Slope	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Moderately suited: Slope	Well suited
Alfic Haplorthods, sandy, dark subsoil	Well suited	Moderately suited: Slope	Well suited	Year round	Well suited	Moderately suited: Slope	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
245D:							
Typic Haplorthods, sandy, loamy substratum------	Moderately suited: Slope Sandiness	Poorly suited: Slope Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
Alfic Haplorthods, sandy, dark subsoil---------	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope	Year round	Moderately suited: Slope	Poorly suited: Slope	Moderately suited: Slope
245E:							
Typic Haplorthods, sandy, loamy substratum------	Poorly suited: Slope	Poorly suited: Slope Sandiness	Poorly suited: Slope Sandiness	Spring, fall, winter	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
Alfic Haplorthods, sandy, dark subsoil---------	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope	Year round	Poorly suited: Slope	Poorly suited: Slope	Poorly suited: Slope
246B:							
Alfic Oxyaquic Haplorthods, sandy----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Year round	Well suited	Well suited	Well suited
Typic Haplorthods, sandy, loamy substratum------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
250:							
Typic Psammaquents----	Poorly suited: Wetness Flooding Sandiness	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
250:							
Aquic Udipsamments----	Poorly suited: Wetness Flooding Sandiness	Poorly suited: Flooding Wetness Sandiness	Poorly suited: Wetness Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Haplosaprists, euic----------	Poorly suited: Wetness Flooding	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
252:							
Typic Endoaquods, sandy, wet------	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
Haplosaprists, dysic----------	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
253A:							
Typic Duraquods, sandy, ortstein	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
Aquic Udipsamments----	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
255B:							
Aquic Udipsamments----	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
Oxyaquic Haplorthods, sandy----------	Moderately suited: Sandiness	Moderately suited: Sandiness	Moderately suited: Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
257:							
Endoaquolls------	Poorly suited: Wetness Flooding Strength	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Strength	---	Moderately suited: Strength	Moderately suited: Strength	Moderately suited: Strength
Haplosaprists, euic----------	Poorly suited: Wetness Flooding	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
Typic Psammaquents----	Poorly suited: Wetness Flooding Sandiness	Poorly suited: Ponding Flooding Wetness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
262A:							
Typic Duraquods, sandy, ortstein	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
263B:							
Aquic Udipsamments----	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Spring, fall, winter	Well suited	Well suited	Well suited
264A:							
Typic Endoaquods, sandy----------	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
272:							
Typic Endoaquods, sandy, wet------	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited
273:							
Typic Psammaquents----	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness Sandiness	Poorly suited: Wetness Sandiness	Summer, winter	Well suited	Well suited	Well suited

Table 8.--Equipment Limitations on Forestland--Continued

Map symbol and soil name	Rating class and limiting features for most limiting season(s)			Preferred operating season(s)	Rating class and limiting features for preferred operating season(s)		
	Haul roads	Log landings	Logging areas and skid roads		Haul roads	Log landings	Logging areas and skid roads
274:							
Typic Epiaquolls, sandy over loamy	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Summer, winter	Well suited	Well suited	Well suited
280:							
Aquents----------	Poorly suited: Wetness Sandiness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
Histosols--------	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
281:							
Haplosaprists, dysic----------	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited
282:							
Haplosaprists, euic----------	Poorly suited: Wetness	Poorly suited: Ponding Wetness	Poorly suited: Wetness	Winter	Well suited	Well suited	Well suited

Table 9.--Forestland Plant Communities

(Absence of an entry indicates that information was not available)

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
10B, 10C:				
Perrinton	American basswood	TIAM	poison ivy	TORA2
	northern red oak	QURU	trillium	TRILL
	red maple	ACRU	violet	VIOLA
	sugar maple	ACSA3	elderberry	SAMBU
	white ash	FRAM2	common pricklyash	ZAAM
13B, 13C:				
Marlette	American basswood	TIAM	trillium	TRILL
	northern red oak	QURU	elderberry	SAMBU
	red maple	ACRU	violet	VIOLA
	sugar maple	ACSA3	poison ivy	TORA2
	white ash	FRAM2	common pricklyash	ZAAM
18B, 18C:				
Fern-Spinks	American basswood	TIAM	Canada mayflower	MACA4
	American beech	FAGR	trillium	TRILL
	bigtooth aspen	POGR4	western brackenfern	PTAQ
	eastern hemlock	TSCA	wild leek	ALTR3
	eastern hophornbeam	OSVI	downy yellow violet	VIPU3
	eastern white pine	PIST	bigleaf aster	ASMA2
	northern red oak	QURU	goldenrod	SOLID
	paper birch	BEPA	baneberry	ACTAE
	quaking aspen	POTR5		
	red maple	ACRU		
	red pine	PIRE		
	sugar maple	ACSA3		
21B:				
Coloma-Tatches	American basswood	TIAM	downy yellow violet	VIPU3
	American beech	FAGR	trillium	TRILL
	bigtooth aspen	POGR4	goldenrod	SOLID
	eastern hemlock	TSCA	western brackenfern	PTAQ
	eastern hophornbeam	OSVI	bigleaf aster	ASMA2
	eastern white pine	PIST	wild leek	ALTR3
	northern red oak	QURU	Canada mayflower	MACA4
	quaking aspen	POTR5	baneberry	ACTAE
	red maple	ACRU		
	sugar maple	ACSA3		
25:				
Gorvan-Houghton-Glendora	green ash	FRPE	mint	MENTH
	northern whitecedar	THOC2*	horsetail	EQUIS
	quaking aspen	POTR5	willow	SALIX
	red maple	ACRU	grape	VITIS
	silver maple	ACSA2	poison ivy	TORA2
	tamarack	LALA		

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
29B, 29C, 29D, 29E, 29F:				
Fogg-Benzonia	American beech	FAGR	trout lily	ERAM5
	black cherry	PRSE2	twisted stalk	STAM2
	eastern hophornbeam	OSVI	trillium	TRILL
	eastern white pine	PIST	false Solomon's seal	SMILA
	sugar maple	ACSA3	wintergreen	GAPR2
	white ash	FRAM2	Canada mayflower	MACA4
			sweet cicely	OSCL
			bloodroot	SACA13
			bellwort	UVULA
			Dutchman's breeches	DICU
			springbeauty	CLAYT
			kinnikinnick	ARUV
			jack-in-the-pulpit	ARTR
32B, 32C:				
Fern	American beech	FAGR	bigleaf aster	ASMA2
	eastern hemlock	TSCA	wild leek	ALTR3
	paper birch	BEPA	baneberry	ACTAE
	red pine	PIRE	trillium	TRILL
	sugar maple	ACSA3	goldenrod	SOLID
			western brackenfern	PTAQ
			downy yellow violet	VIPU3
			Canada mayflower	MACA4
36B, 36C:				
Fern-Remus	American beech	FAGR	Canada mayflower	MACA4
	eastern hemlock	TSCA	baneberry	ACTAE
	paper birch	BEPA	wild leek	ALTR3
	red pine	PIRE	bigleaf aster	ASMA2
	sugar maple	ACSA3	western brackenfern	PTAQ
			goldenrod	SOLID
			trillium	TRILL
			downy yellow violet	VIPU3
38B, 38C, 38D, 38E:				
Remus-Spinks	American basswood	TIAM	bigleaf aster	ASMA2
	American beech	FAGR	Canada mayflower	MACA4
	bigtooth aspen	POGR4	baneberry	ACTAE
	black cherry	PRSE2	wild leek	ALTR3
	eastern hemlock	TSCA	downy yellow violet	VIPU3
	eastern hophornbeam	OSVI	western brackenfern	PTAQ
	eastern white pine	PIST	goldenrod	SOLID
	northern red oak	QURU	trillium	TRILL
	quaking aspen	POTR5		
	red maple	ACRU		
	sugar maple	ACSA3		
	white ash	FRAM2		
43B:				
Thompsonville	black cherry	PRSE2	pink lady's slipper	CYAC3
	northern red oak	QURU	bunchberry dogwood	COCA13
	pin cherry	PRPE2	wintergreen	GAPR2
	quaking aspen	POTR5	western brackenfern	PTAQ
	red maple	ACRU	lowbush blueberry	VAAN
	red pine	PIRE		

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
44A:				
Milnichol	American beech	FAGR	partridgeberry	MIRE
	balsam fir	ABBA	bunchberry dogwood	COCA13
	black cherry	PRSE2	western brackenfern	PTAQ
	eastern white pine	PIST	wintergreen	GAPR2
	paper birch	BEPA	Canada mayflower	MACA4
	quaking aspen	POTR5	American starflower	TRBO2
	red maple	ACRU		
47B, 47C, 47D, 47E, 47F:				
Spinks-Coloma	American basswood	TIAM	downy yellow violet	VIPU3
	American beech	FAGR	trillium	TRILL
	bigtooth aspen	POGR4	baneberry	ACTAE
	eastern hemlock	TSCA	goldenrod	SOLID
	eastern hophornbeam	OSVI	bigleaf aster	ASMA2
	eastern white pine	PIST	wild leek	ALTR3
	northern red oak	QURU	Canada mayflower	MACA4
	quaking aspen	POTR5	western brackenfern	PTAQ
	red maple	ACRU		
	sugar maple	ACSA3		
52C, 52E:				
Copemish	balsam fir	ABBA	lowbush blueberry	VAAN
	black cherry	PRSE2	wintergreen	GAPR2
	eastern hemlock	TSCA	western brackenfern	PTAQ
	eastern white pine	PIST	velvetleaf	VAMY
	quaking aspen	POTR5	huckleberry	
	red maple	ACRU	Canada mayflower	MACA4
53A:				
Saugatuck	American beech	FAGR	wild sarsaparilla	ARNU2
	balsam fir	ABBA	wintergreen	GAPR2
	black cherry	PRSE2	Canada mayflower	MACA4
	eastern white pine	PIST	western brackenfern	PTAQ
	paper birch	BEPA	lowbush blueberry	VAAN
	quaking aspen	POTR5	threeleaf goldthread	COTR2
	red maple	ACRU	partridgeberry	MIRE
			American starflower	TRBO2
			serviceberry	AMELA
			mapleleaf viburnum	VIAC
			clubmoss	LYCOP2
			velvetleaf	VAMY
			huckleberry	
			yellow bluebeadlily	CLBO3
			sensitive fern	ONSE
Jebavy	balsam fir	ABBA	sedge	CAREX
	balsam poplar	POBA2	American starflower	TRBO2
	eastern hemlock	TSCA	lowbush blueberry	VAAN
	quaking aspen	POTR5	speckled alder	ALRU3
	red maple	ACRU	willow	SALIX
			marsh marigold	CALTH
			velvetleaf	VAMY
			huckleberry	
			western brackenfern	PTAQ
			Canada mayflower	MACA4
			wintergreen	GAPR2
			wild sarsaparilla	ARNU2
			yellow bluebeadlily	CLBO3
			threeleaf goldthread	COTR2
			partridgeberry	MIRE

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
54B, 54C, 54D, 54E, 54F:				
Kaleva	American basswood	TIAM	trout lily	ERAM5
	American beech	FAGR	spinulose shield fern	DRSP4
	bigtooth aspen	POGR4	western brackenfern	PTAQ
	black cherry	PRSE2	Canada mayflower	MACA4
	eastern hemlock	TSCA	sweet cicely	OSCL
	eastern white pine	PIST	trillium	TRILL
	quaking aspen	POTR5	bloodroot	SACA13
	red maple	ACRU	American starflower	TRBO2
	sugar maple	ACSA3	mapleleaf viburnum	VIAC
	yellow birch	BEAL2		
55B:				
Brethren	American basswood	TIAM	dogwood	CORNU
	black cherry	PRSE2	currant	RIBES
	eastern white pine	PIST	bunchberry dogwood	COCA13
	northern red oak	QURU	western brackenfern	PTAQ
	paper birch	BEPA	wintergreen	GAPR2
	quaking aspen	POTR5	lowbush blueberry	VAAN
	red maple	ACRU		
57B, 57C, 57D, 57E, 57F:				
Grattan	American beech	FAGR	trillium	TRILL
	bigtooth aspen	POGR4	lowbush blueberry	VAAN
	eastern hemlock	TSCA	Canada yew	TACA7
	eastern white pine	PIST	wintergreen	GAPR2
	northern red oak	QURU	sweet cicely	OSCL
	quaking aspen	POTR5	bigleaf aster	ASMA2
	red maple	ACRU	western brackenfern	PTAQ
	sassafras	SAAL5	Canada mayflower	MACA4
	sugar maple	ACSA3	American starflower	TRBO2
	white oak	QUAL	hawthorn	CRATA
			serviceberry	AMELA
58B:				
Covert	black cherry	PRSE2	lowbush blueberry	VAAN
	northern red oak	QURU	western brackenfern	PTAQ
	pin cherry	PRPE2	pink lady's slipper	CYAC3
	quaking aspen	POTR5	bunchberry dogwood	COCA13
	red maple	ACRU	wintergreen	GAPR2
	red pine	PIRE		
59B:				
Pipestone	American beech	FAGR	Canada mayflower	MACA4
	balsam fir	ABBA	wintergreen	GAPR2
	black cherry	PRSE2	bunchberry dogwood	COCA13
	eastern white pine	PIST	partridgeberry	MIRE
	paper birch	BEPA	western brackenfern	PTAQ
	quaking aspen	POTR5	American starflower	TRBO2
	red maple	ACRU		
60:				
Dair	balsam fir	ABBA	blue flag iris	IRVE2
	balsam poplar	POBA2	sensitive fern	ONSE
	black ash	FRNI	speckled alder	ALINR
	eastern hemlock	TSCA	redosier dogwood	COSES
	northern whitecedar	THOC2*	sedge	CAREX
	quaking aspen	POTR5	yellow marsh marigold	CAPA5
	red maple	ACRU		
	yellow birch	BEAL2		

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
63B, 63C, 63D, 63E, 63F:				
Coloma	American basswood	TIAM	western brackenfern	PTAQ
	American beech	FAGR	bigleaf aster	ASMA2
	bigtooth aspen	POGR4	wintergreen	GAPR2
	black oak	QUVE	twistedstalk	STREP3
	eastern hemlock	TSCA	lousewort	PEDIC
	eastern white pine	PIST	serviceberry	AMELA
	jack pine	PIBA2	lowbush blueberry	VAAN
	northern pin oak	QUEL	goldenrod	SOLID
	northern red oak	QURU	Canada mayflower	MACA4
	quaking aspen	POTR5		
	red maple	ACRU		
	red pine	PIRE		
	sassafras	SAAL5		
64B, 64C, 64D, 64E, 64F:				
Benona	American basswood	TIAM	trillium	TRILL
	American beech	FAGR	wild sarsaparilla	ARNU2
	black cherry	PRSE2	trout lily	ERAM5
	eastern hemlock	TSCA	sweet cicely	OSCL
	northern red oak	QURU	western brackenfern	PTAQ
	quaking aspen	POTR5	spinulose shield	DRSP4
	red maple	ACRU	fern	
	red pine	PIRE	ladyfern	ATFI
	sugar maple	ACSA3	Canada mayflower	MACA4
	white ash	FRAM2	baneberry	ACTAE
			currant	RIBES
			twistedstalk	STREP3
67B, 67C, 67E, 67F:				
Plainfield	bigtooth aspen	POGR4	sweet fern	COPE80
	black oak	QUVE	wintergreen	GAPR2
	eastern white pine	PIST	lowbush blueberry	VAAN
	jack pine	PIBA2	sedge	CAREX
	northern pin oak	QUEL	barren strawberry	WAFR
	northern red oak	QURU	western brackenfern	PTAQ
	red maple	ACRU		
	red pine	PIRE		
	sassafras	SAAL5		
	white oak	QUAL		
73:				
Houghton-Adrian	balsam fir	ABBA	rush	JUNCU
	eastern hemlock	TSCA	speckled alder	ALINR
	green ash	FRPE	redosier dogwood	COSES
	northern whitecedar	THOC2*	jack-in-the-pulpit	ARTR
	paper birch	BEPA	horsetail	EQUIS
	quaking aspen	POTR5	willow	SALIX
	red maple	ACRU	goldthread	COTR2
	silver maple	ACSA2	blue flag iris	IRVE2
	tamarack	LALA	sedge	CAREX
			cattail	TYPHA
81:				
Lumley-Makinen	balsam fir	ABBA	leatherleaf	CHAMA5
	black spruce	PIMA	bog Labrador tea	LEGR
	green ash	FRPE	sphagnum moss	SPHAG*
	paper birch	BEPA		
	red maple	ACRU		
	tamarack	LALA		

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
96C:				
Goodharbor	American beech	FAGR	kinnikinnick	ARUV
	eastern hemlock	TSCA	lowbush blueberry	VAAN
	eastern white pine	PIST	wintergreen	GAPR2
	northern red oak	QURU		
	paper birch	BEPA		
	red maple	ACRU		
100A:				
Dair	balsam fir	ABBA	yellow marsh marigold	CAPA5
	balsam poplar	POBA2		
	black ash	FRNI	redosier dogwood	COSES
	eastern hemlock	TSCA	blue flag iris	IRVE2
	northern whitecedar	THOC2*	sensitive fern	ONSE
	quaking aspen	POTR5	sedge	CAREX
	red maple	ACRU	speckled alder	ALINR
	yellow birch	BEAL2		
Pipestone	American beech	FAGR	Canada mayflower	MACA4
	balsam fir	ABBA	bunchberry dogwood	COCA13
	black cherry	PRSE2	wintergreen	GAPR2
	eastern white pine	PIST	partridgeberry	MIRE
	paper birch	BEPA	western brackenfern	PTAQ
	quaking aspen	POTR5	American starflower	TRBO2
	red maple	ACRU		
102A:				
Thompsonville	black cherry	PRSE2	western brackenfern	PTAQ
	northern red oak	QURU	wintergreen	GAPR2
	pin cherry	PRPE2	pink lady's slipper	CYAC3
	quaking aspen	POTR5	bunchberry dogwood	COCA13
	red maple	ACRU	lowbush blueberry	VAAN
	red pine	PIRE		
Milnichol	American beech	FAGR	wintergreen	GAPR2
	balsam fir	ABBA	Canada mayflower	MACA4
	black cherry	PRSE2	American starflower	TRBO2
	eastern white pine	PIST	bunchberry dogwood	COCA13
	paper birch	BEPA	western brackenfern	PTAQ
	quaking aspen	POTR5	partridgeberry	MIRE
	red maple	ACRU		
104B:				
Covert	black cherry	PRSE2	pink lady's slipper	CYAC3
	northern red oak	QURU	lowbush blueberry	VAAN
	pin cherry	PRPE2	western brackenfern	PTAQ
	quaking aspen	POTR5	wintergreen	GAPR2
	red maple	ACRU	bunchberry dogwood	COCA13
	red pine	PIRE		
Pipestone	American beech	FAGR	western brackenfern	PTAQ
	balsam fir	ABBA	partridgeberry	MIRE
	black cherry	PRSE2	American starflower	TRBO2
	eastern white pine	PIST	Canada mayflower	MACA4
	paper birch	BEPA	bunchberry dogwood	COCA13
	quaking aspen	POTR5	wintergreen	GAPR2
	red maple	ACRU		

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
106B:				
Covert	black cherry	PRSE2	lowbush blueberry	VAAN
	northern red oak	QURU	bunchberry dogwood	COCA13
	pin cherry	PRPE2	pink lady's slipper	CYAC3
	quaking aspen	POTR5	wintergreen	GAPR2
	red maple	ACRU	western brackenfern	PTAQ
	red pine	PIRE		
Dair	balsam fir	ABBA	speckled alder	ALINR
	balsam poplar	POBA2	sedge	CAREX
	black ash	FRNI	redosier dogwood	COSES
	eastern hemlock	TSCA	blue flag iris	IRVE2
	northern whitecedar	THOC2*	sensitive fern	ONSE
	quaking aspen	POTR5	yellow marsh	CAPA5
	red maple	ACRU	marigold	
	yellow birch	BEAL2		
107B, 107C, 107D, 107E, 107F:				
Benzonia	American beech	FAGR	Dutchman's breeches	DICU
	bigtooth aspen	POGR4	wild leek	ALTR3
	black cherry	PRSE2	springbeauty	CLAYT
	eastern hemlock	TSCA	bloodroot	SACA13
	eastern hophornbeam	OSVI	twistedstalk	STREP3
	eastern white pine	PIST	bellwort	UVULA
	jack pine	PIBA2	trout lily	ERAM5
	red maple	ACRU	western brackenfern	PTAQ
	sugar maple	ACSA3	trillium	TRILL
	white ash	FRAM2	Canada mayflower	MACA4
			serviceberry	AMELA
108A:				
Saugatuck	balsam fir	ABBA	mapleleaf viburnum	VIAC
	black cherry	PRSE2	Canada mayflower	MACA4
	eastern hemlock	TSCA	partridgeberry	MIRE
	eastern white pine	PIST	serviceberry	AMELA
	northern whitecedar	THOC2*	wild sarsaparilla	ARNU2
	paper birch	BEPA	yellow bluebeadlily	CLBO3
	quaking aspen	POTR5	threeleaf goldthread	COTR2
	red maple	ACRU	wintergreen	GAPR2
			western brackenfern	PTAQ
			American starflower	TRBO2
			lowbush blueberry	VAAN
			velvetleaf	VAMY
			huckleberry	
			clubmoss	LYCOP2
			sensitive fern	ONSE
109B, 109C, 109D, 109E, 109F:				
Shavenaugh	American basswood	TIAM	trout lily	ERAM5
	American beech	FAGR	rattlesnake fern	BOVI
	bigtooth aspen	POGR4	springbeauty	CLAYT
	black cherry	PRSE2	wild leek	ALTR3
	eastern hemlock	TSCA	trillium	TRILL
	eastern hophornbeam	OSVI	bloodroot	SACA13
	eastern white pine	PIST	hepatica	HEPAT
	quaking aspen	POTR5	sweet cicely	OSCL
	red maple	ACRU	blue cohosh	CATH2
	sugar maple	ACSA3	western brackenfern	PTAQ
	white ash	FRAM2	common ladyfern	ATFI
	white oak	QUAL	mapleleaf viburnum	VIAC
			Dutchman's breeches	DICU

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
110B:				
Healylake	eastern hemlock	TSCA	vaccinium	VACCI
	jack pine	PIBA2	wintergreen	GAPR2
	paper birch	BEPA	Canada mayflower	MACA4
	quaking aspen	POTR5	western brackenfern	PTAQ
	red maple	ACRU		
	red pine	PIRE		
111D, 111E, 111F:				
Onekama	American basswood	TIAM	elderberry	SAMBU
	northern red oak	QURU	poison ivy	TORA2
	red maple	ACRU	trillium	TRILL
	sugar maple	ACSA3	violet	VIOLA
	white ash	FRAM2	common pricklyash	ZAAM
114B:				
Nordhouse	American beech	FAGR	blueberry	VACCI
	bigtooth aspen	POGR4	twistedstalk	STREP3
	black oak	QUVE	sweet cicely	OSCL
	eastern hemlock	TSCA	mapleleaf viburnum	VIAC
	eastern white pine	PIST	Canada yew	TACA7
	jack pine	PIBA2	Canada mayflower	MACA4
	northern red oak	QURU		
	paper birch	BEPA		
	quaking aspen	POTR5		
	red maple	ACRU		
Platteriver	American beech	FAGR	kinnikinnick	ARUV
	bigtooth aspen	POGR4	lowbush blueberry	VAAN
	black oak	QUVE	western brackenfern	PTAQ
	eastern hemlock	TSCA	wintergreen	GAPR2
	eastern white pine	PIST	pink lady's slipper	CYAC3
	jack pine	PIBA2	bunchberry dogwood	COCA13
	northern red oak	QURU		
	paper birch	BEPA		
	quaking aspen	POTR5		
	red maple	ACRU		
Dair	American basswood	TIAM	blue flag iris	IRVE2
	balsam fir	ABBA	redosier dogwood	COSES
	northern whitecedar	THOC2*	sensitive fern	ONSE
	quaking aspen	POTR5	speckled alder	ALINR
	red maple	ACRU	yellow marsh marigold	CAPA5
			sedge	CAREX
115B, 115D, 115F:				
Nordhouse	American beech	FAGR	twistedstalk	STREP3
	eastern hemlock	TSCA	mapleleaf viburnum	VIAC
	eastern white pine	PIST	Canada yew	TACA7
	northern red oak	QURU	Canada mayflower	MACA4
	paper birch	BEPA	blueberry	VACCI
	red maple	ACRU	sweet cicely	OSCL

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
118B, 118C, 118D, 118E, 118F:				
Spinks-Shavenaugh------	American basswood	TIAM	sweet cicely	OSCL
	American beech	FAGR	blackberry	RUBUS
	bigtooth aspen	POGR4	baneberry	ACTAE
	black cherry	PRSE2	bigleaf aster	ASMA2
	eastern hemlock	TSCA	western brackenfern	PTAQ
	eastern hophornbeam	OSVI	mapleleaf viburnum	VIAC
	eastern white pine	PIST	bloodroot	SACA13
	northern red oak	QURU	hepatica	HEPAT
	quaking aspen	POTR5	trout lily	ERAM5
	red maple	ACRU	Dutchman's breeches	DICU
	sugar maple	ACSA3	springbeauty	CLAYT
	white ash	FRAM2	blue cohosh	CATH2
	white oak	QUAL	rattlesnake fern	BOVI
			common ladyfern	ATFI
			wild leek	ALTR3
			downy yellow violet	VIPU3
			trillium	TRILL
			Canada mayflower	MACA4
			goldenrod	SOLID
119:				
Madaus----------	northern whitecedar	THOC2*	jack-in-the-pulpit	ARTR
	quaking aspen	POTR5	sedge	CAREX
	red maple	ACRU	dogwood	CORNU
			common elderberry	SANIC4
			poison sumac	TOVE
120B, 120C, 120D, 120E, 120F:				
Boyer-Shavenaugh-------	American basswood	TIAM	common ladyfern	ATFI
	American beech	FAGR	rattlesnake fern	BOVI
	American elm	ULAM	blue cohosh	CATH2
	bigtooth aspen	POGR4	springbeauty	CLAYT
	black cherry	PRSE2	Dutchman's breeches	DICU
	black oak	QUVE	trout lily	ERAM5
	eastern hophornbeam	OSVI	hepatica	HEPAT
	eastern white pine	PIST	sweet cicely	OSCL
	northern red oak	QURU	western brackenfern	PTAQ
	quaking aspen	POTR5	bloodroot	SACA13
	red maple	ACRU	trillium	TRILL
	sugar maple	ACSA3	mapleleaf viburnum	VIAC
	white ash	FRAM2	wild leek	ALTR3
	white oak	QUAL		
122:				
Dair-Adrian----------	balsam fir	ABBA	blue flag iris	IRVE2
	balsam poplar	POBA2	speckled alder	ALINR
	black ash	FRNI	yellow marsh marigold	CAPA5
	eastern hemlock	TSCA		
	green ash	FRPE	sedge	CAREX
	northern whitecedar	THOC2*	redosier dogwood	COSES
	paper birch	BEPA	cattail	TYPHA
	quaking aspen	POTR5	willow	SALIX
	red maple	ACRU	rush	JUNCU
	silver maple	ACSA2	horsetail	EQUIS
	tamarack	LALA	goldthread	COTR2
	yellow birch	BEAL2	jack-in-the-pulpit	ARTR
			sensitive fern	ONSE

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
123B:				
Platteriver	bigtooth aspen	POGR4	bunchberry dogwood	COCA13
	black oak	QUVE	pink lady's slipper	CYAC3
	jack pine	PIBA2	western brackenfern	PTAQ
	quaking aspen	POTR5	wintergreen	GAPR2
	red maple	ACRU	kinnikinnick	ARUV
			lowbush blueberry	VAAN
Pipestone	American beech	FAGR	Canada mayflower	MACA4
	balsam fir	ABBA	bunchberry dogwood	COCA13
	black cherry	PRSE2	wintergreen	GAPR2
	eastern white pine	PIST	partridgeberry	MIRE
	paper birch	BEPA	western brackenfern	PTAQ
	quaking aspen	POTR5	American starflower	TRBO2
	red maple	ACRU		
125B, 125C, 125D, 125E, 125F:				
Spinks-Tekenink, sandy substratum	American basswood	TIAM	Canada mayflower	MACA4
	American beech	FAGR	western brackenfern	PTAQ
	bigtooth aspen	POGR4	wild leek	ALTR3
	black cherry	PRSE2	bigleaf aster	ASMA2
	eastern hemlock	TSCA	trillium	TRILL
	eastern hophornbeam	OSVI	downy yellow violet	VIPU3
	eastern white pine	PIST	baneberry	ACTAE
	northern red oak	QURU	goldenrod	SOLID
	quaking aspen	POTR5		
	red maple	ACRU		
	sugar maple	ACSA3		
	white ash	FRAM2		
126D, 126E:				
Filer	American basswood	TIAM	common pricklyash	ZAAM
	northern red oak	QURU	violet	VIOLA
	red maple	ACRU	trillium	TRILL
	sugar maple	ACSA3	poison ivy	TORA2
	white ash	FRAM2	elderberry	SAMBU
127B:				
Kaleva, deep water table	American basswood	TIAM	bloodroot	SACA13
	American beech	FAGR	American starflower	TRBO2
	bigtooth aspen	POGR4	sweet cicely	OSCL
	black cherry	PRSE2	Canada mayflower	MACA4
	eastern hemlock	TSCA	trout lily	ERAM5
	eastern white pine	PIST	spinulose shield fern	DRSP4
	quaking aspen	POTR5		
	red maple	ACRU	western brackenfern	PTAQ
	sugar maple	ACSA3	trillium	TRILL
	yellow birch	BEAL2	mapleleaf viburnum	VIAC
130A:				
Glendora	green ash	FRPE	speckled alder	ALINR
	northern whitecedar	THOC2*	hawthorn	CRATA
	quaking aspen	POTR5	horsetail	EQUIS
	red maple	ACRU	mint	MENTH
	silver maple	ACSA2	willow	SALIX
	swamp white oak	QUBI	poison ivy	TORA2
	tamarack	LALA	grape	VITIS
			sensitive fern	ONSE

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
130A:				
Algansee	green ash	FRPE	horsetail	EQUIS
	northern whitecedar	THOC2*	poison ivy	TORA2
	quaking aspen	POTR5	grape	VITIS
	red maple	ACRU	speckled alder	ALINR
	silver maple	ACSA2	western brackenfern	PTAQ
	swamp white oak	QUBI	hawthorn	CRATA
	tamarack	LALA	willow	SALIX
			mint	MENTH
Abscota	green ash	FRPE	western brackenfern	PTAQ
	quaking aspen	POTR5	hawthorn	CRATA
	red maple	ACRU	grape	VITIS
	silver maple	ACSA2	poison ivy	TORA2
	swamp white oak	QUBI	willow	SALIX
			horsetail	EQUIS
132A:				
Milnichol	American beech	FAGR	American starflower	TRBO2
	balsam fir	ABBA	western brackenfern	PTAQ
	black cherry	PRSE2	partridgeberry	MIRE
	eastern white pine	PIST	wintergreen	GAPR2
	paper birch	BEPA	bunchberry dogwood	COCA13
	quaking aspen	POTR5	Canada mayflower	MACA4
	red maple	ACRU		
Dair	American basswood	TIAM	sensitive fern	ONSE
	balsam fir	ABBA	blue flag iris	IRVE2
	northern whitecedar	THOC2*	redosier dogwood	COSES
	quaking aspen	POTR5	sedge	CAREX
	red maple	ACRU	yellow marsh marigold	CAPA5
			speckled alder	ALINR
135B, 135C:				
Nessen	American basswood	TIAM	trillium	TRILL
	American beech	FAGR	bloodroot	SACA13
	bigtooth aspen	POGR4	mapleleaf viburnum	VIAC
	black cherry	PRSE2	sweet cicely	OSCL
	eastern hemlock	TSCA	hepatica	HEPAT
	eastern hophornbeam	OSVI	trout lily	ERAM5
	eastern white pine	PIST	Dutchman's breeches	DICU
	quaking aspen	POTR5	springbeauty	CLAYT
	red maple	ACRU	blue cohosh	CATH2
	sugar maple	ACSA3	rattlesnake fern	BOVI
	white ash	FRAM2	common ladyfern	ATFI
	white oak	QUAL	wild leek	ALTR3

Table 9.--Forestland Plant Communities--Continued

Map symbol and soil name	Common trees	Symbol	Characteristic vegetation	Symbol
136B, 136C, 136D, 136E:				
Nessen-Kaleva----------	American basswood	TIAM	American starflower	TRBO2
	American beech	FAGR	trillium	TRILL
	bigtooth aspen	POGR4	western brackenfern	PTAQ
	black cherry	PRSE2	Canada mayflower	MACA4
	eastern hemlock	TSCA	sweet cicely	OSCL
	eastern hophornbeam	OSVI	trout lily	ERAM5
	eastern white pine	PIST	spinulose shield fern	DRSP4
	paper birch	BEPA		
	quaking aspen	POTR5	mapleleaf viburnum	VIAC
	red maple	ACRU	bloodroot	SACA13
	sugar maple	ACSA3	hepatica	HEPAT
	white ash	FRAM2	Dutchman's breeches	DICU
	white oak	QUAL	springbeauty	CLAYT
			blue cohosh	CATH2
			rattlesnake fern	BOVI
			common ladyfern	ATFI
			wild leek	ALTR3
138D, 138E:				
Mollineaux-Spinks-------	American basswood	TIAM	Canada mayflower	MACA4
	American beech	FAGR	baneberry	ACTAE
	bigtooth aspen	POGR4	wild leek	ALTR3
	black cherry	PRSE2	bigleaf aster	ASMA2
	eastern hemlock	TSCA	western brackenfern	PTAQ
	eastern hophornbeam	OSVI	goldenrod	SOLID
	eastern white pine	PIST	trillium	TRILL
	northern red oak	QURU	downy yellow violet	VIPU3
	paper birch	BEPA		
	quaking aspen	POTR5		
	red maple	ACRU		
	red pine	PIRE		
	sugar maple	ACSA3		
	white ash	FRAM2		
	white oak	QUAL		
139D, 139E:				
Mollineaux-Remus--------	American basswood	TIAM	downy yellow violet	VIPU3
	American beech	FAGR	trillium	TRILL
	bigtooth aspen	POGR4	goldenrod	SOLID
	black cherry	PRSE2	western brackenfern	PTAQ
	eastern hemlock	TSCA	bigleaf aster	ASMA2
	eastern hophornbeam	OSVI	wild leek	ALTR3
	eastern white pine	PIST	baneberry	ACTAE
	northern red oak	QURU	Canada mayflower	MACA4
	paper birch	BEPA		
	quaking aspen	POTR5		
	red maple	ACRU		
	red pine	PIRE		
	sugar maple	ACSA3		
	white ash	FRAM2		
	white oak	QUAL		

Table 10.--Windbreaks and Environmental Plantings

(The map units in the Huron-Manistee National Forest are not listed. 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
1. Beaches					
3A. Psamments, moderately wet-Beaches					
5F. Udorthents-Udipsamments					
10B: Perrinton	---	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine	---
10C: Perrinton	---	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine	---
11A: Ithaca	Silky dogwood	American cranberrybush, northern whitecedar	White spruce	Eastern white pine, green ash, red maple	---
13B: Marlette	---	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine	---
13C: Marlette	---	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine	---
14A: Capac	---	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine, green ash, red maple	---

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
15:					
Parkhill	Common ninebark	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine, green ash	---
18B:					
Fern	---	American cranberrybush, nannyberry	White spruce	Eastern white pine	---
Spinks	---	American cranberrybush, nannyberry	White spruce	Eastern white pine	---
18C:					
Fern	---	American cranberrybush, nannyberry	White spruce	Eastern white pine	---
Spinks	---	American cranberrybush, nannyberry	White spruce	Eastern white pine	---
21B:					
Coloma	---	American cranberrybush, nannyberry	White spruce	Eastern white pine	---
Tatches	---	American cranberrybush, nannyberry	White spruce	Eastern white pine	---
25:					
Gorvan	Common ninebark	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine, green ash	---
Houghton	Common ninebark	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine, green ash	---
Glendora	Common ninebark	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine, green ash	---

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
29B:					
Fogg	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Benzonia	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
29C:					
Fogg	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Benzonia	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
29D:					
Fogg	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Benzonia	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
29E:					
Fogg	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Benzonia	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
29F:					
Fogg	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Benzonia	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
32B:					
Fern	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
32C:					
Fern	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
36B:					
Fern	---	American cranberrybush, nannyberry	Northern red oak, white spruce	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
36B:					
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
36C:					
Fern	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
38B:					
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
38C:					
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
38D:					
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
38E:					
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	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
38E:					
Spinks	---	American cranberrybush, nannyberry, northern whitecedar	Northern red oak, white spruce	Eastern white pine	---
43B:					
Thompsonville	---	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine, green ash, red maple	---
44A:					
Milnichol	---	American cranberrybush, nannyberry, northern whitecedar	White spruce	Eastern white pine, green ash, red maple	---
47B:					
Spinks	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Coloma	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
47C:					
Spinks	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Coloma	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
47D:					
Spinks	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Coloma	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
47E:					
Spinks	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Coloma	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, 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
47F:					
Spinks	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
Coloma	Silver buffaloberry, sumac	Common serviceberry, eastern redcedar	Red pine, eastern white pine	---	---
52C:					
Copemish	Silver buffaloberry, sumac	Common serviceberry, jack pine	Red pine, eastern white pine	---	---
52E:					
Copemish	Silver buffaloberry, sumac	Common serviceberry, jack pine	Red pine, eastern white pine	---	---
53A:					
Saugatuck	Silky dogwood	American cranberrybush, nannyberry	White spruce	Eastern white pine	---
Jebavy	Common elderberry, redosier dogwood	---	---	---	---
54B:					
Kaleva	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
54C:					
Kaleva	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
54D:					
Kaleva	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
54E:					
Kaleva	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, 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
54F:					
Kaleva	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
55B:					
Brethren	Common lilac	---	Jack pine, red pine	Eastern white pine	---
57B:					
Grattan	Common lilac	---	---	Eastern white pine, red pine	---
57C:					
Grattan	Common lilac	---	---	Eastern white pine, red pine	---
57D:					
Grattan	Common lilac	---	---	Eastern white pine, red pine	---
57E:					
Grattan	Common lilac	---	---	Eastern white pine, red pine	---
57F:					
Grattan	Common lilac	---	---	Eastern white pine, red pine	---
58B:					
Covert	Common lilac	---	Jack pine, red pine	Eastern white pine	---
59B:					
Pipestone	Silky dogwood	---	Northern whitecedar, white spruce	Eastern white pine, green ash, red maple	---
60:					
Dair	---	Common elderberry	Northern whitecedar, redosier dogwood	Green ash, red maple	---
63B:					
Coloma	---	American cranberrybush, common lilac, serviceberry	---	Eastern white pine, jack pine, red 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
63C:					
Coloma	---	American cranberrybush, common lilac, serviceberry	---	Eastern white pine, jack pine, red pine	---
63D:					
Coloma	---	American cranberrybush, common lilac, serviceberry	---	Eastern white pine, jack pine, red pine	---
63E:					
Coloma	---	American cranberrybush, common lilac, serviceberry	---	Eastern white pine, jack pine, red pine	---
63F:					
Coloma	Serviceberry	American cranberrybush, common lilac	---	Eastern white pine, jack pine, red pine	---
64B:					
Benona	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
64C:					
Benona	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
64D:					
Benona	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
64E:					
Benona	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
64F:					
Benona	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
67B:					
Plainfield	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
67C:					
Plainfield	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
67E:					
Plainfield	---	Serviceberry	Jack pine, red pine	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
67F:					
Plainfield	---	Serviceberry	Jack pine, red pine	Eastern white pine	---
73:					
Houghton	Common ninebark	Nannyberry	Northern whitecedar	Green ash, eastern white pine	---
Adrian	Common ninebark	Nannyberry	Northern whitecedar	Green ash, eastern white pine	---
81. Lumley-Makinen					
83. Histosols and Aquents					
86D, 86F. Dune land-Quartzipsamments					
88B. Udipsamments					
91. Pits, sand and gravel					
96C:					
Goodharbor	Common lilac	---	Jack pine, red pine	Eastern white pine	---
100A:					
Dair	---	Common ninebark	Northern whitecedar, white spruce	Eastern white pine, green ash, red maple	---
Pipestone	---	---	White spruce	Eastern white pine, green ash, red maple	---
102A:					
Thompsonville	---	---	White spruce	Eastern white pine, green ash, red maple	---
Milnichol	---	Elderberry	White spruce	Eastern white pine, green ash, red maple	---

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
104B:					
Covert	---	---	White spruce	Eastern white pine, green ash, red maple	---
Pipestone	---	---	White spruce	Eastern white pine, green ash, red maple	---
106B:					
Covert	---	---	White spruce	Eastern white pine, green ash, red maple	---
Dair	---	Common ninebark	Northern whitecedar, white spruce	Eastern white pine, green ash, red maple	---
107B:					
Benzonia	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
107C:					
Benzonia	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
107D:					
Benzonia	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
107E:					
Benzonia	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, eastern white pine	---	---
107F:					
Benzonia	Common lilac, silver buffaloberry, smooth sumac, staghorn sumac	---	Jack pine, red pine, 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
108A:					
Saugatuck	---	---	White spruce	Green ash, eastern white pine	---
109B:					
Shavenaugh	Common lilac	---	White spruce, jack pine, red pine	Eastern white pine	---
109C:					
Shavenaugh	Common lilac	---	White spruce, jack pine, red pine	Eastern white pine	---
109D:					
Shavenaugh	Common lilac	---	White spruce, jack pine, red pine	Eastern white pine	---
109E:					
Shavenaugh	Common lilac	---	White spruce, jack pine, red pine	Eastern white pine	---
109F:					
Shavenaugh	Common lilac	---	White spruce, jack pine, red pine	Eastern white pine	---
110B:					
Healylake	Common lilac	---	White spruce, jack pine, red pine	Eastern white pine	---
111D:					
Onekama	---	---	White spruce	Green ash, eastern white pine	---
111E:					
Onekama	---	---	White spruce	Green ash, eastern white pine	---
111F:					
Onekama	---	---	White spruce	Green ash, eastern white pine	---
114B:					
Nordhouse	---	---	Jack pine, red pine	Eastern white pine	---
Platteriver	---	---	Jack pine, red pine	Eastern white pine	---
Dair.					

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
115B:					
Nordhouse	Common juniper	---	Jack pine, red pine	Eastern white pine	---
115D:					
Nordhouse	Common juniper	---	Jack pine, red pine	Eastern white pine	---
115F:					
Nordhouse	Common juniper	---	Jack pine, red pine	Eastern white pine	---
118B:					
Spinks	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
118C:					
Spinks	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
118D:					
Spinks	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
118E:					
Spinks	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
118F:					
Spinks	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
119:					
Madaus	Common ninebark	---	Black willow	---	---

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
120B:					
Boyer	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
120C:					
Boyer	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
120D:					
Boyer	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
120E:					
Boyer	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
120F:					
Boyer	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Shavenaugh	---	---	White spruce, jack pine, red pine	Eastern white pine	---
122:					
Dair	---	Common ninebark	Northern whitecedar	Green ash, red maple	---
Adrian	---	Common ninebark	Northern whitecedar, white spruce	Eastern white pine, green ash, red maple	---
123B:					
Platteriver	---	---	Jack pine, red pine	Eastern white pine	---
Pipestone	---	---	White spruce	Eastern white pine, green ash, red maple	---

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
125B:					
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Tekenink, sandy substratum	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
125C:					
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Tekenink, sandy substratum	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
125D:					
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Tekenink, sandy substratum	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
125E:					
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Tekenink, sandy substratum	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
125F:					
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	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
125F:					
Tekenink, sandy substratum	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
126D:					
Filer	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
126E:					
Filer	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
127B:					
Kaleva, deep water table	Common lilac, smooth sumac	---	Jack pine, red pine, eastern white pine	---	---
130A:					
Glendora	---	Common ninebark	Northern whitecedar	Green ash, red maple	---
Algansee	---	Common ninebark	Northern whitecedar	Green ash, red maple	---
Abscota	---	Common ninebark	Northern whitecedar	Green ash, red maple	---
131A:					
Milarch	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
132A:					
Milnichol	---	---	White spruce	Eastern white pine, green ash, red maple	---
Dair	---	Common ninebark	Northern whitecedar	Green ash, red maple	---
135B:					
Nessen	---	---	White spruce, jack pine, red pine	Eastern white pine	---
135C:					
Nessen	---	---	White spruce, jack pine, red pine	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
136B:					
Nessen	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Kaleva	---	---	White spruce, jack pine, red pine	Eastern white pine	---
136C:					
Nessen	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Kaleva	---	---	White spruce, jack pine, red pine	Eastern white pine	---
136D:					
Nessen	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Kaleva	---	---	White spruce, jack pine, red pine	Eastern white pine	---
136E:					
Nessen	---	---	White spruce, jack pine, red pine	Eastern white pine	---
Kaleva	---	---	White spruce, jack pine, red pine	Eastern white pine	---
138D:					
Mollineaux	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
138E:					
Mollineaux	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Spinks	---	American cranberrybush, nannyberry	Northern red oak, white spruce	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
139D:					
Mollineaux	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
139E:					
Mollineaux	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---
Remus	---	American cranberrybush, nannyberry	Northern red oak, white spruce	Eastern white pine	---

Table 11a.--Recreational 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 limitation. "Not rated" indicates that information is not available or that no rating is applicable. 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
1:						
Beaches	Not rated		Not rated		Not rated	
3A:						
Psamments, moderately wet	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
Beaches	Not rated		Not rated		Not rated	
5F:						
Udorthents	Not rated		Not rated		Not rated	
Udipsamments	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
10B:						
Perrinton	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
					Slope	0.50
10C:						
Perrinton	Somewhat limited		Somewhat limited		Very limited	
	Restricted permeability	0.96	Restricted permeability	0.96	Slope	1.00
	Slope	0.04	Slope	0.04	Restricted permeability	0.96
11A:						
Ithaca	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
13B:						
Marlette	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
	Restricted permeability	0.01	Restricted permeability	0.01	Slope	0.12
					Restricted permeability	0.01
13C:						
Marlette	Somewhat limited		Somewhat limited		Very limited	
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.39
	Restricted permeability	0.01	Restricted permeability	0.01	Restricted permeability	0.01

Table 11a.--Recreational Development--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
14A:						
Capac	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
15:						
Parkhill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
18B:						
Fern	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Restricted permeability	0.26	Depth to saturated zone	0.39
	Restricted permeability	0.26	Depth to saturated zone	0.19	Restricted permeability	0.26
					Slope	0.12
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
18C:						
Fern	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Depth to saturated zone	0.39	Restricted permeability	0.26	Too sandy	1.00
	Restricted permeability	0.26	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Restricted permeability	0.26
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
21B:						
Coloma	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Tatches	Not limited		Not limited		Somewhat limited	
					Slope	0.12
25:						
Gorvan	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	Ponding	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26

Table 11a.--Recreational Development--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
25:						
Houghton	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	Content of organic matter	1.00	Content of organic matter	1.00
Glendora	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
29B:						
Fogg	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Benzonia	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
29C:						
Fogg	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
Benzonia	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
29D:						
Fogg	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
Benzonia	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
29E:						
Fogg	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
29F:						
Fogg	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00

Table 11a.--Recreational Development--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
32B:						
Fern	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Restricted permeability	0.26	Depth to saturated zone	0.39
	Restricted permeability	0.26	Depth to saturated zone	0.19	Restricted permeability	0.26
					Slope	0.12
32C:						
Fern	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Depth to saturated zone	0.39	Restricted permeability	0.26	Too sandy	1.00
	Restricted permeability	0.26	Depth to saturated zone	0.19	Depth to saturated zone	0.39
	Slope	0.04	Slope	0.04	Restricted permeability	0.26
36B:						
Fern	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Restricted permeability	0.26	Depth to saturated zone	0.39
	Restricted permeability	0.26	Depth to saturated zone	0.19	Restricted permeability	0.26
					Slope	0.12
Remus	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.01	Restricted permeability	0.01	Slope	0.12
					Restricted permeability	0.01
36C:						
Fern	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Depth to saturated zone	0.39	Restricted permeability	0.26	Too sandy	1.00
	Restricted permeability	0.26	Depth to saturated zone	0.19	Depth to saturated zone	0.39
	Slope	0.04	Slope	0.04	Restricted permeability	0.26
Remus	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
	Restricted permeability	0.01	Restricted permeability	0.01	Restricted permeability	0.01
38B:						
Remus	Somewhat limited		Somewhat limited		Somewhat limited	
	Restricted permeability	0.01	Restricted permeability	0.01	Slope	0.12
					Restricted permeability	0.01
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12

Table 11a.--Recreational Development--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
38C:						
Remus	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
	Restricted permeability	0.01	Restricted permeability	0.01	Restricted permeability	0.01
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
38D:						
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.01	Restricted permeability	0.01	Restricted permeability	0.01
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
38E:						
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.01	Restricted permeability	0.01	Restricted permeability	0.01
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
43B:						
Thompsonville	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
					Slope	0.12
44A:						
Milnichol	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
47B:						
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Coloma	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
47C:						
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
Coloma	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00

Table 11a.--Recreational Development--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
47D:						
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
Coloma	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
47E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
47F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
52C:						
Copemish	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Too sandy	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to cemented pan	1.00	Too sandy	1.00
					Slope	1.00
52E:						
Copemish	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
53A:						
Saugatuck	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to cemented pan	1.00	Too sandy	1.00
Jebavy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to cemented pan	1.00	Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 11a.--Recreational Development--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
54B:						
Kaleva	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
54C:						
Kaleva	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
54D:						
Kaleva	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
54E:						
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
54F:						
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
55B:						
Brethren	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
57B:						
Grattan	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
57C:						
Grattan	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
57D:						
Grattan	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
57E:						
Grattan	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
57F:						
Grattan	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00

Table 11a.--Recreational Development--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
58B:						
Covert	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Slope	0.12
59B:						
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
60:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
63B:						
Coloma	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
63C:						
Coloma	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
63D:						
Coloma	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
63E:						
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
63F:						
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
64B:						
Benona	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
64C:						
Benona	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
64D:						
Benona	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00

Table 11a.--Recreational Development--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
64E:						
Benona	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
64F:						
Benona	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
67B:						
Plainfield	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
67C:						
Plainfield	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
67E:						
Plainfield	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
67F:						
Plainfield	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
73:						
Houghton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
Adrian	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
81:						
Lumley	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Makinen	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too acid	1.00	Too acid	1.00	Too acid	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 11a.--Recreational Development--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
83:						
Histosols	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Gravel content	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Too sandy	1.00	Content of organic matter	1.00	Too sandy	1.00
			Gravel content	1.00	Ponding	1.00
Aquents	Not rated		Not rated		Not rated	
86D:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
86F:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
88B:						
Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
91:						
Pits, sand and gravel	Not rated		Not rated		Not rated	
96C:						
Goodharbor	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	1.00
100A:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
102A:						
Thompsonville	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98

Table 11a.--Recreational Development--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
102A:						
Milnichol	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
104B:						
Covert	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Slope	0.12
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
106B:						
Covert	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Slope	0.12
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
107B:						
Benzonia	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
107C:						
Benzonia	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
107D:						
Benzonia	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
107E:						
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
107F:						
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00

Table 11a.--Recreational Development--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
108A:						
Saugatuck	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Depth to cemented pan	1.00	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to cemented pan	1.00	Too sandy	1.00
109B:						
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
109C:						
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
109D:						
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
109E:						
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
109F:						
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
110B:						
Healylake	Very limited		Very limited		Very limited	
	Depth to cemented pan	1.00	Too sandy	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to cemented pan	1.00	Too sandy	1.00
	Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
					Slope	0.12
111D:						
Onekama	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
111E:						
Onekama	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
111F:						
Onekama	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

Table 11a.--Recreational Development--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
114B:						
Nordhouse	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Platteriver	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
115B:						
Nordhouse	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
115D:						
Nordhouse	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
115F:						
Nordhouse	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
118B:						
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
118C:						
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
118D:						
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00

Table 11a.--Recreational Development--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
118E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
118F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
119:						
Madaus	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Restricted permeability	0.96	Restricted permeability	0.96	Restricted permeability	0.96
120B:						
Boyer	Not limited		Not limited		Somewhat limited	
					Gravel content	0.22
					Slope	0.12
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
120C:						
Boyer	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
					Gravel content	0.22
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
120D:						
Boyer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.22
Shavenaugh	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
120E:						
Boyer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.22

Table 11a.--Recreational Development--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
120E:						
Shavenaugh----------	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
120F:						
Boyer----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.22
Shavenaugh----------	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
122:						
Dair----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Adrian----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00		
	Too sandy	1.00			Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
123B:						
Platteriver---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	0.98	Depth to saturated zone	0.75	Depth to saturated zone	0.98
Pipestone----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
			Depth to saturated zone	1.00		
	Too sandy	1.00			Too sandy	1.00
125B:						
Spinks----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Tekenink, sandy substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
125C:						
Spinks----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
Tekenink, sandy substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00

Table 11a.--Recreational Development--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
125D:						
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
125E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
125F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
126D:						
Filer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
126E:						
Filer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
127B:						
Kaleva, deep water table	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
130A:						
Glendora	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00

Table 11a.--Recreational Development--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
130A:						
Algansee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00			Flooding	0.60
Abscota	Very limited		Very limited		Very limited	
	Flooding	1.00	Too sandy	1.00	Too sandy	1.00
	Too sandy	1.00			Flooding	0.60
131A:						
Milarch	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.39	Restricted permeability	0.26	Depth to saturated zone	0.39
	Restricted permeability	0.26	Depth to saturated zone	0.19	Restricted permeability	0.26
132A:						
Milnichol	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
135B:						
Nessen	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
135C:						
Nessen	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
136B:						
Nessen	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Kaleva	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
136C:						
Nessen	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00
Kaleva	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Too sandy	1.00

Table 11a.--Recreational Development--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
136D:						
Nessen	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
Kaleva	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
136E:						
Nessen	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
138D:						
Mollineaux	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
Spinks	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
138E:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
139D:						
Mollineaux	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.01	Restricted permeability	0.01	Restricted permeability	0.01
139E:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26

Table 11a.--Recreational Development--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
139E:						
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Restricted permeability	0.01	Restricted permeability	0.01	Restricted permeability	0.01
210B:						
Plainfield	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
210C:						
Plainfield	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
210D:						
Plainfield	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
211B:						
Plainfield, banded substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
212B:						
Plainfield, very deep water table	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
215B:						
Plainfield, loamy substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
220B:						
Typic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
220C:						
Typic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
220D:						
Typic Udipsamments	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
220E:						
Typic Udipsamments	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00

Table 11a.--Recreational Development--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
220F:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
221B:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
221C:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
221D:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
221E:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
			Slope	1.00		
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00				
221F:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00

Table 11a.--Recreational Development--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
222B:						
Typic Udipsamments, very deep water table	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
222C:						
Typic Udipsamments, very deep water table	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	0.12
223B:						
Lamellic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Typic Udipsamments, banded substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
223C:						
Lamellic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
Typic Udipsamments, banded substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	0.12
224B:						
Oxyaquic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
225B:						
Typic Udipsamments, loamy substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
225C:						
Typic Udipsamments, loamy substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
225D:						
Typic Udipsamments, loamy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00

Table 11a.--Recreational Development--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
230B:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
230C:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
230D:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
230E:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
230F:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
231B:						
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
231C:						
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
231D:						
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00

Table 11a.--Recreational Development--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
231D:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
231E:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
232B:						
Entic Haplorthods, sandy, very deep water table--------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Lamellic Haplorthods, sandy, very deep water table----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
233B:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
233C:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
233D:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00

Table 11a.--Recreational Development--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
233D:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
233E:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
234B:						
Oxyaquic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
235B:						
Alfic Haplorthods, sandy----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
235C:						
Alfic Haplorthods, sandy----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
235D:						
Alfic Haplorthods, sandy----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00

Table 11a.--Recreational Development--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
235E:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
235F:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Too sandy	1.00
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
237B:						
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63	Slope	0.12
237C:						
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
237D:						
Glossudalfs, fine-loamy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
240B:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
240C:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
240D:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Slope	1.00
240E:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Slope	1.00

Table 11a.--Recreational Development--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
240F:						
Typic Haplorthods, sandy----------	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Slope	1.00
241B:						
Typic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Lamellic Haplorthods, sandy, dark subsoil-------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
241C:						
Typic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63	Slope	0.63	Too sandy	1.00
Lamellic Haplorthods, sandy, dark subsoil-------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63				
242B:						
Typic Haplorthods, sandy, very deep water table--------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
243C:						
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.63				
244B:						
Oxyaquic Haplorthods, sandy, dark subsoil-------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
245C:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00

Table 11a.--Recreational Development--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
245C:						
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Slope	1.00
245D:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
245E:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Slope	1.00	Too sandy	1.00	Slope	1.00
	Too sandy	1.00	Slope	1.00	Too sandy	1.00
246B:						
Alfic Oxyaquic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
250:						
Typic Psammaquents--	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	Ponding	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
Aquic Udipsamments--	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	Too sandy	1.00	Too sandy	1.00
	Too sandy	1.00				
Haplosaprists, euic	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	Ponding	1.00	Flooding	1.00

Table 11a.--Recreational Development--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
252:						
Typic Endoaquods, sandy, wet---------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Haplosaprists, dysic	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Ponding	1.00	Too sandy	1.00
253A:						
Typic Duraquods, sandy, ortstein----	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 cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
255B:						
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Oxyaquic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
257:						
Endoaquolls---------	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	Ponding	1.00	Flooding	1.00
	Ponding	1.00	Flooding	0.40	Ponding	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
Haplosaprists, euic	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	Ponding	1.00	Flooding	1.00
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Ponding	1.00	Flooding	1.00
			Flooding	1.00	Ponding	1.00

Table 11a.--Recreational Development--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
262A:						
Typic Duraquods, sandy, ortstein	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 cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
263B:						
Aquic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
264A:						
Typic Endoaquods, sandy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
272:						
Typic Endoaquods, sandy, wet	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
273:						
Typic Psammaquents	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
274:						
Typic Epiaquolls, sandy over loamy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Restricted permeability	0.26	Restricted permeability	0.26	Restricted permeability	0.26
280:						
Aquents	Not rated		Not rated		Not rated	
Histosols	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Too sandy	1.00	Gravel content	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Too sandy	1.00	Content of organic matter	1.00	Too sandy	1.00
			Gravel content	1.00	Ponding	1.00

Table 11a.--Recreational Development--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
281:						
Haplosaprists, dysic	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Ponding	1.00	Too sandy	1.00
282:						
Haplosaprists, euic	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

Table 11b.--Recreational 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 limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1:				
Beaches	Not rated		Not rated	
3A:				
Psamments, moderately wet	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.67
			Depth to saturated zone	0.19
Beaches	Not rated		Not rated	
5F:				
Udorthents	Not rated		Not rated	
Udipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
10B:				
Perrinton	Not limited		Not limited	
10C:				
Perrinton	Not limited		Somewhat limited	
			Slope	0.04
11A:				
Ithaca	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
13B:				
Marlette	Not limited		Somewhat limited	
			Depth to saturated zone	0.19
13C:				
Marlette	Not limited		Somewhat limited	
			Depth to saturated zone	0.19
			Slope	0.04
14A:				
Capac	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
15:				
Parkhill	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
18B:				
Fern	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Depth to saturated zone	0.19
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
18C:				
Fern	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Depth to saturated zone	0.19
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
			Slope	0.04
21B:				
Coloma	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.90
			Too sandy	0.50
Tatches	Not limited		Somewhat limited	
			Droughty	0.04
25:				
Gorvan	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	0.40	Ponding	1.00
Houghton	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Content of organic matter	1.00	Content of organic matter	1.00
			Depth to saturated zone	1.00
Glendora	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
	Flooding	0.40	Droughty	0.45
29B:				
Fogg	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.20
Benzonia	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.65
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
29C:				
Fogg	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.20
			Slope	0.04
Benzonia	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.65
			Too sandy	0.50
			Slope	0.04
29D:				
Fogg	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Too sandy	0.50
			Droughty	0.20
Benzonia	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.65
			Too sandy	0.50
29E:				
Fogg	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Too sandy	0.50
			Droughty	0.20
Benzonia	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.65
			Too sandy	0.50
29F:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.20
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.65
			Too sandy	0.50
32B:				
Fern	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Depth to saturated zone	0.19
32C:				
Fern	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Depth to saturated zone	0.19
			Slope	0.04

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
36B:				
Fern	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Depth to saturated zone	0.19
Remus	Not limited		Not limited	
36C:				
Fern	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Depth to saturated zone	0.19
			Slope	0.04
Remus	Not limited		Somewhat limited	
			Slope	0.04
38B:				
Remus	Not limited		Not limited	
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
38C:				
Remus	Not limited		Somewhat limited	
			Slope	0.04
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
			Slope	0.04
38D:				
Remus	Not limited		Very limited	
			Slope	1.00
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.69
			Too sandy	0.50
38E:				
Remus	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.69
			Too sandy	0.50
43B:				
Thompsonville	Very limited		Somewhat limited	
	Too sandy	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	0.44	Droughty	0.34

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
44A:				
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.43
47B:				
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
Coloma	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.90
			Too sandy	0.50
47C:				
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
			Slope	0.04
Coloma	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.90
			Too sandy	0.50
			Slope	0.04
47D:				
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.69
			Too sandy	0.50
Coloma	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.90
			Too sandy	0.50
47E:				
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.69
			Too sandy	0.50
Coloma	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.90
			Too sandy	0.50
47F:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.90
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
52C:				
Copemish	Very limited		Very limited	
	Too sandy	1.00	Depth to cemented pan	1.00
			Droughty	1.00
			Too sandy	0.50
52E:				
Copemish	Very limited		Very limited	
	Too sandy	1.00	Depth to cemented pan	1.00
	Slope	0.98	Droughty	1.00
			Slope	1.00
			Too sandy	0.50
53A:				
Saugatuck	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
			Droughty	1.00
			Too sandy	0.50
Jebavy	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Droughty	1.00
			Ponding	1.00
			Too sandy	0.50
54B:				
Kaleva	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
54C:				
Kaleva	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
			Slope	0.04
54D:				
Kaleva	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.69
			Too sandy	0.50
54E:				
Kaleva	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.69
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
54F:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
55B:				
Brethren	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.80
			Too sandy	0.50
57B:				
Grattan	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.79
			Too sandy	0.50
57C:				
Grattan	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.79
			Too sandy	0.50
			Slope	0.04
57D:				
Grattan	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.79
			Too sandy	0.50
57E:				
Grattan	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.79
			Too sandy	0.50
57F:				
Grattan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.79
			Too sandy	0.50
58B:				
Covert	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.79
			Too sandy	0.50
			Depth to saturated zone	0.19
59B:				
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.60
			Too sandy	0.50
60:				
Dair	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
63B:				
Coloma	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.90
			Too sandy	0.50
63C:				
Coloma	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.90
			Too sandy	0.50
			Slope	0.04
63D:				
Coloma	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.90
			Too sandy	0.50
63E:				
Coloma	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.90
			Too sandy	0.50
63F:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.90
			Too sandy	0.50
64B:				
Benona	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.67
			Too sandy	0.50
64C:				
Benona	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.67
			Too sandy	0.50
			Slope	0.04
64D:				
Benona	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.67
			Too sandy	0.50
64E:				
Benona	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.67
			Too sandy	0.50
64F:				
Benona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.67
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
67B:				
Plainfield----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.97
			Too sandy	0.50
67C:				
Plainfield----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.97
			Too sandy	0.50
			Slope	0.04
67E:				
Plainfield----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.68	Droughty	0.97
			Too sandy	0.50
67F:				
Plainfield----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.97
			Too sandy	0.50
73:				
Houghton----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Depth to saturated zone	1.00
			Ponding	1.00
Adrian----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Ponding	1.00
	Ponding	1.00		
81:				
Lumley----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Makinen----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Too acid	1.00
	Ponding	1.00	Ponding	1.00
83:				
Histosols----------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Gravel content	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
Aquents----------	Not rated		Not rated	

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
86D:				
Dune land	Not rated		Not rated	
Quartzipsamments	Very limited		Very limited	
	Too sandy	1.00	Droughty	1.00
			Slope	0.63
			Too sandy	0.50
86F:				
Dune land	Not rated		Not rated	
Quartzipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	1.00
			Too sandy	0.50
88B:				
Udipsamments	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
91:				
Pits, sand and gravel	Not rated		Not rated	
96C:				
Goodharbor	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.91
			Too sandy	0.50
100A:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.60
			Too sandy	0.50
102A:				
Thompsonville	Very limited		Somewhat limited	
	Too sandy	1.00	Depth to saturated zone	0.75
	Depth to saturated zone	0.44	Droughty	0.34
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.43
104B:				
Covert	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.79
			Too sandy	0.50
			Depth to saturated zone	0.19

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
104B:				
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.60
			Too sandy	0.50
106B:				
Covert	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.79
			Too sandy	0.50
			Depth to saturated zone	0.19
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
107B:				
Benzonia	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.65
			Too sandy	0.50
107C:				
Benzonia	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.65
			Too sandy	0.50
			Slope	0.04
107D:				
Benzonia	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.65
			Too sandy	0.50
107E:				
Benzonia	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.65
			Too sandy	0.50
107F:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.65
			Too sandy	0.50
108A:				
Saugatuck	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
			Droughty	1.00
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
109B:				
Shavenaugh----------	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
109C:				
Shavenaugh----------	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
			Slope	0.04
109D:				
Shavenaugh----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Too sandy	0.50
			Droughty	0.13
109E:				
Shavenaugh----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Too sandy	0.50
			Droughty	0.13
109F:				
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
110B:				
Healylake----------	Very limited		Very limited	
	Too sandy	1.00	Depth to cemented pan	1.00
			Droughty	1.00
			Too sandy	0.50
			Depth to saturated zone	0.19
111D:				
Onekama----------	Not limited		Very limited	
			Slope	1.00
111E:				
Onekama----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
111F:				
Onekama----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
114B:				
Nordhouse----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.67
			Too sandy	0.50
Platteriver---------	Very limited		Very limited	
	Too sandy	1.00	Droughty	0.87
	Depth to saturated zone	0.44	Depth to saturated zone	0.75

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
114B:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
115B:				
Nordhouse	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.67
			Too sandy	0.50
115D:				
Nordhouse	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.67
			Slope	0.63
			Too sandy	0.50
115F:				
Nordhouse	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.67
			Too sandy	0.50
118B:				
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
Shavenaugh	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
118C:				
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
			Slope	0.04
Shavenaugh	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
			Slope	0.04
118D:				
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.69
			Too sandy	0.50
Shavenaugh	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Too sandy	0.50
			Droughty	0.13
118E:				
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.69
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
118E:				
Shavenaugh----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Too sandy	0.50
			Droughty	0.13
118F:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
119:				
Madaus----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Carbonate content	1.00
			Ponding	1.00
120B:				
Boyer----------	Not limited		Not limited	
Shavenaugh----------	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
120C:				
Boyer----------	Not limited		Somewhat limited	
			Slope	0.04
Shavenaugh----------	Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
			Slope	0.04
120D:				
Boyer----------	Not limited		Very limited	
			Slope	1.00
Shavenaugh----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Too sandy	0.50
			Droughty	0.13
120E:				
Boyer----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Shavenaugh----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Too sandy	0.50
			Droughty	0.13

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
120F:				
Boyer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Too sandy	0.50
			Droughty	0.13
122:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Adrian	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Ponding	1.00
	Ponding	1.00		
123B:				
Platteriver	Very limited		Very limited	
	Too sandy	1.00	Droughty	0.87
	Depth to saturated zone	0.44	Depth to saturated zone	0.75
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.60
			Too sandy	0.50
125B:				
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
Tekenink, sandy substratum	Very limited		Not limited	
	Too sandy	1.00		
125C:				
Spinks	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
			Slope	0.04
Tekenink, sandy substratum	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.04
125D:				
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.69
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
125D:				
Tekenink, sandy substratum	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
125E:				
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.69
			Too sandy	0.50
Tekenink, sandy substratum	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00		
125F:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
Tekenink, sandy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Too sandy	1.00		
126D:				
Filer	Not limited		Very limited	
			Slope	1.00
126E:				
Filer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
127B:				
Kaleva, deep water table	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
130A:				
Glendora	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Depth to saturated zone	1.00
	Too sandy	1.00		
	Ponding	1.00	Ponding	1.00
	Flooding	0.40	Droughty	0.45
Algansee	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.75
			Flooding	0.60
Abscota	Very limited		Somewhat limited	
	Too sandy	1.00	Flooding	0.60
			Droughty	0.02

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
131A:				
Milarch	Not limited		Somewhat limited	
			Depth to saturated zone	0.19
132A:				
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.43
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
135B:				
Nessen	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.68
			Too sandy	0.50
135C:				
Nessen	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.68
			Too sandy	0.50
			Slope	0.04
136B:				
Nessen	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.68
			Too sandy	0.50
Kaleva	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
136C:				
Nessen	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.68
			Too sandy	0.50
			Slope	0.04
Kaleva	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.69
			Too sandy	0.50
			Slope	0.04
136D:				
Nessen	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.68
			Too sandy	0.50
Kaleva	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.69
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
136E:				
Nessen	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.68
			Too sandy	0.50
Kaleva	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.69
			Too sandy	0.50
138D:				
Mollineaux	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.15
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.69
			Too sandy	0.50
138E:				
Mollineaux	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.15
Spinks	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.69
			Too sandy	0.50
139D:				
Mollineaux	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
			Droughty	0.15
Remus	Not limited		Very limited	
			Slope	1.00
139E:				
Mollineaux	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.15
Remus	Very limited		Very limited	
	Slope	1.00	Slope	1.00
210B:				
Plainfield	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.97
			Too sandy	0.50
210C:				
Plainfield	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.97
			Slope	0.63
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
210D:				
Plainfield----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.97
			Too sandy	0.50
211B:				
Plainfield, banded substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.92
212B:				
Plainfield, very deep water table---	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.71
215B:				
Plainfield, loamy substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.93
220B:				
Typic Udipsamments--	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.71
220C:				
Typic Udipsamments--	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.71
			Slope	0.63
220D:				
Typic Udipsamments--	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.71
220E:				
Typic Udipsamments--	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.71
220F:				
Typic Udipsamments--	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.71
221B:				
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.82
Lamellic Udipsamments-------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.57
221C:				
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.82
			Slope	0.63

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
221C:				
Lamellic Udipsamments-------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.57
			Slope	0.63
221D:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.82
Lamellic Udipsamments-------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.57
221E:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.82
Lamellic Udipsamments-------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.57
221F:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.82
Lamellic Udipsamments-------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.57
222B:				
Typic Udipsamments, very deep water table----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.76
222C:				
Typic Udipsamments, very deep water table----------	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.76
223B:				
Lamellic Udipsamments-------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.57
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.82

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
223C:				
Lamellic Udipsamments-------	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.57
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.57
224B:				
Oxyaquic Udipsamments-------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.82
225B:				
Typic Udipsamments, loamy substratum---	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.78
225C:				
Typic Udipsamments, loamy substratum---	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.78
			Slope	0.63
225D:				
Typic Udipsamments, loamy substratum---	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.78
230B:				
Entic Haplorthods, sandy----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.85
230C:				
Entic Haplorthods, sandy----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.78
			Slope	0.63
230D:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.85
230E:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.85
230F:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.85

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
231B:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.92
Lamellic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.23
231C:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.92
			Slope	0.63
Lamellic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.23
231D:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.92
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.23
231E:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.92
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.23
232B:				
Entic Haplorthods, sandy, very deep water table--------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.91
Lamellic Haplorthods, sandy, very deep water table----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.11
233B:				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.23

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
233B:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.92
233C:				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.23
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.92
			Slope	0.63
233D:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.23
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.92
233E:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.23
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.92
234B:				
Oxyaquic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.82
			Too sandy	0.50
235B:				
Alfic Haplorthods, sandy----------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.45
Lamellic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.23

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
235C:				
Alfic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.45
Lamellic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.23
235D:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.45
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.23
235E:				
Alfic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.45
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.23
235F:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.45
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.23
237B:				
Glossudalfs, fine-loamy	Not rated		Not rated	
237C:				
Glossudalfs, fine-loamy	Not rated		Somewhat limited	
			Slope	0.63
237D:				
Glossudalfs, fine-loamy	Somewhat limited		Very limited	
	Slope	0.98	Slope	1.00

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
240B:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Droughty	1.00
240C:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Droughty	1.00
			Slope	0.63
240D:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Droughty	1.00
	Slope	0.98	Slope	1.00
240E:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Droughty	1.00
	Slope	1.00	Slope	1.00
240F:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Too sandy	1.00	Droughty	1.00
	Slope	1.00	Slope	1.00
241B:				
Typic Haplorthods, sandy, banded substratum	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.79
Lamellic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.18
241C:				
Typic Haplorthods, sandy, banded substratum	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.79
			Slope	0.63
Lamellic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.63
			Slope	0.18
242B:				
Typic Haplorthods, sandy, very deep water table	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.92

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
243C:				
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
			Droughty	0.09
244B:				
Oxyaquic Haplorthods, sandy, dark subsoil-------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.75
245C:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.83
			Slope	0.63
Alfic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited	
	Too sandy	1.00	Slope	0.63
245D:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98	Droughty	0.83
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	0.98		
245E:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00	Droughty	0.83
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Too sandy	1.00	Slope	1.00
	Slope	1.00		
246B:				
Alfic Oxyaquic Haplorthods, sandy	Very limited		Somewhat limited	
	Slope	1.00	Droughty	0.35
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Somewhat limited	
	Slope	1.00	Droughty	0.83

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
250:				
Typic Psammaquents--	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	0.40	Ponding	1.00
			Droughty	0.06
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Flooding	1.00
			Droughty	0.70
Haplosaprists, euic	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00
252:				
Typic Endoaquods, sandy, wet---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Ponding	1.00
	Ponding	1.00	Droughty	0.71
			Too sandy	0.50
Haplosaprists, dysic	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
	Ponding	1.00		
253A:				
Typic Duraquods, sandy, ortstein----	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
			Droughty	1.00
			Too sandy	0.50
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Flooding	1.00
			Droughty	0.70
255B:				
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Flooding	1.00
			Droughty	0.70

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
255B:				
Oxyaquic Haplorthods, sandy	Very limited		Somewhat limited	
	Too sandy	1.00	Droughty	0.82
			Too sandy	0.50
257:				
Endoaquolls---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Depth to saturated zone	1.00
	Ponding	1.00		
	Flooding	0.40	Ponding	1.00
Haplosaprists, euic	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00
Typic Psammaquents--	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Depth to saturated zone	1.00
	Ponding	1.00		
	Flooding	0.40	Ponding	1.00
			Droughty	0.06
262A:				
Typic Duraquods, sandy, ortstein----	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
			Droughty	1.00
			Too sandy	0.50
263B:				
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Flooding	1.00
			Droughty	0.70
264A:				
Typic Endoaquods, sandy----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Droughty	0.64
			Too sandy	0.50
272:				
Typic Endoaquods, sandy, wet---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Ponding	1.00
	Ponding	1.00	Droughty	0.71
			Too sandy	0.50

Table 11b.--Recreational Development--Continued

Map symbol and soil name	Paths and trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value
273:				
Typic Psammaquents--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Droughty	0.06
274:				
Typic Epiaquolls, sandy over loamy---	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Ponding	1.00
	Ponding	1.00		
280:				
Aquents----------	Not rated		Not rated	
Histosols----------	Very limited		Very limited	
	Gravel content	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Gravel content	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
	Ponding	1.00		
281:				
Haplosaprists, dysic	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Too sandy	1.00	Depth to saturated zone	1.00
	Ponding	1.00		
282:				
Haplosaprists, euic	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Ponding	1.00	Ponding	1.00
			Depth to saturated zone	1.00

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							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
1. Beaches										
3A: Psamments, moderately wet	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Beaches.										
5F: Udorthents	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Udipsamments	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
10B: Perrinton	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
10C: Perrinton	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
11A: Ithaca	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
13B: Marlette	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
13C: Marlette	Good	Good	Good	Good	Good	Very poor.	Very poor.	Good	Very poor.	Very poor.
14A: Capac	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
15: Parkhill	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
18B: Fern	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Spinks	Fair	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
18C: Fern	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Spinks	Fair	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
21B: Coloma	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Tatches	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	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
25:										
Gorvan	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Houghton	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Glendora	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
29B:										
Fogg	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Benzonia	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
29C:										
Fogg	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Benzonia	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
29D:										
Fogg	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Benzonia	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
29E:										
Fogg	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Benzonia	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
29F:										
Fogg	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Benzonia	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
32B:										
Fern	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
32C:										
Fern	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
36B:										
Fern	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Remus	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
36C:										
Fern	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Remus	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
38B:										
Remus	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Spinks	Fair	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
38C:										
Remus	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Spinks	Fair	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
38D:										
Remus	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Spinks	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
38E:										
Remus	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Spinks	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
43B:										
Thompsonville	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
44A:										
Milnichol	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
47B:										
Spinks	Fair	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Coloma	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
47C:										
Spinks	Fair	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Coloma	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
47D:										
Spinks	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Coloma	Poor	Poor	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
47E:										
Spinks	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Coloma	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	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
47F:										
Spinks	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Coloma	Very poor.	Very poor.	Poor	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
52C:										
Copemish	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
52E:										
Copemish	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
53A:										
Saugatuck	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Jebavy	Very poor.	Poor	Fair	Fair	Fair	Good	Good	Poor	Fair	Good.
54B:										
Kaleva	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
54C:										
Kaleva	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
54D:										
Kaleva	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
54E:										
Kaleva	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
54F:										
Kaleva	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
55B:										
Brethren	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
57B:										
Grattan	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
57C:										
Grattan	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
57D:										
Grattan	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
57E:										
Grattan	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	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
57F:										
Grattan	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
58B:										
Covert	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
59B:										
Pipestone	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
60:										
Dair	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
63B:										
Coloma	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
63C:										
Coloma	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
63D:										
Coloma	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
63E:										
Coloma	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
63F:										
Coloma	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
64B:										
Benona	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
64C:										
Benona	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
64D:										
Benona	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
64E:										
Benona	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
64F:										
Benona	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
67B:										
Plainfield	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
67C:										
Plainfield	Poor	Poor	Poor	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
67E:										
Plainfield	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
67F:										
Plainfield	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
73:										
Houghton	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Adrian	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
81:										
Lumley	Very poor.	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
Makinen	Very poor.	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
83:										
Histosols	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Aquents	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
86D:										
Dune land	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Quartzipsamments	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
86F:										
Dune land	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Quartzipsamments	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
88B:										
Udipsamments	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
91. Pits, sand and gravel										
96C:										
Goodharbor	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
100A:										
Dair	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Pipestone	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.

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
102A:										
Thompsonville	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Milnichol	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
104B:										
Covert	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Pipestone	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
106B:										
Covert	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Dair	Very poor.	Poor	Poor	Fair	Fair	Good	Good	Poor	Fair	Good.
107B:										
Benzonia	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
107C:										
Benzonia	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
107D:										
Benzonia	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
107E:										
Benzonia	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
107F:										
Benzonia	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
108A:										
Saugatuck	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
109B:										
Shavenaugh	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
109C:										
Shavenaugh	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
109D:										
Shavenaugh	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
109E:										
Shavenaugh	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
109F:										
Shavenaugh	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
110B:										
Healylake	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	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
111D:										
Onekama	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
111E:										
Onekama	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
111F:										
Onekama	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
114B:										
Nordhouse	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Platteriver	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Dair	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
115B:										
Nordhouse	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
115D:										
Nordhouse	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
115F:										
Nordhouse	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
118B:										
Spinks	Fair	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Shavenaugh	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
118C:										
Spinks	Fair	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Shavenaugh	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
118D:										
Spinks	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Shavenaugh	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
118E:										
Spinks	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Shavenaugh	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	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
118F:										
Spinks	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Shavenaugh	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
119:										
Madaus	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
120B:										
Boyer	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Shavenaugh	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
120C:										
Boyer	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Shavenaugh	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
120D:										
Boyer	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Shavenaugh	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
120E:										
Boyer	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Shavenaugh	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
120F:										
Boyer	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Shavenaugh	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
122:										
Dair	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Adrian	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
123B:										
Platteriver	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Pipestone	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
125B:										
Spinks	Fair	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Tekenink, sandy substratum	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	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
125C:										
Spinks	Fair	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tekenink, sandy substratum	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
125D:										
Spinks	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tekenink, sandy substratum	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
125E:										
Spinks	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Tekenink, sandy substratum	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
125F:										
Spinks	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Tekenink, sandy substratum	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
126D:										
Filer	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
126E:										
Filer	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
127B:										
Kaleva, deep water table	Poor	Poor	Poor	Fair	Fair	Poor	Poor	Poor	Fair	Poor.
130A:										
Glendora	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Algansee	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Abscota	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
131A:										
Milarch	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
132A:										
Milnichol	Poor	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Dair	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.

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
135B:										
Nessen	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
135C:										
Nessen	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
136B:										
Nessen	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Kaleva	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
136C:										
Nessen	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Kaleva	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
136D:										
Nessen	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Kaleva	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
136E:										
Nessen	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Kaleva	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
138D:										
Mollineaux	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Spinks	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
138E:										
Mollineaux	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Spinks	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
139D:										
Mollineaux	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Remus	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
139E:										
Mollineaux	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Remus	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	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
210B:										
Plainfield	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
210C:										
Plainfield	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
210D:										
Plainfield	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
211B:										
Plainfield, banded substratum	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
212B:										
Plainfield, very deep water table	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
215B:										
Plainfield, loamy substratum	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
220B:										
Typic Udipsamments	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
220C:										
Typic Udipsamments	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
220D:										
Typic Udipsamments	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
220E:										
Typic Udipsamments	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
220F:										
Typic Udipsamments	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
221B:										
Typic Udipsamments, banded substratum	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Lamellic Udipsamments	Poor	Poor	Poor	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
221C:										
Typic Udipsamments, banded substratum	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Lamellic Udipsamments-----	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
221D:										
Typic Udipsamments, banded substratum	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Lamellic Udipsamments-----	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
221E:										
Typic Udipsamments, banded substratum	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Lamellic Udipsamments-----	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
221F:										
Typic Udipsamments, banded substratum	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Lamellic Udipsamments-----	Very poor.	Very poor.	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
222B:										
Typic Udipsamments, very deep water table----------	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
222C:										
Typic Udipsamments, very deep water table----------	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
223B:										
Lamellic Udipsamments-----	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
223B:										
Typic Udipsamments, banded substratum	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
223C:										
Lamellic Udipsamments	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Typic Udipsamments, banded substratum	Poor	Poor	Poor	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
224B:										
Oxyaquic Udipsamments	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
225B:										
Typic Udipsamments, loamy substratum	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
225C:										
Typic Udipsamments, loamy substratum	Poor	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
225D:										
Typic Udipsamments, loamy substratum	Very poor.	Very poor.	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
230B:										
Entic Haplorthods, sandy	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
230C:										
Entic Haplorthods, sandy	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
230D:										
Entic Haplorthods, sandy	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
230E:										
Entic Haplorthods, sandy	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
230F:										
Entic Haplorthods, sandy	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	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
231B:										
Entic Haplorthods, sandy, banded substratum-------	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Lamellic Haplorthods, sandy----------	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
231C:										
Entic Haplorthods, sandy, banded substratum-------	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Lamellic Haplorthods, sandy----------	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
231D:										
Entic Haplorthods, sandy, banded substratum-------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Lamellic Haplorthods, sandy----------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
231E:										
Entic Haplorthods, sandy, banded substratum-------	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Lamellic Haplorthods, sandy----------	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
232B:										
Entic Haplorthods, sandy, very deep water table------	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Lamellic Haplorthods, sandy, very deep water table------	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
233B:										
Lamellic Haplorthods, sandy----------	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Entic Haplorthods, sandy, banded substratum-------	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	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
233C:										
Lamellic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Entic Haplorthods, sandy, banded substratum	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
233D:										
Lamellic Haplorthods, sandy	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Entic Haplorthods, sandy, banded substratum	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
233E:										
Lamellic Haplorthods, sandy	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Entic Haplorthods, sandy, banded substratum	Very poor.	Very poor.	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
234B:										
Oxyaquic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
235B:										
Alfic Haplorthods, sandy	Fair	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Lamellic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
235C:										
Alfic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Lamellic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
235D:										
Alfic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	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
235D:										
Lamellic Haplorthods, sandy	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
235E:										
Alfic Haplorthods, sandy	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Lamellic Haplorthods, sandy	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
235F:										
Alfic Haplorthods, sandy	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Lamellic Haplorthods, sandy	Very poor.	Very poor.	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
237B:										
Glossudalfs, fine-loamy	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
237C:										
Glossudalfs, fine-loamy	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
237D:										
Glossudalfs, fine-loamy	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
240B:										
Typic Haplorthods, sandy	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
240C:										
Typic Haplorthods, sandy	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
240D:										
Typic Haplorthods, sandy	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
240E:										
Typic Haplorthods, sandy	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	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
240F:										
Typic Haplorthods, sandy	Very poor.	Very poor.	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
241B:										
Typic Haplorthods, sandy, banded substratum	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Lamellic Haplorthods, sandy, dark subsoil	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
241C:										
Typic Haplorthods, sandy, banded substratum	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Lamellic Haplorthods, sandy, dark subsoil	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
242B:										
Typic Haplorthods, sandy, very deep water table	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
243C:										
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum	Poor	Poor	Fair	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
244B:										
Oxyaquic Haplorthods, sandy, dark subsoil	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
245C:										
Typic Haplorthods, sandy, loamy substratum	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Alfic Haplorthods, sandy, dark subsoil	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	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
245D:										
Typic Haplorthods, sandy, loamy substratum	Very poor.	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Alfic Haplorthods, sandy, dark subsoil	Poor	Poor	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
245E:										
Typic Haplorthods, sandy, loamy substratum	Very poor.	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
Alfic Haplorthods, sandy, dark subsoil	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
246B:										
Alfic Oxyaquic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Typic Haplorthods, sandy, loamy substratum	Poor	Poor	Fair	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
250:										
Typic Psammaquents	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Aquic Udipsamments	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
Haplosaprists, euic	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
252:										
Typic Endoaquods, sandy, wet	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Haplosaprists, dysic	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
253A:										
Typic Duraquods, sandy, ortstein	Poor	Poor	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
Aquic Udipsamments	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
255B:										
Aquic Udipsamments	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	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
255B:										
Oxyaquic Haplorthods, sandy	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
257:										
Endoaquolls	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Haplosaprists, euic	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Typic Psammaquents	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
262A:										
Typic Duraquods, sandy, ortstein	Poor	Poor	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
263B:										
Aquic Udipsamments	Poor	Poor	Good	Good	Good	Poor	Poor	Fair	Good	Poor.
264A:										
Typic Endoaquods, sandy	Poor	Poor	Good	Good	Good	Fair	Fair	Fair	Good	Fair.
272:										
Typic Endoaquods, sandy, wet	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
273:										
Typic Psammaquents	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
274:										
Typic Epiaquolls, sandy over loamy	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
280:										
Aquents	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Histosols	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
281:										
Haplosaprists, dysic	Very poor.	Very poor.	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
282:										
Haplosaprists, euic	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.

Table 13a.--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 limitation. "Not rated" indicates that information is not available or that no rating is applicable. 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
1:						
Beaches	Not rated		Not rated		Not rated	
3A:						
Psamments, moderately wet	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Beaches	Not rated		Not rated		Not rated	
5F:						
Udorthents	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Udipsamments	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
10B:						
Perrinton	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50		
10C:						
Perrinton	Somewhat limited		Very limited		Very limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Shrink-swell	0.50
			Slope	0.04		
11A:						
Ithaca	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
13B:						
Marlette	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
13C:						
Marlette	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Slope	0.04	Depth to saturated zone	0.39
14A:						
Capac	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

Table 13a.--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
15:						
Parkhill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
18B:						
Fern	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
			Shrink-swell	0.50		
Spinks	Not limited		Not limited		Not limited	
18C:						
Fern	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	0.50
			Shrink-swell	0.50	Depth to saturated zone	0.39
Spinks	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
21B:						
Coloma	Not limited		Not limited		Not limited	
Tatches	Not limited		Not limited		Not limited	
25:						
Gorvan	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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Houghton	Very limited		Very limited		Very limited	
	Subsidence	1.00	Subsidence	1.00	Subsidence	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
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Glendora	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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
29B:						
Fogg	Not limited		Not limited		Not limited	
Benzonia	Not limited		Not limited		Not limited	
29C:						
Fogg	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00

Table 13a.--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
29C:						
Benzonia	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
29D:						
Fogg	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
29E:						
Fogg	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
29F:						
Fogg	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
32B:						
Fern	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
			Shrink-swell	0.50		
32C:						
Fern	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Depth to saturated zone	0.39
			Slope	0.04		
36B:						
Fern	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
			Shrink-swell	0.50		
Remus	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
36C:						
Fern	Somewhat limited		Very limited		Very limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.04	Shrink-swell	0.50	Depth to saturated zone	0.39
			Slope	0.04		
Remus	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.50

Table 13a.--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
38B:						
Remus	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
Spinks	Not limited		Not limited		Not limited	
38C:						
Remus	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.04	Slope	0.04	Shrink-swell	0.50
Spinks	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
38D:						
Remus	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
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
38E:						
Remus	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
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
43B:						
Thompsonville	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
44A:						
Milnichol	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		
47B:						
Spinks	Not limited		Not limited		Not limited	
Coloma	Not limited		Not limited		Not limited	
47C:						
Spinks	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
Coloma	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
47D:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
47E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
47F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
52C:						
Copemish	Very limited		Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
					Slope	1.00
52E:						
Copemish	Very limited		Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Depth to thick cemented pan	1.00
53A:						
Saugatuck	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 thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
Jebavy	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 thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
54B:						
Kaleva	Not limited		Not limited		Not limited	
54C:						
Kaleva	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
54D:						
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
54E:						
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
54F:						
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
55B:						
Brethren	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
57B:						
Grattan	Not limited		Not limited		Not limited	
57C:						
Grattan	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
57D:						
Grattan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
57E:						
Grattan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
57F:						
Grattan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
58B:						
Covert	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
59B:						
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
60:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
63B:						
Coloma	Not limited		Not limited		Not limited	
63C:						
Coloma	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
63D:						
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
63E:						
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
63F:						
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
64B:						
Benona	Not limited		Not limited		Not limited	
64C:						
Benona	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
64D:						
Benona	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
64E:						
Benona	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
64F:						
Benona	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
67B:						
Plainfield	Not limited		Not limited		Not limited	
67C:						
Plainfield	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
67E:						
Plainfield	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
67F:						
Plainfield	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
73:						
Houghton	Very limited		Very limited		Very limited	
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Adrian	Very limited		Very limited		Very limited	
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Ponding	1.00	Content of organic matter	1.00
	Ponding	1.00			Ponding	1.00
81:						
Lumley	Very limited		Very limited		Very limited	
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 13a.--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
81:						
Makinen	Very limited		Very limited		Very limited	
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Ponding	1.00	Content of organic matter	1.00
	Ponding	1.00			Ponding	1.00
83:						
Histosols	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00			Content of organic matter	1.00
Aquents	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
86D:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
86F:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
88B:						
Udipsamments	Not limited		Not limited		Not limited	
91:						
Pits, sand and gravel	Not rated		Not rated		Not rated	
96C:						
Goodharbor	Not limited		Not limited		Somewhat limited	
					Slope	0.50
100A:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
102A:						
Thompsonville	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 13a.--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
102A:						
Milnichol	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		
104B:						
Covert	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
106B:						
Covert	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
107B:						
Benzonia	Not limited		Not limited		Not limited	
107C:						
Benzonia	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
107D:						
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
107E:						
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
107F:						
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
108A:						
Saugatuck	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 thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
109B:						
Shavenaugh	Not limited		Not limited		Not limited	
109C:						
Shavenaugh	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
109D:						
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
109E:						
Shavenaugh----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
109F:						
Shavenaugh----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
110B:						
Healylake----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to thin cemented pan	1.00	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	0.39	Depth to thin cemented pan	1.00	Depth to saturated zone	0.39
111D:						
Onekama----------	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
111E:						
Onekama----------	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
111F:						
Onekama----------	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
114B:						
Nordhouse----------	Not limited		Not limited		Not limited	
Platteriver---------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
Dair----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
115B:						
Nordhouse----------	Not limited		Not limited		Not limited	
115D:						
Nordhouse----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
115F:						
Nordhouse----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
118B:						
Spinks----------	Not limited		Not limited		Not limited	
Shavenaugh----------	Not limited		Not limited		Not limited	

Table 13a.--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
118C:						
Spinks	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
Shavenaugh	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
118D:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
118E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
118F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
119:						
Madaus	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
120B:						
Boyer	Not limited		Not limited		Not limited	
Shavenaugh	Not limited		Not limited		Not limited	
120C:						
Boyer	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
Shavenaugh	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
120D:						
Boyer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
120E:						
Boyer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
120F:						
Boyer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
122:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Adrian	Very limited		Very limited		Very limited	
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Ponding	1.00	Content of organic matter	1.00
	Ponding	1.00			Ponding	1.00
123B:						
Platteriver	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.98	Depth to saturated zone	1.00	Depth to saturated zone	0.98
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
125B:						
Spinks	Not limited		Not limited		Not limited	
Tekenink, sandy substratum	Not limited		Not limited		Not limited	
125C:						
Spinks	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
Tekenink, sandy substratum	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
125D:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
125E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
125F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
126D:						
Filer	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
126E:						
Filer	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
127B:						
Kaleva, deep water table	Not limited		Somewhat limited		Not limited	
			Depth to saturated zone	0.16		
130A:						
Glendora	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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Algansee	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
Abscota	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	1.00		
131A:						
Milarch	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.39	Depth to saturated zone	1.00	Depth to saturated zone	0.39
132A:						
Milnichol	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		
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
135B:						
Nessen	Not limited		Not limited		Not limited	

Table 13a.--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
135C:						
Nessen	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
136B:						
Nessen	Not limited		Not limited		Not limited	
Kaleva	Not limited		Not limited		Not limited	
136C:						
Nessen	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
Kaleva	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.04	Slope	0.04	Slope	1.00
136D:						
Nessen	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
136E:						
Nessen	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
138D:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
138E:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
139D:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Remus	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
139E:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Remus	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

Table 13a.--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
210B:						
Plainfield----------	Not limited		Not limited		Not limited	
210C:						
Plainfield----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
210D:						
Plainfield----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
211B:						
Plainfield, banded substratum---------	Not limited		Not limited		Not limited	
212B:						
Plainfield, very deep water table---	Not limited		Not limited		Not limited	
215B:						
Plainfield, loamy substratum---------	Not limited		Not limited		Not limited	
220B:						
Typic Udipsamments--	Not limited		Not limited		Not limited	
220C:						
Typic Udipsamments--	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
220D:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
220E:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
220F:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
221B:						
Typic Udipsamments, banded substratum--	Not limited		Not limited		Not limited	
Lamellic Udipsamments-------	Not limited		Not limited		Not limited	
221C:						
Typic Udipsamments, banded substratum--	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
Lamellic Udipsamments-------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00

Table 13a.--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
221D:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
221E:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
221F:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
222B:						
Typic Udipsamments, very deep water table----------	Not limited		Not limited		Not limited	
222C:						
Typic Udipsamments, very deep water table----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
223B:						
Lamellic Udipsamments-------	Not limited		Not limited		Not limited	
Typic Udipsamments, banded substratum--	Not limited		Not limited		Not limited	
223C:						
Lamellic Udipsamments-------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
Typic Udipsamments, banded substratum--	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
224B:						
Oxyaquic Udipsamments-------	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		

Table 13a.--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
225B:						
Typic Udipsamments, loamy substratum	Not limited		Not limited		Not limited	
225C:						
Typic Udipsamments, loamy substratum	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
225D:						
Typic Udipsamments, loamy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
230B:						
Entic Haplorthods, sandy	Not limited		Not limited		Not limited	
230C:						
Entic Haplorthods, sandy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
230D:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
230E:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
230F:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
231B:						
Entic Haplorthods, sandy, banded substratum	Not limited		Not limited		Not limited	
Lamellic Haplorthods, sandy	Not limited		Not limited		Not limited	
231C:						
Entic Haplorthods, sandy, banded substratum	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
Lamellic Haplorthods, sandy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
231D:						
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
231D:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
231E:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
232B:						
Entic Haplorthods, sandy, very deep water table--------	Not limited		Not limited		Not limited	
Lamellic Haplorthods, sandy, very deep water table----------	Not limited		Not limited		Not limited	
233B:						
Lamellic Haplorthods, sandy	Not limited		Not limited		Not limited	
Entic Haplorthods, sandy, banded substratum---------	Not limited		Not limited		Not limited	
233C:						
Lamellic Haplorthods, sandy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
Entic Haplorthods, sandy, banded substratum---------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
233D:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
233E:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 13a.--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
233E:						
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
234B:						
Oxyaquic Haplorthods, sandy	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
235B:						
Alfic Haplorthods, sandy	Not limited		Not limited		Not limited	
Lamellic Haplorthods, sandy	Not limited		Not limited		Not limited	
235C:						
Alfic Haplorthods, sandy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
Lamellic Haplorthods, sandy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
235D:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
235E:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
235F:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
237B:						
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 13a.--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
237C:						
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
237D:						
Glossudalfs, fine-loamy	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
240B:						
Typic Haplorthods, sandy	Not limited		Not limited		Not limited	
240C:						
Typic Haplorthods, sandy	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
240D:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
240E:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
240F:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
241B:						
Typic Haplorthods, sandy, banded substratum	Not limited		Not limited		Not limited	
Lamellic Haplorthods, sandy, dark subsoil	Not limited		Not limited		Not limited	
241C:						
Typic Haplorthods, sandy, banded substratum	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
Lamellic Haplorthods, sandy, dark subsoil	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
242B:						
Typic Haplorthods, sandy, very deep water table	Not limited		Not limited		Not limited	

Table 13a.--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
243C:						
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
244B:						
Oxyaquic Haplorthods, sandy, dark subsoil-------	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
245C:						
Typic Haplorthods, sandy, loamy substratum---------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
Alfic Haplorthods, sandy, dark subsoil	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.63	Slope	0.63	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
245D:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
245E:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50			Shrink-swell	0.50
246B:						
Alfic Oxyaquic Haplorthods, sandy	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
Typic Haplorthods, sandy, loamy substratum---------	Not limited		Not limited		Not limited	

Table 13a.--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
250:						
Typic Psammaquents--	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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Aquic Udipsamments--	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
Haplosaprists, euic	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	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
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
252:						
Typic Endoaquods, sandy, wet---------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Haplosaprists, dysic	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00			Content of organic matter	1.00
253A:						
Typic Duraquods, sandy, ortstein----	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 thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
255B:						
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Oxyaquic Haplorthods, sandy	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		

Table 13a.--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
257:						
Endoaquolls---------	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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
Haplosaprists, euic	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	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
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00
Typic Psammaquents--	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
	Ponding	1.00	Ponding	1.00	Ponding	1.00
262A:						
Typic Duraquods, sandy, ortstein----	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 thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
263B:						
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
264A:						
Typic Endoaquods, sandy----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
272:						
Typic Endoaquods, sandy, wet---------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
273:						
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
274:						
Typic Epiaquolls, sandy over loamy---	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50

Table 13a.--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
280:						
Aquents----------	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
Histosols----------	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00			Content of organic matter	1.00
281:						
Haplosaprists, dysic	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00			Content of organic matter	1.00
282:						
Haplosaprists, euic	Very limited		Very limited		Very limited	
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Subsidence	1.00	Subsidence	1.00	Subsidence	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Content of organic matter	1.00	Content of organic matter	1.00

Table 13b.--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 limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1:				
Beaches	Not rated		Not rated	
3A:				
Psamments, moderately wet	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Beaches	Not rated		Not rated	
5F:				
Udorthents	Very limited		Somewhat limited	
	Slope	1.00	Cutbanks caving	0.10
	Frost action	0.50		
Udipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
10B:				
Perrinton	Very limited		Very limited	
	Low strength	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50		
	Frost action	0.50	Cutbanks caving	0.10
			Too clayey	0.02
10C:				
Perrinton	Very limited		Very limited	
	Low strength	1.00	Depth to saturated zone	1.00
	Shrink-swell	0.50		
	Frost action	0.50	Cutbanks caving	0.10
	Slope	0.04	Slope	0.04
			Too clayey	0.02
11A:				
Ithaca	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Too clayey	0.50
	Low strength	1.00	Cutbanks caving	0.10
	Shrink-swell	0.50		
13B:				
Marlette	Very limited		Very limited	
	Low strength	1.00	Depth to saturated zone	1.00
	Frost action	0.50		
	Depth to saturated zone	0.19	Cutbanks caving	0.10

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
13C:				
Marlette	Very limited		Very limited	
	Low strength	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	0.10
	Depth to saturated zone	0.19	Slope	0.04
	Slope	0.04		
14A:				
Capac	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks caving	0.10
	Shrink-swell	0.50		
	Low strength	0.22		
15:				
Parkhill	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Cutbanks caving	0.10
	Shrink-swell	0.50		
	Low strength	0.22		
18B:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Spinks	Not limited		Very limited	
			Cutbanks caving	1.00
18C:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Spinks	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
21B:				
Coloma	Not limited		Very limited	
			Cutbanks caving	1.00
Tatches	Not limited		Very limited	
			Cutbanks caving	1.00
25:				
Gorvan	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks caving	1.00
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	0.80

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
25:				
Houghton	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00	Ponding	1.00
	Flooding	1.00	Flooding	0.80
			Cutbanks caving	0.10
Glendora	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks caving	1.00
	Ponding	1.00	Ponding	1.00
	Frost action	0.50	Flooding	0.80
29B:				
Fogg	Not limited		Very limited	
			Cutbanks caving	1.00
Benzonia	Not limited		Very limited	
			Cutbanks caving	1.00
29C:				
Fogg	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
Benzonia	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
29D:				
Fogg	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
Benzonia	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
29E:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
29F:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
32B:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
32C:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
36B:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Remus	Somewhat limited		Very limited	
	Shrink-swell	0.50	Cutbanks caving	1.00
	Frost action	0.50		
36C:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
Remus	Somewhat limited		Very limited	
	Shrink-swell	0.50	Cutbanks caving	1.00
	Frost action	0.50	Slope	0.04
	Slope	0.04		
38B:				
Remus	Somewhat limited		Very limited	
	Shrink-swell	0.50	Cutbanks caving	1.00
	Frost action	0.50		
Spinks	Not limited		Very limited	
			Cutbanks caving	1.00
38C:				
Remus	Somewhat limited		Very limited	
	Shrink-swell	0.50	Cutbanks caving	1.00
	Frost action	0.50	Slope	0.04
	Slope	0.04		
Spinks	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
38D:				
Remus	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Shrink-swell	0.50	Slope	1.00
	Frost action	0.50		
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
38E:				
Remus	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks caving	1.00
	Frost action	0.50		
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
43B:				
Thompsonville	Somewhat limited		Very limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00
			Cutbanks caving	1.00
44A:				
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
47B:				
Spinks	Not limited		Very limited	
			Cutbanks caving	1.00
Coloma	Not limited		Very limited	
			Cutbanks caving	1.00
47C:				
Spinks	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
Coloma	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
47D:				
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
Coloma	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
47E:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
47F:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
47F:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
52C:				
Copemish	Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
			Cutbanks caving	1.00
			Dense layer	0.50
52E:				
Copemish	Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
			Dense layer	0.50
53A:				
Saugatuck	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
			Dense layer	0.50
Jebavy	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
			Dense layer	0.50
54B:				
Kaleva	Not limited		Very limited	
			Cutbanks caving	1.00
54C:				
Kaleva	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
54D:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
54E:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
54F:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
55B:				
Brethren	Not limited		Very limited	
			Cutbanks caving	1.00
			Depth to saturated zone	1.00
57B:				
Grattan	Not limited		Very limited	
			Cutbanks caving	1.00
57C:				
Grattan	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
57D:				
Grattan	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
57E:				
Grattan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
57F:				
Grattan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
58B:				
Covert	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
59B:				
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
60:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
63B:				
Coloma	Not limited		Very limited	
			Cutbanks caving	1.00
63C:				
Coloma	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
63D:				
Coloma	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
63E:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
63F:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
64B:				
Benona	Not limited		Very limited	
			Cutbanks caving	1.00
64C:				
Benona	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
64D:				
Benona	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
64E:				
Benona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
64F:				
Benona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
67B:				
Plainfield	Not limited		Very limited	
			Cutbanks caving	1.00
67C:				
Plainfield	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
67E:				
Plainfield	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
67F:				
Plainfield	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
73:				
Houghton	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00		
	Ponding	1.00	Ponding	1.00
			Cutbanks caving	0.10

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
73:				
Adrian	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks caving	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Content of organic matter	1.00
81:				
Lumley	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Cutbanks caving	0.10
Makinen	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks caving	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Content of organic matter	1.00
83:				
Histosols	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks caving	1.00
	Frost action	1.00	Content of organic matter	1.00
Aquents	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks caving	0.10
86D:				
Dune land	Not rated		Not rated	
Quartzipsamments	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
86F:				
Dune land	Not rated		Not rated	
Quartzipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
88B:				
Udipsamments	Not limited		Very limited	
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
91:				
Pits, sand and gravel	Not rated		Not rated	
96C:				
Goodharbor	Not limited		Very limited	
			Cutbanks caving	1.00
100A:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
102A:				
Thompsonville	Somewhat limited		Very limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
104B:				
Covert	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
106B:				
Covert	Somewhat limited		Very limited	
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
107B:				
Benzonia	Not limited		Very limited	
			Cutbanks caving	1.00
107C:				
Benzonia	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
107D:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
107E:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
107F:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
108A:				
Saugatuck	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
			Dense layer	0.50
109B:				
Shavenaugh	Not limited		Very limited	
			Cutbanks caving	1.00
109C:				
Shavenaugh	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
109D:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
109E:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
109F:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
110B:				
Healylake	Somewhat limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	0.19	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Dense layer	0.50

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
111D:				
Onekama	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks caving	0.10
	Shrink-swell	0.50		
	Frost action	0.50		
111E:				
Onekama	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks caving	0.10
	Shrink-swell	0.50		
	Frost action	0.50		
111F:				
Onekama	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Low strength	1.00	Cutbanks caving	0.10
	Shrink-swell	0.50		
	Frost action	0.50		
114B:				
Nordhouse	Not limited		Very limited	
			Cutbanks caving	1.00
Platteriver	Somewhat limited		Very limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
115B:				
Nordhouse	Not limited		Very limited	
			Cutbanks caving	1.00
115D:				
Nordhouse	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
115F:				
Nordhouse	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
118B:				
Spinks	Not limited		Very limited	
			Cutbanks caving	1.00
Shavenaugh	Not limited		Very limited	
			Cutbanks caving	1.00
118C:				
Spinks	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
118C:				
Shavenaugh----------	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
118D:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
118E:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
118F:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
119:				
Madaus----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks caving	1.00
	Ponding	1.00	Ponding	1.00
			Too clayey	0.88
120B:				
Boyer----------	Somewhat limited		Very limited	
	Frost action	0.50	Cutbanks caving	1.00
Shavenaugh----------	Not limited		Very limited	
			Cutbanks caving	1.00
120C:				
Boyer----------	Somewhat limited		Very limited	
	Frost action	0.50	Cutbanks caving	1.00
	Slope	0.04	Slope	0.04
Shavenaugh----------	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
120D:				
Boyer----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Frost action	0.50	Slope	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
120D:				
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
120E:				
Boyer----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks caving	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
120F:				
Boyer----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks caving	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
122:				
Dair----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
Adrian----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks caving	1.00
	Frost action	1.00	Ponding	1.00
	Ponding	1.00	Content of organic matter	1.00
123B:				
Platteriver---------	Somewhat limited		Very limited	
	Depth to saturated zone	0.75	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Pipestone----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
125B:				
Spinks----------	Not limited		Very limited	
			Cutbanks caving	1.00
Tekenink, sandy substratum---------	Somewhat limited		Very limited	
	Frost action	0.50	Cutbanks caving	1.00
125C:				
Spinks----------	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
125C:				
Tekenink, sandy substratum---------	Somewhat limited		Very limited	
	Frost action	0.50	Cutbanks caving	1.00
	Slope	0.04	Slope	0.04
125D:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
Tekenink, sandy substratum---------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Frost action	0.50	Slope	1.00
125E:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Tekenink, sandy substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks caving	1.00
125F:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Tekenink, sandy substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks caving	1.00
126D:				
Filer----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks caving	0.10
	Frost action	0.50		
126E:				
Filer----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks caving	0.10
	Frost action	0.50		
127B:				
Kaleva, deep water table----------	Not limited		Very limited	
			Cutbanks caving	1.00
			Depth to saturated zone	0.16
130A:				
Glendora----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks caving	1.00
	Ponding	1.00	Ponding	1.00
	Frost action	0.50	Flooding	0.80

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
130A:				
Algansee	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Flooding	0.60
Abscota	Very limited		Very limited	
	Flooding	1.00	Cutbanks caving	1.00
			Depth to saturated zone	1.00
			Flooding	0.60
131A:				
Milarch	Somewhat limited		Very limited	
	Frost action	0.50	Depth to saturated zone	1.00
	Depth to saturated zone	0.19	Cutbanks caving	1.00
132A:				
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
135B:				
Nessen	Not limited		Very limited	
			Cutbanks caving	1.00
135C:				
Nessen	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
136B:				
Nessen	Not limited		Very limited	
			Cutbanks caving	1.00
Kaleva	Not limited		Very limited	
			Cutbanks caving	1.00
136C:				
Nessen	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
Kaleva	Somewhat limited		Very limited	
	Slope	0.04	Cutbanks caving	1.00
			Slope	0.04
136D:				
Nessen	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
136D:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
136E:				
Nessen	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
138D:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
138E:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
139D:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Slope	1.00
Remus	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Shrink-swell	0.50	Slope	1.00
	Frost action	0.50		
139E:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Remus	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks caving	1.00
	Frost action	0.50		
210B:				
Plainfield	Not limited		Very limited	
			Cutbanks caving	1.00
210C:				
Plainfield	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
210D:				
Plainfield----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
211B:				
Plainfield, banded substratum---------	Not limited		Very limited	
			Cutbanks caving	1.00
212B:				
Plainfield, very deep water table---	Not limited		Very limited	
			Cutbanks caving	1.00
215B:				
Plainfield, loamy substratum---------	Not limited		Very limited	
			Cutbanks caving	1.00
220B:				
Typic Udipsamments--	Not limited		Very limited	
			Cutbanks caving	1.00
220C:				
Typic Udipsamments--	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
220D:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
220E:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
220F:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
221B:				
Typic Udipsamments, banded substratum--	Not limited		Very limited	
			Cutbanks caving	1.00
Lamellic Udipsamments-------	Not limited		Very limited	
			Cutbanks caving	1.00
221C:				
Typic Udipsamments, banded substratum--	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
221C:				
Lamellic Udipsamments-------	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
221D:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
221E:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
221F:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
222B:				
Typic Udipsamments, very deep water table----------	Not limited		Very limited	
			Cutbanks caving	1.00
222C:				
Typic Udipsamments, very deep water table----------	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
223B:				
Lamellic Udipsamments-------	Not limited		Very limited	
			Cutbanks caving	1.00
Typic Udipsamments, banded substratum--	Not limited		Very limited	
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
223C:				
Lamellic Udipsamments-------	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
Typic Udipsamments, banded substratum--	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
224B:				
Oxyaquic Udipsamments-------	Not limited		Very limited	
			Cutbanks caving	1.00
			Depth to saturated zone	1.00
225B:				
Typic Udipsamments, loamy substratum---	Not limited		Very limited	
			Cutbanks caving	1.00
225C:				
Typic Udipsamments, loamy substratum---	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
225D:				
Typic Udipsamments, loamy substratum---	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
230B:				
Entic Haplorthods, sandy----------	Not limited		Very limited	
			Cutbanks caving	1.00
230C:				
Entic Haplorthods, sandy----------	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
230D:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
230E:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
230F:				
Entic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
231B:				
Entic Haplorthods, sandy, banded substratum	Not limited		Very limited	
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
231C:				
Entic Haplorthods, sandy, banded substratum	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
Lamellic Haplorthods, sandy	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
231D:				
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
231E:				
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
232B:				
Entic Haplorthods, sandy, very deep water table	Not limited		Very limited	
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
232B:				
Lamellic Haplorthods, sandy, very deep water table	Not limited		Very limited	
			Cutbanks caving	1.00
233B:				
Lamellic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
Entic Haplorthods, sandy, banded substratum	Not limited		Very limited	
			Cutbanks caving	1.00
233C:				
Lamellic Haplorthods, sandy	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
Entic Haplorthods, sandy, banded substratum	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
233D:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
233E:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
234B:				
Oxyaquic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
			Depth to saturated zone	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
235B:				
Alfic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
235C:				
Alfic Haplorthods, sandy	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
Lamellic Haplorthods, sandy	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
235D:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
235E:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
235F:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
237B:				
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Cutbanks caving	0.10
	Frost action	0.50		

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
237C:				
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
	Shrink-swell	0.50	Cutbanks caving	0.10
	Frost action	0.50		
237D:				
Glossudalfs, fine-loamy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks caving	0.10
	Frost action	0.50		
240B:				
Typic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
240C:				
Typic Haplorthods, sandy	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
240D:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
240E:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
240F:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
241B:				
Typic Haplorthods, sandy, banded substratum	Not limited		Very limited	
			Cutbanks caving	1.00
Lamellic Haplorthods, sandy, dark subsoil	Not limited		Very limited	
			Cutbanks caving	1.00
241C:				
Typic Haplorthods, sandy, banded substratum	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
241C:				
Lamellic Haplorthods, sandy, dark subsoil	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
242B:				
Typic Haplorthods, sandy, very deep water table	Not limited		Very limited	
			Cutbanks caving	1.00
243C:				
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
244B:				
Oxyaquic Haplorthods, sandy, dark subsoil	Not limited		Very limited	
			Cutbanks caving	1.00
			Depth to saturated zone	1.00
245C:				
Typic Haplorthods, sandy, loamy substratum	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
			Slope	0.63
Alfic Haplorthods, sandy, dark subsoil	Somewhat limited		Very limited	
	Slope	0.63	Cutbanks caving	1.00
	Shrink-swell	0.50	Slope	0.63
245D:				
Typic Haplorthods, sandy, loamy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks caving	1.00
245E:				
Typic Haplorthods, sandy, loamy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
245E:				
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks caving	1.00
246B:				
Alfic Oxyaquic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
			Depth to saturated zone	1.00
Typic Haplorthods, sandy, loamy substratum---------	Not limited		Very limited	
			Cutbanks caving	1.00
250:				
Typic Psammaquents--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks caving	1.00
	Ponding	1.00	Ponding	1.00
	Frost action	0.50	Flooding	0.80
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks caving	1.00
			Flooding	0.80
Haplosaprists, euic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00	Flooding	0.80
	Flooding	1.00	Cutbanks caving	0.10
252:				
Typic Endoaquods, sandy, wet---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
Haplosaprists, dysic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00	Cutbanks caving	0.10

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
253A:				
Typic Duraquods, sandy, ortstein----	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
			Dense layer	0.50
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
255B:				
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
Oxyaquic Haplorthods, sandy	Not limited		Very limited	
			Cutbanks caving	1.00
			Depth to saturated zone	1.00
257:				
Endoaquolls---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks caving	1.00
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	0.80
Haplosaprists, euic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00		
	Flooding	1.00	Flooding	0.80
			Cutbanks caving	0.10
Typic Psammaquents--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Cutbanks caving	1.00
	Ponding	1.00	Ponding	1.00
	Frost action	0.50	Flooding	0.80
262A:				
Typic Duraquods, sandy, ortstein----	Very limited		Very limited	
	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
			Dense layer	0.50

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
263B:				
Aquic Udipsamments	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
264A:				
Typic Endoaquods, sandy	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks caving	1.00
272:				
Typic Endoaquods, sandy, wet	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
273:				
Typic Psammaquents	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Cutbanks caving	1.00
	Frost action	0.50	Ponding	1.00
274:				
Typic Epiaquolls, sandy over loamy	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks caving	1.00
	Ponding	1.00	Ponding	1.00
	Shrink-swell	0.50		
280:				
Aquents	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks caving	0.10
Histosols	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Cutbanks caving	1.00
	Frost action	1.00	Content of organic matter	1.00
281:				
Haplosaprists, dysic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00	Cutbanks caving	0.10

Table 13b.--Building Site Development--Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
282:				
Haplosaprists, euic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
	Frost action	1.00	Cutbanks caving	0.10

Table 14a.--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 limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1:				
Beaches	Not rated		Not rated	
3A:				
Psamments, moderately wet	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
Beaches	Not rated		Not rated	
5F:				
Udorthents	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Udipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
10B:				
Perrinton	Very limited		Somewhat limited	
	Restricted permeability	1.00	Slope	0.32
	Depth to saturated zone	1.00	Depth to saturated zone	0.19
10C:				
Perrinton	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	0.19
	Slope	0.04		
11A:				
Ithaca	Very limited		Very limited	
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
13B:				
Marlette	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.27
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
13C:				
Marlette	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Slope	1.00
	Slope	0.04	Seepage	0.27
14A:				
Capac	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
15:				
Parkhill	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
18B:				
Fern	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
			Slope	0.08
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
18C:				
Fern	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
			Slope	0.92
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
21B:				
Coloma	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Tatches	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
25:				
Gorvan	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		
Houghton	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Ponding	1.00	Ponding	1.00
Glendora	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
29B:				
Fogg	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Benzonia	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
29C:				
Fogg	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
Benzonia	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
29D:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Benzonia	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
29E:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
29F:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
32B:				
Fern	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
			Slope	0.08
32C:				
Fern	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Slope	0.04	Slope	1.00
36B:				
Fern	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
			Slope	0.08
Remus	Very limited		Somewhat limited	
	Restricted permeability	1.00	Seepage	0.27
			Slope	0.08
36C:				
Fern	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Slope	0.04	Slope	1.00
Remus	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	0.04	Seepage	0.27
38B:				
Remus	Very limited		Somewhat limited	
	Restricted permeability	1.00	Seepage	0.27
			Slope	0.08
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
38C:				
Remus	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	0.04	Seepage	0.27
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
38D:				
Remus	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.27
Spinks	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
38E:				
Remus	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.27
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
43B:				
Thompsonville	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Slope	0.08
44A:				
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
47B:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Coloma	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
47C:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
Coloma	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
47D:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
Coloma	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
47E:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
47F:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
52C:				
Copemish	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Seepage	1.00
			Slope	1.00
52E:				
Copemish	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
53A:				
Saugatuck	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
Jebavy	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
54B:				
Kaleva	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
54C:				
Kaleva	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
54D:				
Kaleva	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
54E:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
54F:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
55B:				
Brethren	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Seepage	1.00		
			Slope	0.08
57B:				
Grattan	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
57C:				
Grattan	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
57D:				
Grattan	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
57E:				
Grattan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
57F:				
Grattan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
58B:				
Covert	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Seepage	1.00		
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
59B:				
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
60:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
63B:				
Coloma	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
63C:				
Coloma	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
63D:				
Coloma	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
63E:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
63F:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
64B:				
Benona	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
64C:				
Benona	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
64D:				
Benona	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
64E:				
Benona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
64F:				
Benona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
67B:				
Plainfield	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
67C:				
Plainfield	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
67E:				
Plainfield	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
67F:				
Plainfield	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
73:				
Houghton	Very limited		Very limited	
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Ponding	1.00	Ponding	1.00
Adrian	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Ponding	1.00
	Ponding	1.00	Content of organic matter	1.00
81:				
Lumley	Very limited		Very limited	
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Ponding	1.00	Ponding	1.00
Makinen	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Ponding	1.00
	Ponding	1.00	Content of organic matter	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
83:				
Histosols	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
Aquents	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
86D:				
Dune land	Not rated		Not rated	
Quartzipsamments	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
86F:				
Dune land	Not rated		Not rated	
Quartzipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
88B:				
Udipsamments	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
91:				
Pits, sand and gravel	Not rated		Not rated	
96C:				
Goodharbor	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.92
100A:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
102A:				
Thompsonville	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
104B:				
Covert	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.08
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
106B:				
Covert	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.08
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
107B:				
Benzonia	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
107C:				
Benzonia	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
107D:				
Benzonia	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
107E:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
107F:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
108A:				
Saugatuck	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
109B:				
Shavenaugh	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
109C:				
Shavenaugh	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
109D:				
Shavenaugh	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
109E:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
109F:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
110B:				
Healylake	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.08
111D:				
Onekama	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.50
111E:				
Onekama	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.50

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
111F:				
Onekama	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00	Seepage	0.50
114B:				
Nordhouse	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Platteriver	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
115B:				
Nordhouse	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
115D:				
Nordhouse	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
115F:				
Nordhouse	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
118B:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Shavenaugh	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
118C:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
Shavenaugh	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
118D:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
118D:				
Shavenaugh----------	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
118E:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
118F:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
119:				
Madaus----------	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Depth to saturated zone	1.00		
			Ponding	1.00
	Ponding	1.00	Content of organic matter	1.00
120B:				
Boyer----------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Shavenaugh----------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
120C:				
Boyer----------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
Shavenaugh----------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
120D:				
Boyer----------	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
Shavenaugh----------	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
120E:				
Boyer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
120F:				
Boyer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
122:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
Adrian	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Ponding	1.00
	Ponding	1.00	Content of organic matter	1.00
123B:				
Platteriver	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
125B:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Tekenink, sandy substratum	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
125C:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
125C:				
Tekenink, sandy substratum	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
125D:				
Spinks	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
Tekenink, sandy substratum	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
125E:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Tekenink, sandy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
125F:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Tekenink, sandy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
126D:				
Filer	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
	Slope	1.00		
126E:				
Filer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00		
127B:				
Kaleva, deep water table	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Depth to saturated zone	0.43	Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
130A:				
Glendora	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Algansee	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
Abscota	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
131A:				
Milarch	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00		
132A:				
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
135B:				
Nessen	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
135C:				
Nessen	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
136B:				
Nessen	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Kaleva	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
136C:				
Nessen	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
Kaleva	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.04	Slope	1.00
136D:				
Nessen	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
Kaleva	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
136E:				
Nessen	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
138D:				
Mollineaux	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	1.00		
Spinks	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
138E:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Restricted permeability	1.00		
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
139D:				
Mollineaux	Very limited		Very limited	
	Seepage	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	1.00		
Remus	Very limited		Very limited	
	Restricted permeability	1.00	Slope	1.00
			Seepage	0.27
	Slope	1.00		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
139E:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Restricted permeability	1.00		
Remus	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	0.27
210B:				
Plainfield	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
210C:				
Plainfield	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
210D:				
Plainfield	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
211B:				
Plainfield, banded substratum	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
212B:				
Plainfield, very deep water table	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
215B:				
Plainfield, loamy substratum	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
220B:				
Typic Udipsamments	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
220C:				
Typic Udipsamments	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
220D:				
Typic Udipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
220E:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
220F:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
221B:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Lamellic Udipsamments-------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
221C:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
221D:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
221E:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
221F:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
221F:				
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
222B:				
Typic Udipsamments, very deep water table----------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
222C:				
Typic Udipsamments, very deep water table----------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
223B:				
Lamellic Udipsamments-------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
223C:				
Lamellic Udipsamments-------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
224B:				
Oxyaquic Udipsamments-------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Seepage	1.00		
			Slope	0.08
225B:				
Typic Udipsamments, loamy substratum---	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
225C:				
Typic Udipsamments, loamy substratum	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
225D:				
Typic Udipsamments, loamy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00
230B:				
Entic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
230C:				
Entic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
230D:				
Entic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
230E:				
Entic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
230F:				
Entic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
231B:				
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
231C:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
231D:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
231E:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
232B:				
Entic Haplorthods, sandy, very deep water table--------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Lamellic Haplorthods, sandy, very deep water table----------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
233B:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
233C:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
233D:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
233E:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
234B:				
Oxyaquic Haplorthods, sandy	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.08
235B:				
Alfic Haplorthods, sandy----------	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
	Seepage	1.00	Slope	0.08
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
235C:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
	Seepage	1.00	Slope	1.00
	Slope	0.63		
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
235D:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00
	Seepage	1.00		
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
235E:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00
	Seepage	1.00		
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
235F:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00
	Seepage	1.00		
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
237B:				
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited	
	Restricted permeability	0.50	Seepage	0.50
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
237C:				
Glossudalfs, fine-loamy	Somewhat limited		Very limited	
	Slope	0.63	Slope	1.00
	Restricted permeability	0.50	Seepage	0.50
237D:				
Glossudalfs, fine-loamy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.50	Seepage	0.50
240B:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
240C:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
240D:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
240E:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
240F:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
241B:				
Typic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
Lamellic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
241C:				
Typic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
Lamellic Haplorthods, sandy, dark subsoil-------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
242B:				
Typic Haplorthods, sandy, very deep water table--------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
			Slope	0.08
243C:				
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Slope	0.63	Slope	1.00
244B:				
Oxyaquic Haplorthods, sandy, dark subsoil-------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Seepage	1.00		
			Slope	0.08
245C:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
			Slope	1.00
	Slope	0.63		
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.72	Slope	1.00
	Slope	0.63		
245D:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
245D:				
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.72		
245E:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	1.00	Seepage	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00
	Restricted permeability	0.72		
246B:				
Alfic Oxyaquic Haplorthods, sandy	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Seepage	1.00		
	Restricted permeability	0.82	Slope	0.08
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Restricted permeability	1.00	Seepage	1.00
			Slope	0.08
250:				
Typic Psammaquents--	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Seepage	1.00		
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
Aquic Udipsamments--	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	1.00
	Seepage	1.00		
Haplosaprists, euic	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00		
			Seepage	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
252:				
Typic Endoaquods, sandy, wet	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
Haplosaprists, dysic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Subsidence	1.00	Content of organic matter	1.00
253A:				
Typic Duraquods, sandy, ortstein	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
Aquic Udipsamments	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
255B:				
Aquic Udipsamments	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.08
Oxyaquic Haplorthods, sandy	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.08
257:				
Endoaquolls	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Ponding	1.00
	Ponding	1.00		

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
257:				
Haplosaprists, euic	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
Typic Psammaquents--	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
262A:				
Typic Duraquods, sandy, ortstein----	Very limited		Very limited	
	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
263B:				
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
			Slope	0.08
264A:				
Typic Endoaquods, sandy----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
272:				
Typic Endoaquods, sandy, wet---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
273:				
Typic Psammaquents--	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00

Table 14a.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
274:				
Typic Epiaquolls, sandy over loamy---	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00
			Content of organic matter	1.00
280:				
Aquents----------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Histosols----------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00
281:				
Haplosaprists, dysic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00
	Subsidence	1.00	Content of organic matter	1.00
282:				
Haplosaprists, euic	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Subsidence	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00

Table 14b.--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 limitation. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	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
1:						
Beaches	Not rated		Not rated		Not rated	
3A:						
Psamments, moderately wet	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Seepage	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Depth to saturated zone	1.00			Depth to saturated zone	0.86
Beaches	Not rated		Not rated		Not rated	
5F:						
Udorthents	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Udipsamments	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
10B:						
Perrinton	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Depth to saturated zone	0.19	Too clayey	1.00
	Depth to saturated zone	0.86			Depth to saturated zone	0.47
10C:						
Perrinton	Very limited		Somewhat limited		Very limited	
	Too clayey	1.00	Depth to saturated zone	0.19	Too clayey	1.00
	Depth to saturated zone	0.86	Slope	0.04	Depth to saturated zone	0.47
	Slope	0.04			Slope	0.04
11A:						
Ithaca	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
13B:						
Marlette	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50			Too clayey	0.50
13C:						
Marlette	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50	Slope	0.04	Too clayey	0.50
	Slope	0.04			Slope	0.04

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
14A:						
Capac	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50			Too clayey	0.50
15:						
Parkhill	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Ponding	1.00	Ponding	1.00
	Too clayey	0.50			Too clayey	0.50
18B:						
Fern	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50	Seepage	1.00		
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
18C:						
Fern	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50	Seepage	1.00		
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
21B:						
Coloma	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Tatches	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	0.50			Too sandy	0.50
25:						
Gorvan	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00				
Houghton	Very limited		Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Seepage	1.00	Content of organic matter	1.00
	Content of organic matter	1.00	Ponding	1.00	Ponding	1.00
	Seepage	1.00	Flooding	1.00		

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
25:						
Glendora	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00				
29B:						
Fogg	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Benzonia	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
29C:						
Fogg	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
Benzonia	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
29D:						
Fogg	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00			Seepage	1.00
Benzonia	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
29E:						
Fogg	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
29F:						
Fogg	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
32B:						
Fern	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50	Seepage	1.00		
32C:						
Fern	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50	Seepage	1.00	Slope	0.04
	Slope	0.04	Slope	0.04		
36B:						
Fern	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50	Seepage	1.00		
Remus	Not limited		Not limited		Not limited	
36C:						
Fern	Very limited		Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.86
	Too clayey	0.50	Seepage	1.00	Slope	0.04
	Slope	0.04	Slope	0.04		
Remus	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.04	Slope	0.04	Slope	0.04
38B:						
Remus	Not limited		Not limited		Not limited	
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
38C:						
Remus	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.04	Slope	0.04	Slope	0.04
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
38D:						
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
38E:						
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
38E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
43B:						
Thompsonville	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00	Too sandy	1.00
			Depth to saturated zone	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	1.00
			Seepage	1.00		
44A:						
Milnichol	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50	Seepage	1.00		
47B:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Coloma	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
47C:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
Coloma	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
47D:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
Coloma	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
47E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
47F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
52C:						
Copemish	Very limited		Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
52E:						
Copemish	Very limited		Very limited		Very limited	
	Depth to thick cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
53A:						
Saugatuck	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Depth to thin cemented pan	0.50			Seepage	1.00
Jebavy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Seepage	1.00
	Depth to thin cemented pan	0.50			Ponding	1.00
54B:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
54C:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
54D:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
54E:						
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
54F:						
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
55B:						
Brethren	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	0.47
57B:						
Grattan	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
57C:						
Grattan	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
57D:						
Grattan	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
57E:						
Grattan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
57F:						
Grattan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
58B:						
Covert	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	0.86
59B:						
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
60:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
63B:						
Coloma	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
63C:						
Coloma	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
63D:						
Coloma	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
63E:						
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
63F:						
Coloma	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
64B:						
Benona	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
64C:						
Benona	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
64D:						
Benona	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
64E:						
Benona	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
64F:						
Benona	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
67B:						
Plainfield	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
67C:						
Plainfield	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
67E:						
Plainfield	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
67F:						
Plainfield	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
73:						
Houghton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00	Depth to saturated zone	1.00
			Ponding	1.00		
	Content of organic matter	1.00	Depth to saturated zone	1.00	Content of organic matter	1.00
	Seepage	1.00			Ponding	1.00
	Ponding	1.00				
Adrian	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
81:						
Lumley	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Content of organic matter	1.00
			Ponding	1.00		
	Seepage	1.00			Ponding	1.00
	Ponding	1.00			Seepage	0.15
Makinen	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
83:						
Histosols	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Content of organic matter	1.00
	Content of organic matter	1.00			Seepage	1.00
					Gravel content	1.00
Aquents	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00			Depth to saturated zone	1.00
86D:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
86F:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
88B:						
Udipsamments	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
91:						
Pits, sand and gravel	Not rated		Not rated		Not rated	
96C:						
Goodharbor	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
100A:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
102A:						
Thompsonville-------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00	Seepage	1.00	Seepage	1.00
					Depth to saturated zone	1.00
Milnichol----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50	Seepage	1.00		
104B:						
Covert----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	0.86
Pipestone----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
106B:						
Covert----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	0.86
Dair----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
107B:						
Benzonia----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
107C:						
Benzonia----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
107D:						
Benzonia----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
107E:						
Benzonia----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
107F:						
Benzonia	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
108A:						
Saugatuck	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Depth to thin cemented pan	0.50			Seepage	1.00
109B:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05
109C:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Gravel content	0.05
					Slope	0.04
109D:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
					Gravel content	0.05
109E:						
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05
109F:						
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05
110B:						
Healylake	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00	Seepage	1.00	Seepage	1.00
	Depth to thin cemented pan	0.50			Depth to saturated zone	0.86

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
111D:						
Onekama	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
111E:						
Onekama	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
111F:						
Onekama	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too clayey	0.50			Too clayey	0.50
114B:						
Nordhouse	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Platteriver	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
					Seepage	1.00
	Seepage	1.00	Seepage	1.00	Depth to saturated zone	1.00
	Too sandy	1.00				
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
115B:						
Nordhouse	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
115D:						
Nordhouse	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
115F:						
Nordhouse	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
118B:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
118C:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Gravel content	0.05
					Slope	0.04
118D:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
					Gravel content	0.05
118E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05
118F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05
119:						
Madaus	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Ponding	1.00	Ponding	1.00	Seepage	1.00
					Ponding	1.00
120B:						
Boyer	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.14

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
120B:						
Shavenaugh----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05
120C:						
Boyer----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Gravel content	0.14
					Slope	0.04
Shavenaugh----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Gravel content	0.05
					Slope	0.04
120D:						
Boyer----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
					Gravel content	0.14
Shavenaugh----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
					Gravel content	0.05
120E:						
Boyer----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.14
Shavenaugh----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05
120F:						
Boyer----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.14
Shavenaugh----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
					Gravel content	0.05

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
122:						
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
Adrian	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
123B:						
Platteriver	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	1.00
Pipestone	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
125B:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Tekenink, sandy substratum	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Seepage	0.50
125C:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
Tekenink, sandy substratum	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Seepage	0.50
	Slope	0.04	Slope	0.04	Slope	0.04
125D:						
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Seepage	1.00	Slope	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00	Seepage	0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
125E:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.50
125F:						
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Tekenink, sandy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Seepage	0.50
126D:						
Filer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
126E:						
Filer	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
127B:						
Kaleva, deep water table	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00				
130A:						
Glendora	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00				
Algansee	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00				
Abscota	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.47
	Seepage	1.00	Seepage	1.00		

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
131A:						
Milarch	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	0.86
132A:						
Milnichol	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too clayey	0.50	Seepage	1.00		
Dair	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
135B:						
Nessen	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
135C:						
Nessen	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
136B:						
Nessen	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
136C:						
Nessen	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.04	Seepage	1.00
	Slope	0.04			Slope	0.04
136D:						
Nessen	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
136E:						
Nessen	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Kaleva	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
138D:						
Mollineaux	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too clayey	0.50
	Too clayey	0.50				
Spinks	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	1.00	Seepage	1.00
	Slope	1.00			Slope	1.00
138E:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
Spinks	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
139D:						
Mollineaux	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Slope	1.00
	Slope	1.00	Slope	1.00	Too clayey	0.50
	Too clayey	0.50				
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
139E:						
Mollineaux	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too clayey	0.50
	Too clayey	0.50				
Remus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
210B:						
Plainfield	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
210C:						
Plainfield	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
210D:						
Plainfield----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
211B:						
Plainfield, banded substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
212B:						
Plainfield, very deep water table---	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
215B:						
Plainfield, loamy substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
220B:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
220C:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
220D:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
220E:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
220F:						
Typic Udipsamments--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
221B:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
221B:						
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
221C:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
221D:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
221E:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
221F:						
Typic Udipsamments, banded substratum--	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Lamellic Udipsamments-------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
222B:						
Typic Udipsamments, very deep water table	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
222C:						
Typic Udipsamments, very deep water table	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
223B:						
Lamellic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Typic Udipsamments, banded substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
223C:						
Lamellic Udipsamments	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
Typic Udipsamments, banded substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
224B:						
Oxyaquic Udipsamments	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
					Seepage	1.00
	Too acid	1.00	Seepage	1.00	Depth to saturated zone	0.47
	Seepage	1.00				
	Too sandy	1.00				
225B:						
Typic Udipsamments, loamy substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
					Seepage	1.00
225C:						
Typic Udipsamments, loamy substratum	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Seepage	1.00
					Slope	0.63

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
225D:						
Typic Udipsamments, loamy substratum	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
					Seepage	1.00
230B:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
230C:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
230D:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
230E:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
230F:						
Entic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
231B:						
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
231C:						
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
231C:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
231D:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
231E:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
232B:						
Entic Haplorthods, sandy, very deep water table--------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Lamellic Haplorthods, sandy, very deep water table----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
233B:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
233C:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
233D:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
233E:						
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
234B:						
Oxyaquic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
					Seepage	1.00
	Too sandy	1.00	Seepage	1.00	Depth to saturated zone	0.47
	Seepage	1.00				
235B:						
Alfic Haplorthods, sandy----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
235C:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
235D:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
235E:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
235F:						
Alfic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Seepage	1.00			Seepage	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
237B:						
Glossudalfs, fine-loamy	Not limited		Not limited		Not limited	
237C:						
Glossudalfs, fine-loamy	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63	Slope	0.63

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
237D:						
Glossudalfs, fine-loamy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
240B:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
240C:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
240D:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
240E:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
240F:						
Typic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
241B:						
Typic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Lamellic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
241C:						
Typic Haplorthods, sandy, banded substratum	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
241C:						
Lamellic Haplorthods, sandy, dark subsoil-------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
242B:						
Typic Haplorthods, sandy, very deep water table--------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
243C:						
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
244B:						
Oxyaquic Haplorthods, sandy, dark subsoil-------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
					Seepage	1.00
	Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.47
	Too sandy	1.00				
245C:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Slope	0.63	Slope	0.63	Seepage	1.00
					Slope	0.63
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.63	Seepage	1.00
	Slope	0.63			Slope	0.63
245D:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
					Seepage	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
245E:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
					Seepage	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
246B:						
Alfic Oxyaquic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00			Depth to saturated zone	0.47
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
					Seepage	1.00
250:						
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00				
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00				
Haplosaprists, euic	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	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	Content of organic matter	1.00
	Content of organic matter	1.00	Seepage	1.00	Seepage	0.12
	Seepage	1.00				
252:						
Typic Endoaquods, sandy, wet---------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
252:						
Haplosaprists, dysic	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Content of organic matter	1.00
	Content of organic matter	1.00			Seepage	0.15
253A:						
Typic Duraquods, sandy, ortstein	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Depth to thin cemented pan	0.50			Seepage	1.00
Aquic Udipsamments	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
255B:						
Aquic Udipsamments	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Oxyaquic Haplorthods, sandy	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Too sandy	1.00	Seepage	1.00	Seepage	1.00
	Seepage	1.00			Depth to saturated zone	0.47
257:						
Endoaquolls	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00				
Haplosaprists, euic	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	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	Content of organic matter	1.00
	Content of organic matter	1.00	Seepage	1.00	Seepage	0.12
	Seepage	1.00				

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
257:						
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too sandy	1.00
	Seepage	1.00	Seepage	1.00	Seepage	1.00
	Too sandy	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00				
262A:						
Typic Duraquods, sandy, ortstein----	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
	Seepage	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Depth to thin cemented pan	0.50			Seepage	1.00
263B:						
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
264A:						
Typic Endoaquods, sandy----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
272:						
Typic Endoaquods, sandy, wet---------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
273:						
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Ponding	1.00	Seepage	1.00
	Ponding	1.00			Ponding	1.00
274:						
Typic Epiaquolls, sandy over loamy---	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Ponding	1.00	Seepage	1.00	Ponding	1.00
	Too clayey	0.50	Ponding	1.00	Too clayey	0.50

Table 14b.--Sanitary Facilities--Continued

Map symbol and soil name	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
280:						
Aquents	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
Histosols	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Seepage	1.00
	Seepage	1.00	Seepage	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00			Content of organic matter	1.00
					Seepage	1.00
281:						
Haplosaprists, dysic	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Seepage	1.00	Seepage	1.00	Content of organic matter	1.00
	Content of organic matter	1.00			Seepage	0.15
282:						
Haplosaprists, euic	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
	Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Content of organic matter	1.00	Seepage	1.00	Content of organic matter	1.00
	Seepage	1.00			Seepage	0.12

Table 15a.--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 greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
1:				
Beaches	Not rated		Not rated	
3A:				
Psamments, moderately wet	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.14
	Thickest layer	0.00	Bottom layer	0.14
Beaches	Not rated		Not rated	
5F:				
Udorthents	Not rated		Not rated	
Udipsamments	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
10B:				
Perrinton	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
10C:				
Perrinton	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
11A:				
Ithaca	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
13B:				
Marlette	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
13C:				
Marlette	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
14A:				
Capac	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
15:				
Parkhill	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
18B:				
Fern	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.31
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
18C:				
Fern	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.31
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
21B:				
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
Tatches	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
25:				
Gorvan	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.75
Houghton	Good		Not rated	
Glendora	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.51
	Thickest layer	0.00	Thickest layer	0.51
29B:				
Fogg	Poor		Good	
	Thickest layer	0.00		
	Bottom layer	0.00		
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
29C:				
Fogg	Poor		Good	
	Thickest layer	0.00		
	Bottom layer	0.00		
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
29D:				
Fogg	Poor		Good	
	Thickest layer	0.00		
	Bottom layer	0.00		

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
29D:				
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
29E:				
Fogg	Poor		Good	
	Thickest layer	0.00		
	Bottom layer	0.00		
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
29F:				
Fogg	Poor		Good	
	Thickest layer	0.00		
	Bottom layer	0.00		
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
32B:				
Fern	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.31
32C:				
Fern	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.31
36B:				
Fern	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.31
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
36C:				
Fern	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.31
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
38B:				
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
38C:				
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
38D:				
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
38E:				
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
43B:				
Thompsonville	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.23
44A:				
Milnichol	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
47B:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
47C:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
47D:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
47D:				
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
47E:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
47F:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
52C:				
Copemish	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
52E:				
Copemish	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
53A:				
Saugatuck	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Jebavy	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
54B:				
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
54C:				
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
54D:				
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
54E:				
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
54F:				
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
55B:				
Brethren	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
57B:				
Grattan	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.59
	Thickest layer	0.00	Bottom layer	0.93
57C:				
Grattan	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.59
	Thickest layer	0.00	Bottom layer	0.93
57D:				
Grattan	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.59
	Thickest layer	0.00	Bottom layer	0.93
57E:				
Grattan	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.59
	Thickest layer	0.00	Bottom layer	0.93
57F:				
Grattan	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.59
	Thickest layer	0.00	Bottom layer	0.93
58B:				
Covert	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
59B:				
Pipestone	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
60:				
Dair	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.66
	Thickest layer	0.00	Bottom layer	0.75
63B:				
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
63C:				
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
63D:				
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
63E:				
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
63F:				
Coloma	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.15
	Thickest layer	0.00	Thickest layer	0.75
64B:				
Benona	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.38
	Thickest layer	0.00	Thickest layer	0.75
64C:				
Benona	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.38
	Thickest layer	0.00	Thickest layer	0.75
64D:				
Benona	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.38
	Thickest layer	0.00	Thickest layer	0.75
64E:				
Benona	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.38
	Thickest layer	0.00	Thickest layer	0.75
64F:				
Benona	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.38
	Thickest layer	0.00	Thickest layer	0.75
67B:				
Plainfield	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
67C:				
Plainfield	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
67E:				
Plainfield	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
67F:				
Plainfield	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
73:				
Houghton	Good		Not rated	
Adrian	Good		Not rated	
81:				
Lumley	Good		Not rated	
Makinen	Good		Not rated	
83:				
Histosols	Good		Fair	
			Thickest layer	0.00
			Bottom layer	0.75
Aquents	Not rated		Not rated	
86D:				
Dune land	Not rated		Not rated	
Quartzipsamments	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
86F:				
Dune land	Not rated		Not rated	
Quartzipsamments	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
88B:				
Udipsamments	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
91:				
Pits, sand and gravel	Not rated		Not rated	
96C:				
Goodharbor	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
100A:				
Dair	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.66
	Thickest layer	0.00	Bottom layer	0.75
Pipestone	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
102A:				
Thompsonville	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.23
Milnichol	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
104B:				
Covert	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Pipestone	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
106B:				
Covert	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Dair	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.66
	Thickest layer	0.00	Bottom layer	0.75
107B:				
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
107C:				
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
107D:				
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
107E:				
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
107F:				
Benzonia	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.11
	Thickest layer	0.00	Thickest layer	0.75
108A:				
Saugatuck	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
109B:				
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
109C:				
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
109D:				
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
109E:				
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
109F:				
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
110B:				
Healylake	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
111D:				
Onekama	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
111E:				
Onekama	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
111F:				
Onekama	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
114B:				
Nordhouse	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
Platteriver	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
Dair	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.66
	Thickest layer	0.00	Bottom layer	0.75
115B:				
Nordhouse	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
115D:				
Nordhouse	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
115F:				
Nordhouse	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
118B:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
118C:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
118D:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
118E:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
118F:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
119:				
Madaus	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.43
120B:				
Boyer	Fair		Fair	
	Bottom layer	0.64	Thickest layer	0.00
	Thickest layer	0.68	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
120C:				
Boyer	Fair		Fair	
	Bottom layer	0.64	Thickest layer	0.00
	Thickest layer	0.68	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
120D:				
Boyer	Fair		Fair	
	Bottom layer	0.64	Thickest layer	0.00
	Thickest layer	0.68	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
120E:				
Boyer	Fair		Fair	
	Bottom layer	0.64	Thickest layer	0.00
	Thickest layer	0.68	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
120F:				
Boyer	Fair		Fair	
	Bottom layer	0.64	Thickest layer	0.00
	Thickest layer	0.68	Bottom layer	0.75
Shavenaugh	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.87
	Bottom layer	0.90	Bottom layer	0.97
122:				
Dair	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.66
	Thickest layer	0.00	Bottom layer	0.75
Adrian	Good		Not rated	
123B:				
Platteriver	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
Pipestone	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
125B:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Tekenink, sandy substratum	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.08
	Bottom layer	0.00	Bottom layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
125C:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Tekenink, sandy substratum	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.08
	Bottom layer	0.00	Bottom layer	0.75
125D:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Tekenink, sandy substratum	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.08
	Bottom layer	0.00	Bottom layer	0.75
125E:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Tekenink, sandy substratum	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.08
	Bottom layer	0.00	Bottom layer	0.75
125F:				
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
Tekenink, sandy substratum	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.08
	Bottom layer	0.00	Bottom layer	0.75
126D:				
Filer	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
126E:				
Filer	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
127B:				
Kaleva, deep water table	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
130A:				
Glendora	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.51
	Thickest layer	0.00	Thickest layer	0.51

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
130A:				
Algansee	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.67
	Bottom layer	0.68	Thickest layer	0.75
Abscota	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.22
	Bottom layer	0.68	Bottom layer	0.67
131A:				
Milarch	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
132A:				
Milnichol	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Dair	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.66
	Thickest layer	0.00	Bottom layer	0.75
135B:				
Nessen	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.38
	Bottom layer	0.68	Thickest layer	0.38
135C:				
Nessen	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.38
	Bottom layer	0.68	Thickest layer	0.38
136B:				
Nessen	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.38
	Bottom layer	0.68	Thickest layer	0.38
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
136C:				
Nessen	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.38
	Bottom layer	0.68	Thickest layer	0.38
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
136D:				
Nessen	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.38
	Bottom layer	0.68	Thickest layer	0.38
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
136E:				
Nessen	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.38
	Bottom layer	0.68	Thickest layer	0.38
Kaleva	Poor		Good	
	Bottom layer	0.00		
	Thickest layer	0.00		
138D:				
Mollineaux	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
138E:				
Mollineaux	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Spinks	Fair		Fair	
	Thickest layer	0.00	Thickest layer	0.11
	Bottom layer	0.64	Bottom layer	0.75
139D:				
Mollineaux	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
139E:				
Mollineaux	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.75
Remus	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
210B:				
Plainfield	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
210C:				
Plainfield	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
210D:				
Plainfield	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
211B:				
Plainfield, banded substratum---------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.08
	Thickest layer	0.00	Thickest layer	0.27
212B:				
Plainfield, very deep water table---	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.27
	Thickest layer	0.00	Thickest layer	0.75
215B:				
Plainfield, loamy substratum---------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.51
	Thickest layer	0.00	Thickest layer	0.75
220B:				
Typic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
220C:				
Typic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
220D:				
Typic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
220E:				
Typic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
220F:				
Typic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
221B:				
Typic Udipsamments, banded substratum--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.75
	Thickest layer	0.00	Bottom layer	0.86
Lamellic Udipsamments-------	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.31
	Bottom layer	0.15	Thickest layer	0.75
221C:				
Typic Udipsamments, banded substratum--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.75
	Thickest layer	0.00	Bottom layer	0.86

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
221C:				
Lamellic Udipsamments-------	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.31
	Bottom layer	0.15	Thickest layer	0.75
221D:				
Typic Udipsamments, banded substratum--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.75
	Thickest layer	0.00	Bottom layer	0.86
Lamellic Udipsamments-------	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.31
	Bottom layer	0.15	Thickest layer	0.75
221E:				
Typic Udipsamments, banded substratum--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.75
	Thickest layer	0.00	Bottom layer	0.86
Lamellic Udipsamments-------	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.31
	Bottom layer	0.15	Thickest layer	0.75
221F:				
Typic Udipsamments, banded substratum--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.75
	Thickest layer	0.00	Bottom layer	0.86
Lamellic Udipsamments-------	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.31
	Bottom layer	0.15	Thickest layer	0.75
222B:				
Typic Udipsamments, very deep water table----------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.59
	Thickest layer	0.00	Bottom layer	0.75
222C:				
Typic Udipsamments, very deep water table----------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.59
	Thickest layer	0.00	Bottom layer	0.75
223B:				
Lamellic Udipsamments-------	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.31
	Bottom layer	0.15	Thickest layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
223B:				
Typic Udipsamments, banded substratum--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.75
	Thickest layer	0.00	Bottom layer	0.86
223C:				
Lamellic Udipsamments-------	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.31
	Bottom layer	0.15	Thickest layer	0.75
Typic Udipsamments, banded substratum--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.75
	Thickest layer	0.00	Bottom layer	0.86
224B:				
Oxyaquic Udipsamments-------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
225B:				
Typic Udipsamments, loamy substratum---	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.04
	Thickest layer	0.00	Thickest layer	0.75
225C:				
Typic Udipsamments, loamy substratum---	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.04
	Thickest layer	0.00	Thickest layer	0.75
225D:				
Typic Udipsamments, loamy substratum---	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.04
	Thickest layer	0.00	Thickest layer	0.75
230B:				
Entic Haplorthods, sandy----------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
230C:				
Entic Haplorthods, sandy----------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
230D:				
Entic Haplorthods, sandy----------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
230E:				
Entic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
230F:				
Entic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
231B:				
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
231C:				
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
231D:				
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
231E:				
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
232B:				
Entic Haplorthods, sandy, very deep water table	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Lamellic Haplorthods, sandy, very deep water table	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
233B:				
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75
233C:				
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75
233D:				
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75
233E:				
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Entic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.69
	Thickest layer	0.00	Bottom layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
234B:				
Oxyaquic Haplorthods, sandy	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.44
	Bottom layer	0.00	Bottom layer	0.75
235B:				
Alfic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.68
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
235C:				
Alfic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.68
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
235D:				
Alfic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.68
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
235E:				
Alfic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.68
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
235F:				
Alfic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.68
	Thickest layer	0.00	Bottom layer	0.75
Lamellic Haplorthods, sandy	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
237B:				
Glossudalfs, fine-loamy	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
237C:				
Glossudalfs, fine-loamy	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
237D:				
Glossudalfs, fine-loamy	Poor		Poor	
	Thickest layer	0.00	Bottom layer	0.00
	Bottom layer	0.00	Thickest layer	0.00
240B:				
Typic Haplorthods, sandy	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.75
	Bottom layer	0.64	Thickest layer	0.75
240C:				
Typic Haplorthods, sandy	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.75
	Bottom layer	0.64	Thickest layer	0.75
240D:				
Typic Haplorthods, sandy	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.75
	Bottom layer	0.64	Thickest layer	0.75
240E:				
Typic Haplorthods, sandy	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.75
	Bottom layer	0.64	Thickest layer	0.75
240F:				
Typic Haplorthods, sandy	Fair		Fair	
	Thickest layer	0.00	Bottom layer	0.75
	Bottom layer	0.64	Thickest layer	0.75
241B:				
Typic Haplorthods, sandy, banded substratum	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Lamellic Haplorthods, sandy, dark subsoil	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.11
	Thickest layer	0.00	Bottom layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
241C:				
Typic Haplorthods, sandy, banded substratum---------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Lamellic Haplorthods, sandy, dark subsoil-------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.11
	Thickest layer	0.00	Bottom layer	0.75
242B:				
Typic Haplorthods, sandy, very deep water table--------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
243C:				
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.54
	Thickest layer	0.00	Bottom layer	0.75
244B:				
Oxyaquic Haplorthods, sandy, dark subsoil-------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
245C:				
Typic Haplorthods, sandy, loamy substratum---------	Fair		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.64	Thickest layer	0.86
Alfic Haplorthods, sandy, dark subsoil	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.10
	Thickest layer	0.00	Thickest layer	0.14
245D:				
Typic Haplorthods, sandy, loamy substratum---------	Fair		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.64	Thickest layer	0.86
Alfic Haplorthods, sandy, dark subsoil	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.10
	Thickest layer	0.00	Thickest layer	0.14

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
245E:				
Typic Haplorthods, sandy, loamy substratum---------	Fair		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.64	Thickest layer	0.86
Alfic Haplorthods, sandy, dark subsoil	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.10
	Thickest layer	0.00	Thickest layer	0.14
246B:				
Alfic Oxyaquic Haplorthods, sandy	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.50
	Bottom layer	0.00	Bottom layer	0.75
Typic Haplorthods, sandy, loamy substratum---------	Fair		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.64	Thickest layer	0.86
250:				
Typic Psammaquents--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Aquic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.30
	Thickest layer	0.00	Bottom layer	0.75
Haplosaprists, euic	Good		Not rated	
252:				
Typic Endoaquods, sandy, wet---------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
Haplosaprists, dysic	Good		Not rated	
253A:				
Typic Duraquods, sandy, ortstein----	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.75
Aquic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.30
	Thickest layer	0.00	Bottom layer	0.75
255B:				
Aquic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.30
	Thickest layer	0.00	Bottom layer	0.75
Oxyaquic Haplorthods, sandy	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.44
	Bottom layer	0.00	Bottom layer	0.75

Table 15a.--Construction Materials--Continued

Map symbol and soil name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
257:				
Endoaquolls---------	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.75
Haplosaprists, euic	Good		Not rated	
Typic Psammaquents--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
262A:				
Typic Duraquods, sandy, ortstein----	Poor		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.00	Bottom layer	0.75
263B:				
Aquic Udipsamments--	Poor		Fair	
	Bottom layer	0.00	Thickest layer	0.30
	Thickest layer	0.00	Bottom layer	0.75
264A:				
Typic Endoaquods, sandy----------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
272:				
Typic Endoaquods, sandy, wet---------	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
273:				
Typic Psammaquents--	Poor		Fair	
	Bottom layer	0.00	Bottom layer	0.75
	Thickest layer	0.00	Thickest layer	0.75
274:				
Typic Epiaquolls, sandy over loamy---	Poor		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
280:				
Aquents----------	Not rated		Not rated	
Histosols----------	Good		Fair	
			Thickest layer	0.00
			Bottom layer	0.75
281:				
Haplosaprists, dysic	Good		Not rated	
282:				
Haplosaprists, euic	Good		Not rated	

Table 15b.--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. "Not rated" indicates that information is not available or that no rating is applicable. 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
1:						
Beaches	Not rated		Not rated		Not rated	
3A:						
Psamments, moderately wet	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Too sandy	0.00			Depth to saturated zone	0.53
	Content of organic matter	0.12				
	Too acid	0.84				
	Droughty	0.98				
Beaches	Not rated		Not rated		Not rated	
5F:						
Udorthents	Not rated		Not rated		Not rated	
Udipsamments	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.84				
	Content of organic matter	0.88				
	Droughty	0.98				
10B:						
Perrinton	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Content of organic matter	0.12	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too acid	0.84	Shrink-swell	0.90		
	Carbonate content	0.92				
	Water erosion	0.99				
10C:						
Perrinton	Poor		Poor		Poor	
	Too clayey	0.00	Low strength	0.00	Too clayey	0.00
	Content of organic matter	0.12	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too acid	0.84	Shrink-swell	0.90	Slope	0.96
	Carbonate content	0.92				
	Water erosion	0.99				
11A:						
Ithaca	Poor		Poor		Poor	
	Too clayey	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12	Low strength	0.00	Too clayey	0.00
	Carbonate content	0.68	Shrink-swell	0.89		
	Water erosion	0.99				

Table 15b.--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
13B:						
Marlette	Fair		Poor		Fair	
	Content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.53
	Carbonate content	0.92	Depth to saturated zone	0.53		
	Too acid	0.99				
	Water erosion	0.99				
13C:						
Marlette	Fair		Poor		Fair	
	Content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.53
	Carbonate content	0.92	Depth to saturated zone	0.53	Slope	0.96
	Too acid	0.99				
	Water erosion	0.99				
14A:						
Capac	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.68	Low strength	0.78	Carbonate content	0.68
	Too acid	0.99	Shrink-swell	0.87		
15:						
Parkhill	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Carbonate content	0.92	Low strength	0.78		
	Too acid	0.99	Shrink-swell	0.87		
	Water erosion	0.99				
18B:						
Fern	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Too sandy	0.00	Shrink-swell	0.98	Depth to saturated zone	0.53
	Water erosion	0.99				
	Content of organic matter	0.12				
	Too acid	0.84				
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
18C:						
Fern	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Too sandy	0.00	Shrink-swell	0.98	Depth to saturated zone	0.53
	Water erosion	0.99				
	Content of organic matter	0.12				
	Too acid	0.84				

Table 15b.--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
18C:						
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.96
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
21B:						
Coloma	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
Tatches	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.54				
25:						
Gorvan	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.90				
Houghton	Not rated		Poor		Poor	
			Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
Glendora	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12			Too sandy	0.00
	Too acid	0.99				
29B:						
Fogg	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
Benzonia	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.50				
	Droughty	0.98				

Table 15b.--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
29C:						
Fogg	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
Benzonia	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
29D:						
Fogg	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
Benzonia	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
29E:						
Fogg	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
Benzonia	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
29F:						
Fogg	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				

Table 15b.--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
29F:						
Benzonia	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
32B:						
Fern	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Too sandy	0.00	Shrink-swell	0.98	Depth to saturated zone	0.53
	Water erosion	0.99				
	Content of organic matter	0.12				
	Too acid	0.84				
32C:						
Fern	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Too sandy	0.00	Shrink-swell	0.98	Depth to saturated zone	0.53
	Content of organic matter	0.12			Slope	0.96
	Too acid	0.84				
	Water erosion	0.99				
36B:						
Fern	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Too sandy	0.00	Shrink-swell	0.98	Depth to saturated zone	0.53
	Content of organic matter	0.12				
	Too acid	0.84				
	Water erosion	0.99				
Remus	Fair		Fair		Good	
	Content of organic matter	0.12	Shrink-swell	0.98		
	Too acid	0.99				
	Water erosion	0.99				
36C:						
Fern	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Too sandy	0.00	Shrink-swell	0.98	Depth to saturated zone	0.53
	Water erosion	0.99			Slope	0.96
	Content of organic matter	0.12				
	Too acid	0.84				
Remus	Fair		Fair		Fair	
	Content of organic matter	0.12	Shrink-swell	0.98	Slope	0.96
	Too acid	0.99				
	Water erosion	0.99				

Table 15b.--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
38B:						
Remus	Fair		Fair		Good	
	Content of organic matter	0.12	Shrink-swell	0.98		
	Too acid	0.99				
	Water erosion	0.99				
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
38C:						
Remus	Fair		Fair		Fair	
	Content of organic matter	0.12	Shrink-swell	0.98	Slope	0.96
	Too acid	0.99				
	Water erosion	0.99				
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.96
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
38D:						
Remus	Fair		Fair		Poor	
	Content of organic matter	0.12	Shrink-swell	0.98	Slope	0.00
	Too acid	0.99				
	Water erosion	0.99				
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
38E:						
Remus	Fair		Poor		Poor	
	Content of organic matter	0.12	Slope	0.00	Slope	0.00
			Shrink-swell	0.98		
	Too acid	0.99				
	Water erosion	0.99				
Spinks	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				

Table 15b.--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
43B:						
Thompsonville-------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.14	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.14
	Too acid	0.16			Too acid	0.98
44A:						
Milnichol----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00	Low strength	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Carbonate content	0.92				
47B:						
Spinks----------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Coloma----------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
47C:						
Spinks----------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.96
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Coloma----------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.96
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
47D:						
Spinks----------	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				

Table 15b.--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
47D:						
Coloma	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
47E:						
Spinks	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Coloma	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
47F:						
Spinks	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Coloma	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
52C:						
Copemish	Poor		Poor		Poor	
	Too sandy	0.00	Depth to cemented pan	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00			Too sandy	0.00
	Droughty	0.00			Depth to cemented pan	0.00
	Depth to cemented pan	0.00				
	Too acid	0.50			Too acid	0.02
52E:						
Copemish	Poor		Poor		Poor	
	Too sandy	0.00	Depth to cemented pan	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00				
	Droughty	0.00	Slope	0.02	Too sandy	0.00
	Depth to cemented pan	0.00			Depth to cemented pan	0.00
	Too acid	0.50			Slope	0.00
					Too acid	0.02

Table 15b.--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
53A:						
Saugatuck	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to cemented pan	0.00	Too sandy	0.00
	Droughty	0.00			Depth to saturated zone	0.00
	Depth to cemented pan	0.00			Depth to cemented pan	0.00
	Too acid	0.16			Too acid	0.68
Jebavy	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Droughty	0.00	Depth to cemented pan	0.00	Too sandy	0.00
	Depth to cemented pan	0.00			Depth to saturated zone	0.00
	Too acid	0.50			Depth to cemented pan	0.00
					Too acid	0.68
54B:						
Kaleva	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
54C:						
Kaleva	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
54D:						
Kaleva	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
54E:						
Kaleva	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				

Table 15b.--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
54F:						
Kaleva	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
55B:						
Brethren	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.89	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.89
	Content of organic matter	0.12				
	Too acid	0.20				
	Droughty	0.83				
57B:						
Grattan	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.83				
57C:						
Grattan	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.83				
57D:						
Grattan	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.83				
57E:						
Grattan	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.83				
57F:						
Grattan	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.83				

Table 15b.--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
58B:						
Covert	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.53
	Content of organic matter	0.12			Too acid	0.68
	Too acid	0.16				
	Droughty	0.83				
59B:						
Pipestone	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.92				
60:						
Dair	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Too acid	0.84				
63B:						
Coloma	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
63C:						
Coloma	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.96
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
63D:						
Coloma	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
63E:						
Coloma	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				

Table 15b.--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
63F:						
Coloma	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.75				
64B:						
Benona	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Too acid	0.00				
	Content of organic matter	0.12				
64C:						
Benona	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Too acid	0.00			Too acid	0.98
	Content of organic matter	0.12				
64D:						
Benona	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Too acid	0.00			Too acid	0.98
	Content of organic matter	0.12				
64E:						
Benona	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Too acid	0.98
	Content of organic matter	0.12				
64F:						
Benona	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Too acid	0.98
	Content of organic matter	0.12				
67B:						
Plainfield	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Droughty	0.39				
	Too acid	0.50				

Table 15b.--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
67C:						
Plainfield----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Content of organic matter	0.12				
	Droughty	0.39				
	Too acid	0.50				
67E:						
Plainfield----------	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.32	Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12				
	Droughty	0.39				
	Too acid	0.50				
67F:						
Plainfield----------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.39				
	Too acid	0.50				
73:						
Houghton----------	Not rated		Poor		Poor	
			Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
Adrian----------	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
81:						
Lumley----------	Fair		Poor		Poor	
	Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
					Too acid	0.08
Makinen----------	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
					Too acid	0.00

Table 15b.--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
83:						
Histosols	Fair		Poor		Poor	
	Too acid	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Rock fragments	0.00
					Content of organic matter	0.00
Aquents	Poor		Poor		Poor	
	Content of organic matter	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
86D:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.01				
	Droughty	0.25				
	Too acid	0.84				
86F:						
Dune land	Not rated		Not rated		Not rated	
Quartzipsamments	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.01				
	Droughty	0.25				
	Too acid	0.84				
88B:						
Udipsamments	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.84				
	Content of organic matter	0.88				
	Droughty	0.98				
91:						
Pits, sand and gravel	Not rated		Not rated		Not rated	
96C:						
Goodharbor	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.74				

Table 15b.--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
100A:						
Dair	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Too acid	0.84				
Pipestone	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.92				
102A:						
Thompsonville	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.14	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.14
	Too acid	0.16			Too acid	0.98
Milnichol	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12	Low strength	0.00		
	Too acid	0.16				
	Carbonate content	0.92				
104B:						
Covert	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.53
	Content of organic matter	0.12			Too acid	0.68
	Too acid	0.16				
	Droughty	0.83				
Pipestone	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.92				
106B:						
Covert	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.53
	Content of organic matter	0.12			Too acid	0.68
	Too acid	0.16				
	Droughty	0.83				
Dair	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Too acid	0.84				

Table 15b.--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
107B:						
Benzonia	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.50				
	Droughty	0.98				
107C:						
Benzonia	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
107D:						
Benzonia	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
107E:						
Benzonia	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
107F:						
Benzonia	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.98				
108A:						
Saugatuck	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00				
	Droughty	0.00	Depth to cemented pan	0.00	Too sandy	0.00
	Depth to cemented pan	0.00			Depth to saturated zone	0.00
	Too acid	0.16			Depth to cemented pan	0.00
					Too acid	0.68

Table 15b.--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
109B:						
Shavenaugh----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.00
	Content of organic matter	0.12				
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
109C:						
Shavenaugh----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.00
	Content of organic matter	0.12			Slope	0.96
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
109D:						
Shavenaugh----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
109E:						
Shavenaugh----------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
109F:						
Shavenaugh----------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
110B:						
Healylake----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to cemented pan	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to saturated zone	0.53	Too sandy	0.00
	Droughty	0.00			Depth to cemented pan	0.00
	Depth to cemented pan	0.00			Depth to saturated zone	0.53
	Too acid	0.16			Too acid	0.68

Table 15b.--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
111D:						
Onekama----------	Fair		Poor		Poor	
	Too clayey	0.08	Low strength	0.00	Slope	0.00
	Content of organic matter	0.12	Shrink-swell	0.87	Too clayey	0.05
	Carbonate content	0.68			Carbonate content	0.68
111E:						
Onekama----------	Fair		Poor		Poor	
	Too clayey	0.08	Slope	0.00	Slope	0.00
	Content of organic matter	0.12	Low strength	0.00	Too clayey	0.05
	Carbonate content	0.68	Shrink-swell	0.87	Carbonate content	0.68
111F:						
Onekama----------	Fair		Poor		Poor	
	Too clayey	0.08	Slope	0.00	Slope	0.00
	Content of organic matter	0.12	Low strength	0.00	Too clayey	0.05
	Carbonate content	0.68	Shrink-swell	0.87	Carbonate content	0.68
114B:						
Nordhouse----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Too acid	0.00				
	Content of organic matter	0.88				
	Droughty	0.90				
Platteriver---------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.14	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.02
	Content of organic matter	0.12			Depth to saturated zone	0.14
	Too acid	0.50				
	Droughty	0.77				
Dair----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Too acid	0.84				
115B:						
Nordhouse----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Too acid	0.00				
	Content of organic matter	0.88				
	Droughty	0.90				
115D:						
Nordhouse----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Too acid	0.00			Too acid	0.98
	Content of organic matter	0.88				
	Droughty	0.90				

Table 15b.--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
115F:						
Nordhouse	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Too acid	0.98
	Content of organic matter	0.88				
	Droughty	0.90				
118B:						
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Shavenaugh	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.00
	Content of organic matter	0.12				
	Droughty	0.80				
	Too acid	0.99				
	Carbonate content	0.92				
118C:						
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.96
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Shavenaugh	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.00
	Content of organic matter	0.12			Slope	0.96
	Too acid	0.99				
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
118D:						
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				

Table 15b.--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
118D:						
Shavenaugh----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
118E:						
Spinks----------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Shavenaugh----------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
118F:						
Spinks----------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Shavenaugh----------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
119:						
Madaus----------	Poor		Poor		Poor	
	Carbonate content	0.00	Depth to saturated zone	0.00	Carbonate content	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Water erosion	0.90				
120B:						
Boyer----------	Fair		Good		Poor	
	Content of organic matter	0.12			Rock fragments	0.00
	Too acid	0.99				

Table 15b.--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
120B:						
Shavenaugh----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.00
	Content of organic matter	0.12				
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
120C:						
Boyer----------	Fair		Good		Poor	
	Content of organic matter	0.12			Rock fragments	0.00
	Too acid	0.99			Slope	0.96
Shavenaugh----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.00
	Content of organic matter	0.12			Slope	0.96
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
120D:						
Boyer----------	Fair		Good		Poor	
	Content of organic matter	0.12			Slope	0.00
	Too acid	0.99			Rock fragments	0.00
Shavenaugh----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
120E:						
Boyer----------	Fair		Poor		Poor	
	Content of organic matter	0.12	Slope	0.00	Slope	0.00
	Too acid	0.99			Rock fragments	0.00
Shavenaugh----------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
120F:						
Boyer----------	Fair		Poor		Poor	
	Content of organic matter	0.12	Slope	0.00	Slope	0.00
	Too acid	0.99			Rock fragments	0.00

Table 15b.--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
120F:						
Shavenaugh----------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.00
	Droughty	0.80				
	Carbonate content	0.92				
	Too acid	0.99				
122:						
Dair----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Too acid	0.84				
Adrian----------	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
123B:						
Platteriver---------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.14	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.02
	Content of organic matter	0.12			Depth to saturated zone	0.14
	Too acid	0.50				
	Droughty	0.77				
Pipestone----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.50				
	Droughty	0.92				
125B:						
Spinks----------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Tekenink, sandy substratum---------	Poor		Good		Fair	
	Wind erosion	0.00			Too sandy	0.22
	Too sandy	0.22				
	Too acid	0.84				
	Content of organic matter	0.88				

Table 15b.--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
125C:						
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.96
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Tekenink, sandy substratum	Poor		Good		Fair	
	Wind erosion	0.00			Too sandy	0.22
	Too sandy	0.22			Slope	0.96
	Too acid	0.84				
	Content of organic matter	0.88				
125D:						
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Tekenink, sandy substratum	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.22			Too sandy	0.22
	Too acid	0.84				
	Content of organic matter	0.88				
125E:						
Spinks	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
Tekenink, sandy substratum	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.22			Too sandy	0.22
	Too acid	0.84				
	Content of organic matter	0.88				
125F:						
Spinks	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				

Table 15b.--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
125F:						
Tekenink, sandy substratum	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.22			Too sandy	0.22
	Too acid	0.84				
	Content of organic matter	0.88				
126D:						
Filer	Fair		Fair		Poor	
	Content of organic matter	0.12	Shrink-swell	0.87	Slope	0.00
	Too acid	0.99				
126E:						
Filer	Fair		Poor		Poor	
	Content of organic matter	0.12	Slope	0.00	Slope	0.00
	Too acid	0.99	Shrink-swell	0.87		
127B:						
Kaleva, deep water table	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
130A:						
Glendora	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12			Too sandy	0.00
	Too acid	0.99				
Algansee	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.92
	Too acid	0.54				
	Droughty	0.67				
Abscota	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.89	Too sandy	0.00
	Too sandy	0.00			Hard to reclaim (rock fragments)	0.32
	Content of organic matter	0.12			Depth to saturated zone	0.89
	Too acid	0.54				
	Droughty	0.99				
131A:						
Milarch	Fair		Fair		Fair	
	Content of organic matter	0.12	Depth to saturated zone	0.53	Depth to saturated zone	0.53
	Too acid	0.99				

Table 15b.--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
132A:						
Milnichol	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00	Low strength	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Carbonate content	0.92				
Dair	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Too acid	0.84				
135B:						
Nessen	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.92
	Content of organic matter	0.12				
	Droughty	0.39				
	Too acid	0.84				
135C:						
Nessen	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.92
	Content of organic matter	0.12			Slope	0.96
	Droughty	0.39				
	Too acid	0.84				
136B:						
Nessen	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.92
	Content of organic matter	0.12				
	Droughty	0.39				
	Too acid	0.84				
Kaleva	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
136C:						
Nessen	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Hard to reclaim (rock fragments)	0.92
	Content of organic matter	0.12			Slope	0.96
	Droughty	0.39				
	Too acid	0.84				

Table 15b.--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
136C:						
Kaleva	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.96
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
136D:						
Nessen	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.92
	Droughty	0.39				
	Too acid	0.84				
Kaleva	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
136E:						
Nessen	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Hard to reclaim (rock fragments)	0.92
	Droughty	0.39				
	Too acid	0.84				
Kaleva	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.16				
	Droughty	0.98				
138D:						
Mollineaux	Poor		Fair		Poor	
	Wind erosion	0.00	Low strength	0.22	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
Spinks	Poor		Good		Poor	
	Wind erosion	0.00			Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				

Table 15b.--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
138E:						
Mollineaux----------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00	Low strength	0.22	Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
Spinks----------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.97				
	Too acid	0.99				
139D:						
Mollineaux----------	Poor		Fair		Poor	
	Wind erosion	0.00	Low strength	0.22	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
Remus----------	Fair		Fair		Poor	
	Content of organic matter	0.12	Shrink-swell	0.98	Slope	0.00
	Too acid	0.99				
	Water erosion	0.99				
139E:						
Mollineaux----------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00	Low strength	0.22	Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
Remus----------	Fair		Poor		Poor	
	Content of organic matter	0.12	Slope	0.00	Slope	0.00
			Shrink-swell	0.98		
	Too acid	0.99				
	Water erosion	0.99				
210B:						
Plainfield----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Droughty	0.48				
	Too acid	0.50				
210C:						
Plainfield----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12				
	Droughty	0.48				
	Too acid	0.50				

Table 15b.--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
210D:						
Plainfield----------	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.02	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Droughty	0.48				
	Too acid	0.50				
211B:						
Plainfield, banded substratum---------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.68
	Too acid	0.00				
	Content of organic matter	0.12				
	Droughty	0.79				
212B:						
Plainfield, very deep water table---	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Too acid	0.00				
	Content of organic matter	0.12				
	Droughty	0.99				
215B:						
Plainfield, loamy substratum---------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.88
	Too acid	0.00				
	Content of organic matter	0.12				
	Droughty	0.55				
220B:						
Typic Udipsamments--	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.78				
220C:						
Typic Udipsamments--	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.78				

Table 15b.--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
220D:						
Typic Udipsamments--	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.02	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.78				
220E:						
Typic Udipsamments--	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.78				
220F:						
Typic Udipsamments--	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.78				
221B:						
Typic Udipsamments, banded substratum--	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.69				
Lamellic Udipsamments-------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
221C:						
Typic Udipsamments, banded substratum--	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.69				
Lamellic Udipsamments-------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				

Table 15b.--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
221D:						
Typic Udipsamments, banded substratum--	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.02	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.69				
Lamellic Udipsamments-------	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.02	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
221E:						
Typic Udipsamments, banded substratum--	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.69				
Lamellic Udipsamments-------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
221F:						
Typic Udipsamments, banded substratum--	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.69				
Lamellic Udipsamments-------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				

Table 15b.--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
222B:						
Typic Udipsamments, very deep water table	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Too acid	0.54				
	Content of organic matter	0.88				
	Droughty	0.90				
222C:						
Typic Udipsamments, very deep water table	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Too acid	0.54			Too acid	0.98
	Content of organic matter	0.88				
	Droughty	0.90				
223B:						
Lamellic Udipsamments	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
Typic Udipsamments, banded substratum	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.69				
223C:						
Lamellic Udipsamments	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
Typic Udipsamments, banded substratum	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.69				

Table 15b.--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
224B:						
Oxyaquic Udipsamments-------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.89	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.02
	Content of organic matter	0.12			Depth to saturated zone	0.89
	Too acid	0.50				
	Droughty	0.88				
225B:						
Typic Udipsamments, loamy substratum---	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.98
	Too acid	0.54				
	Content of organic matter	0.88				
	Droughty	0.90				
	Carbonate content	0.92				
225C:						
Typic Udipsamments, loamy substratum---	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Too acid	0.54			Too acid	0.98
	Content of organic matter	0.88				
	Droughty	0.90				
	Carbonate content	0.92				
225D:						
Typic Udipsamments, loamy substratum---	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.02	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.54			Too acid	0.98
	Content of organic matter	0.88				
	Droughty	0.90				
	Carbonate content	0.92				
230B:						
Entic Haplorthods, sandy----------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.50				
	Too acid	0.54				
230C:						
Entic Haplorthods, sandy----------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.37
	Content of organic matter	0.50				
	Too acid	0.54				

Table 15b.--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
230D:						
Entic Haplorthods, sandy	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.50				
	Too acid	0.54				
230E:						
Entic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.50				
	Too acid	0.54				
230F:						
Entic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.50				
	Too acid	0.54				
231B:						
Entic Haplorthods, sandy, banded substratum	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.99				
Lamellic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.02
	Content of organic matter	0.12				
	Too acid	0.50				
231C:						
Entic Haplorthods, sandy, banded substratum	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.99				

Table 15b.--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
231C:						
Lamellic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.02
	Content of organic matter	0.12			Slope	0.37
	Too acid	0.50				
231D:						
Entic Haplorthods, sandy, banded substratum---------	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.99				
Lamellic Haplorthods, sandy	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.02
	Too acid	0.50				
231E:						
Entic Haplorthods, sandy, banded substratum---------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.99				
Lamellic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.02
	Too acid	0.50				
232B:						
Entic Haplorthods, sandy, very deep water table--------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00				
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.71				

Table 15b.--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
232B:						
Lamellic Haplorthods, sandy, very deep water table	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Too acid	0.68
	Too sandy	0.00				
	Content of organic matter	0.12				
233B:						
Lamellic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.02
	Content of organic matter	0.12				
	Too acid	0.50				
Entic Haplorthods, sandy, banded substratum	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.98
	Content of organic matter	0.12				
	Too acid	0.54				
	Droughty	0.99				
233C:						
Lamellic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.02
	Content of organic matter	0.12			Slope	0.37
	Too acid	0.50				
Entic Haplorthods, sandy, banded substratum	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.99				
233D:						
Lamellic Haplorthods, sandy	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.02
	Too acid	0.50				

Table 15b.--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
233D:						
Entic Haplorthods, sandy, banded substratum---------	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.99				
233E:						
Lamellic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.02
	Too acid	0.50				
Entic Haplorthods, sandy, banded substratum---------	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.98
	Too acid	0.54				
	Droughty	0.99				
234B:						
Oxyaquic Haplorthods, sandy	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.89	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.68
	Too acid	0.00			Depth to saturated zone	0.89
	Content of organic matter	0.12				
	Droughty	0.88				
235B:						
Alfic Haplorthods, sandy----------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Content of organic matter	0.12				
	Too acid	0.84				
Lamellic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.02
	Content of organic matter	0.12				
	Too acid	0.50				

Table 15b.--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
235C:						
Alfic Haplorthods, sandy	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12				
	Too acid	0.84				
Lamellic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too sandy	0.00			Too acid	0.02
	Content of organic matter	0.12			Slope	0.37
	Too acid	0.50				
235D:						
Alfic Haplorthods, sandy	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.02	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
Lamellic Haplorthods, sandy	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.02
	Too acid	0.50				
235E:						
Alfic Haplorthods, sandy	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
Lamellic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.02
	Too acid	0.50				
235F:						
Alfic Haplorthods, sandy	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Content of organic matter	0.12				
	Too acid	0.84				

Table 15b.--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
235F:						
Lamellic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too sandy	0.00			Too sandy	0.00
	Content of organic matter	0.12			Too acid	0.02
	Too acid	0.50				
237B:						
Glossudalfs, fine-loamy	Fair		Fair		Good	
	Content of organic matter	0.12	Shrink-swell	0.96		
237C:						
Glossudalfs, fine-loamy	Fair		Fair		Fair	
	Content of organic matter	0.12	Shrink-swell	0.96	Slope	0.37
237D:						
Glossudalfs, fine-loamy	Fair		Fair		Poor	
	Content of organic matter	0.12	Slope	0.02	Slope	0.00
			Shrink-swell	0.96		
240B:						
Typic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00				
	Too sandy	0.00				
	Droughty	0.04				
	Content of organic matter	0.12				
240C:						
Typic Haplorthods, sandy	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Slope	0.37
	Too sandy	0.00				
	Droughty	0.04				
	Content of organic matter	0.12				
240D:						
Typic Haplorthods, sandy	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Too acid	0.00			Too sandy	0.00
	Too sandy	0.00				
	Droughty	0.04				
	Content of organic matter	0.12				

Table 15b.--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
240E:						
Typic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too acid	0.00			Too sandy	0.00
	Too sandy	0.00				
	Droughty	0.04				
	Content of organic matter	0.12				
240F:						
Typic Haplorthods, sandy	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Too acid	0.00			Too sandy	0.00
	Too sandy	0.00				
	Droughty	0.04				
	Content of organic matter	0.12				
241B:						
Typic Haplorthods, sandy, banded substratum	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.00				
	Content of organic matter	0.12				
	Droughty	0.89				
Lamellic Haplorthods, sandy, dark subsoil	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Too acid	0.02
	Too sandy	0.00				
	Content of organic matter	0.12				
241C:						
Typic Haplorthods, sandy, banded substratum	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Slope	0.37
	Too acid	0.00				
	Content of organic matter	0.12				
	Droughty	0.89				
Lamellic Haplorthods, sandy, dark subsoil	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Too acid	0.02
	Too sandy	0.00			Slope	0.37
	Content of organic matter	0.12				

Table 15b.--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
242B:						
Typic Haplorthods, sandy, very deep water table--------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Too acid	0.68
	Too acid	0.00				
	Content of organic matter	0.12				
	Droughty	0.80				
243C:						
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Poor		Good		Poor	
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Slope	0.37
	Too sandy	0.00			Too acid	0.68
244B:						
Oxyaquic Haplorthods, sandy, dark subsoil-------	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.89	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.68
	Too acid	0.00			Depth to saturated zone	0.89
	Content of organic matter	0.12				
	Droughty	0.75				
245C:						
Typic Haplorthods, sandy, loamy substratum---------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Rock fragments	0.12
	Too acid	0.00			Slope	0.37
	Content of organic matter	0.12			Too acid	0.68
	Droughty	0.55				
Alfic Haplorthods, sandy, dark subsoil	Poor		Good		Fair	
	Wind erosion	0.00			Slope	0.37
	Content of organic matter	0.12				
	Too acid	0.84				
	Water erosion	0.99				
245D:						
Typic Haplorthods, sandy, loamy substratum---------	Poor		Fair		Poor	
	Too sandy	0.00	Slope	0.02	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Rock fragments	0.12
	Content of organic matter	0.12			Too acid	0.68
	Droughty	0.55				

Table 15b.--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
245D:						
Alfic Haplorthods, sandy, dark subsoil	Poor		Fair		Poor	
	Wind erosion	0.00	Slope	0.02	Slope	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
	Water erosion	0.99				
245E:						
Typic Haplorthods, sandy, loamy substratum---------	Poor		Poor		Poor	
	Too sandy	0.00	Slope	0.00	Slope	0.00
	Wind erosion	0.00			Too sandy	0.00
	Too acid	0.00			Rock fragments	0.12
	Content of organic matter	0.12			Too acid	0.68
	Droughty	0.55				
Alfic Haplorthods, sandy, dark subsoil	Poor		Poor		Poor	
	Wind erosion	0.00	Slope	0.00	Slope	0.00
	Content of organic matter	0.12				
	Too acid	0.84				
	Water erosion	0.99				
246B:						
Alfic Oxyaquic Haplorthods, sandy	Poor		Fair		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.89	Too sandy	0.00
	Too sandy	0.00			Depth to saturated zone	0.89
	Too acid	0.16				
Typic Haplorthods, sandy, loamy substratum---------	Poor		Good		Poor	
	Too sandy	0.00			Too sandy	0.00
	Wind erosion	0.00			Rock fragments	0.12
	Too acid	0.00			Too acid	0.68
	Content of organic matter	0.12				
	Droughty	0.55				
250:						
Typic Psammaquents--	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12			Too sandy	0.00
	Droughty	0.75				
Aquic Udipsamments--	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Droughty	0.27				
	Too acid	0.54				

Table 15b.--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
250:						
Haplosaprists, euic	Fair		Poor		Poor	
	Too acid	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
252:						
Typic Endoaquods, sandy, wet---------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Droughty	0.23			Too acid	0.98
	Too acid	0.54				
Haplosaprists, dysic	Fair		Poor		Poor	
	Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
					Too acid	0.12
253A:						
Typic Duraquods, sandy, ortstein----	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00	Depth to cemented pan	0.00	Too sandy	0.00
	Droughty	0.00			Depth to saturated zone	0.00
	Depth to cemented pan	0.00			Depth to cemented pan	0.00
	Too acid	0.00			Too acid	0.02
Aquic Udipsamments--	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Droughty	0.27				
	Too acid	0.54				
255B:						
Aquic Udipsamments--	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Droughty	0.27				
	Too acid	0.54				
Oxyaquic Haplorthods, sandy	Poor		Fair		Poor	
	Too sandy	0.00	Depth to saturated zone	0.89	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.68
	Too acid	0.00			Depth to saturated zone	0.89
	Content of organic matter	0.12				
	Droughty	0.88				

Table 15b.--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
257:						
Endoaquolls---------	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
Haplosaprists, euic	Fair		Poor		Poor	
	Too acid	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
Typic Psammaquents--	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12			Too sandy	0.00
	Droughty	0.75				
262A:						
Typic Duraquods, sandy, ortstein----	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Hard to reclaim (dense layer)	0.00
	Wind erosion	0.00				
	Droughty	0.00	Depth to cemented pan	0.00	Too sandy	0.00
	Depth to cemented pan	0.00			Depth to saturated zone	0.00
	Too acid	0.00			Depth to cemented pan	0.00
					Too acid	0.02
263B:						
Aquic Udipsamments--	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Content of organic matter	0.12			Too acid	0.98
	Droughty	0.27				
	Too acid	0.54				
264A:						
Typic Endoaquods, sandy----------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Wind erosion	0.00			Depth to saturated zone	0.00
	Too acid	0.54			Too acid	0.98
	Droughty	0.59				
272:						
Typic Endoaquods, sandy, wet---------	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Too sandy	0.00
	Content of organic matter	0.12			Depth to saturated zone	0.00
	Droughty	0.23			Too acid	0.98
	Too acid	0.54				
273:						
Typic Psammaquents--	Poor		Poor		Poor	
	Too sandy	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Content of organic matter	0.12			Too sandy	0.00
	Droughty	0.75				

Table 15b.--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
274:						
Typic Epiaquolls, sandy over loamy---	Fair		Poor		Poor	
	Content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Water erosion	0.90	Shrink-swell	0.99		
	Carbonate content	0.92				
280:						
Aquents----------	Poor		Poor		Poor	
	Content of organic matter	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
Histosols----------	Fair		Poor		Poor	
	Too acid	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Rock fragments	0.00
					Content of organic matter	0.00
281:						
Haplosaprists, dysic	Fair		Poor		Poor	
	Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00
					Too acid	0.12
282:						
Haplosaprists, euic	Fair		Poor		Poor	
	Too acid	0.99	Depth to saturated zone	0.00	Depth to saturated zone	0.00
					Content of organic matter	0.00

Table 16a.--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. "Not rated" indicates that information is not available or that no rating is applicable. 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
1:						
Beaches	Not rated		Not rated		Not rated	
3A:						
Psamments, moderately wet	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.14	Depth to water	0.01
Beaches	Not rated		Not rated		Not rated	
5F:						
Udorthents	Very limited		Not rated		Very limited	
	Slope	1.00			No ground water	1.00
Udipsamments	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
10B:						
Perrinton	Not limited		Somewhat limited		Very limited	
			Depth to saturated zone	0.86	No ground water	1.00
10C:						
Perrinton	Not limited		Somewhat limited		Very limited	
			Depth to saturated zone	0.86	No ground water	1.00
11A:						
Ithaca	Not limited		Very limited		Very limited	
			Depth to saturated zone	1.00	No ground water	1.00
			Piping	0.01		
13B:						
Marlette	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.09	Depth to saturated zone	1.00	Slow refill	0.91
					Cutbanks caving	0.10
			Piping	0.77	Depth to water	0.01
13C:						
Marlette	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.09	Depth to saturated zone	1.00	Slow refill	0.91
					Cutbanks caving	0.10
			Piping	0.77	Depth to water	0.01
14A:						
Capac	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.03	Depth to saturated zone	1.00	Slow refill	0.97
					Cutbanks caving	0.10
			Piping	1.00		

Table 16a.--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
15:						
Parkhill	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.03	Depth to saturated zone	1.00	Slow refill	0.30
					Cutbanks caving	0.10
			Ponding	1.00		
			Piping	0.65		
18B:						
Fern	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Slow refill	0.97
			Seepage	0.31	Depth to water	0.01
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
18C:						
Fern	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Slow refill	0.97
			Seepage	0.31	Depth to water	0.01
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
21B:						
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Tatches	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
25:						
Gorvan	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
Houghton	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	0.10
			Depth to saturated zone	1.00		
Glendora	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.51		
29B:						
Fogg	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
29C:						
Fogg	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
29D:						
Fogg	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.03				
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
29E:						
Fogg	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.36				
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
29F:						
Fogg	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.92				
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.92				
32B:						
Fern	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Slow refill	0.97
			Seepage	0.31	Depth to water	0.01
32C:						
Fern	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Slow refill	0.97
			Seepage	0.31	Depth to water	0.01
36B:						
Fern	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Slow refill	0.97
			Seepage	0.31	Depth to water	0.01
Remus	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
36C:						
Fern	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Slow refill	0.97
			Seepage	0.31	Depth to water	0.01

Table 16a.--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
36C:						
Remus	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
38B:						
Remus	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
38C:						
Remus	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
38D:						
Remus	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
	Slope	0.03				
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
38E:						
Remus	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
	Slope	0.36				
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
43B:						
Thompsonville	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
44A:						
Milnichol	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
47B:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
47C:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
47D:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
47E:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
47F:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
52C:						
Copemish	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Depth to cemented pan	1.00	Thin layer	1.00		
52E:						
Copemish	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Depth to cemented pan	1.00	Thin layer	1.00		
	Slope	0.24				
53A:						
Saugatuck	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
	Depth to cemented pan	1.00	Thin layer	1.00		
			Seepage	0.75		
Jebavy	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
	Depth to cemented pan	1.00	Seepage	1.00		
			Thin layer	1.00		
			Ponding	1.00		
54B:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
54C:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00

Table 16a.--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
54D:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.03				
54E:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.36				
54F:						
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.94				
55B:						
Brethren	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Cutbanks caving	1.00
			Depth to saturated zone	0.86	Depth to water	0.06
57B:						
Grattan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.93	No ground water	1.00
57C:						
Grattan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.93	No ground water	1.00
57D:						
Grattan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.93	No ground water	1.00
	Slope	0.03				
57E:						
Grattan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.93	No ground water	1.00
	Slope	0.36				
57F:						
Grattan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.93	No ground water	1.00
	Slope	0.94				
58B:						
Covert	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Depth to water	0.01
			Seepage	0.75		
59B:						
Pipestone	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	1.00		

Table 16a.--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
60:						
Dair	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
63B:						
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
63C:						
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
63D:						
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
63E:						
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
63F:						
Coloma	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
64B:						
Benona	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
64C:						
Benona	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
64D:						
Benona	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
64E:						
Benona	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.45				
64F:						
Benona	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
67B:						
Plainfield	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
67C:						
Plainfield	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
67E:						
Plainfield----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.15				
67F:						
Plainfield----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
73:						
Houghton----------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	0.10
			Depth to saturated zone	1.00		
Adrian----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
81:						
Lumley----------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	0.10
			Depth to saturated zone	1.00		
Makinen----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
83:						
Histosols----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Depth to saturated zone	1.00		
			Seepage	1.00		
Aquents----------	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Cutbanks caving	0.10
86D:						
Dune land----------	Not rated		Not rated		Not rated	
Quartzipsamments----	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.01				
86F:						
Dune land----------	Not rated		Not rated		Not rated	
Quartzipsamments----	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	1.00				

Table 16a.--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
88B:						
Udipsamments	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
91:						
Pits, sand and gravel	Not rated		Not rated		Not rated	
96C:						
Goodharbor	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
100A:						
Dair	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
Pipestone	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	1.00		
102A:						
Thompsonville	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
Milnichol	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
104B:						
Covert	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Depth to water	0.01
			Seepage	0.75		
Pipestone	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	1.00		
106B:						
Covert	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
					Depth to water	0.01
			Seepage	0.75		
Dair	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
107B:						
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
107C:						
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
107D:						
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
107E:						
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
107F:						
Benzonia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.92				
108A:						
Saugatuck	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
	Depth to cemented pan	1.00	Thin layer	1.00		
			Seepage	0.75		
109B:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
109C:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
109D:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.03				
109E:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.32				
109F:						
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.94				
110B:						
Healylake	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Cutbanks caving	1.00
	Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	0.01
			Depth to saturated zone	1.00		
111D:						
Onekama	Somewhat limited		Not limited		Very limited	
	Slope	0.03			No ground water	1.00

Table 16a.--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
111E:						
Onekama	Somewhat limited		Not limited		Very limited	
	Slope	0.36			No ground water	1.00
111F:						
Onekama	Somewhat limited		Not limited		Very limited	
	Slope	0.94			No ground water	1.00
114B:						
Nordhouse	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
Platteriver	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	1.00		
Dair	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
115B:						
Nordhouse	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
115D:						
Nordhouse	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.01				
115F:						
Nordhouse	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	1.00				
118B:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
118C:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
118D:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.03				

Table 16a.--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
118E:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.36				
118F:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.94				
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.94				
119:						
Madaus	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
	Excess lime	1.00				
			Ponding	1.00		
			Seepage	0.75		
120B:						
Boyer	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
120C:						
Boyer	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
120D:						
Boyer	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.03				
120E:						
Boyer	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.36				

Table 16a.--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
120F:						
Boyer	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.94				
Shavenaugh	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.94				
122:						
Dair	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
Adrian	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
123B:						
Platteriver	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	1.00		
Pipestone	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	1.00		
125B:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Tekenink, sandy substratum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
125C:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Tekenink, sandy substratum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
125D:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
Tekenink, sandy substratum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				

Table 16a.--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
125E:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
Tekenink, sandy substratum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
125F:						
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.94				
Tekenink, sandy substratum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.94				
126D:						
Filer	Somewhat limited		Very limited		Very limited	
	Seepage	0.03	Piping	1.00	No ground water	1.00
	Slope	0.03				
126E:						
Filer	Somewhat limited		Very limited		Very limited	
	Slope	0.36	Piping	1.00	No ground water	1.00
	Seepage	0.03				
127B:						
Kaleva, deep water table	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
130A:						
Glendora	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.51		
Algansee	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
Abscota	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks caving	1.00
					Depth to water	0.06
			Seepage	0.67		
131A:						
Milarch	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Cutbanks caving	1.00
			Depth to saturated zone	1.00	Depth to water	0.01

Table 16a.--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
132A:						
Milnichol	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
Dair	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
135B:						
Nessen	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.38	No ground water	1.00
135C:						
Nessen	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.38	No ground water	1.00
136B:						
Nessen	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.38	No ground water	1.00
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
136C:						
Nessen	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.38	No ground water	1.00
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
136D:						
Nessen	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.38	No ground water	1.00
	Slope	0.03				
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.03				
136E:						
Nessen	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.38	No ground water	1.00
	Slope	0.36				
Kaleva	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	No ground water	1.00
	Slope	0.36				
138D:						
Mollineaux	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
Spinks	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				

Table 16a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
138E:						
Mollineaux----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
Spinks----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
139D:						
Mollineaux----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.03				
Remus----------	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
	Slope	0.03				
139E:						
Mollineaux----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.36				
Remus----------	Somewhat limited		Very limited		Very limited	
	Seepage	0.53	Piping	1.00	No ground water	1.00
	Slope	0.36				
210B:						
Plainfield----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
210C:						
Plainfield----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
210D:						
Plainfield----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
211B:						
Plainfield, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.27	No ground water	1.00
211C:						
Plainfield, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.27	No ground water	1.00
	Slope	0.01				
212B:						
Plainfield, very deep water table---	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
215B:						
Plainfield, loamy substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
220B:						
Typic Udipsamments--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
220C:						
Typic Udipsamments--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
220D:						
Typic Udipsamments--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
220E:						
Typic Udipsamments--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
220F:						
Typic Udipsamments--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
221B:						
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
Lamellic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
221C:						
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	0.01				
Lamellic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
221D:						
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	0.24				
Lamellic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
221E:						
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	0.82				

Table 16a.--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
221E:						
Lamellic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
221F:						
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	1.00				
Lamellic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
222B:						
Typic Udipsamments, very deep water table----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
222C:						
Typic Udipsamments, very deep water table----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
223B:						
Lamellic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
223C:						
Lamellic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
Typic Udipsamments, banded substratum--	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	0.01				
224B:						
Oxyaquic Udipsamments-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks caving	1.00
					Depth to water	0.06
			Seepage	0.75		

Table 16a.--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
225B:						
Typic Udipsamments, loamy substratum---	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
225C:						
Typic Udipsamments, loamy substratum---	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
225D:						
Typic Udipsamments, loamy substratum---	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
230B:						
Entic Haplorthods, sandy----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
230C:						
Entic Haplorthods, sandy----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
230D:						
Entic Haplorthods, sandy----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
230E:						
Entic Haplorthods, sandy----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
230F:						
Entic Haplorthods, sandy----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
231B:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
231C:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
231D:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
231E:						
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
232B:						
Entic Haplorthods, sandy, very deep water table--------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Lamellic Haplorthods, sandy, very deep water table----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
233B:						
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
233C:						
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
233D:						
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
233E:						
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
234B:						
Oxyaquic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks caving	1.00
					Depth to water	0.06
			Seepage	0.75		
235B:						
Alfic Haplorthods, sandy----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
235C:						
Alfic Haplorthods, sandy----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				

Table 16a.--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
235C:						
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
235D:						
Alfic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
235E:						
Alfic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
235F:						
Alfic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
Lamellic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
237B:						
Glossudalfs, fine-loamy	Somewhat limited		Not limited		Very limited	
	Seepage	0.70			No ground water	1.00
237C:						
Glossudalfs, fine-loamy	Somewhat limited		Not limited		Very limited	
	Seepage	0.70			No ground water	1.00
	Slope	0.01				
237D:						
Glossudalfs, fine-loamy	Somewhat limited		Not limited		Very limited	
	Seepage	0.70			No ground water	1.00
	Slope	0.24				
240B:						
Typic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
240C:						
Typic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
240D:						
Typic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.24				
240E:						
Typic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.82				
240F:						
Typic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	1.00				
241B:						
Typic Haplorthods, sandy, banded substratum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
Lamellic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
241C:						
Typic Haplorthods, sandy, banded substratum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
Lamellic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
242B:						
Typic Haplorthods, sandy, very deep water table	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00

Table 16a.--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
243C:						
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.75	No ground water	1.00
	Slope	0.01				
244B:						
Oxyaquic Haplorthods, sandy, dark subsoil-------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks caving	1.00
					Depth to water	0.06
			Seepage	0.75		
245C:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	0.01				
Alfic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.14	No ground water	1.00
	Slope	0.01				
245D:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	0.24				
Alfic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.14	No ground water	1.00
	Slope	0.24				
245E:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
	Slope	0.82				
Alfic Haplorthods, sandy, dark subsoil	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.14	No ground water	1.00
	Slope	0.82				
246B:						
Alfic Oxyaquic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks caving	1.00
					Depth to water	0.06
			Seepage	0.75		

Table 16a.--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
246B:						
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	No ground water	1.00
250:						
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
Haplosaprists, euic	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	0.10
			Ponding	1.00		
252:						
Typic Endoaquods, sandy, wet---------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
Haplosaprists, dysic	Very limited		Depth to saturated zone	1.00	Somewhat limited	
	Seepage	1.00			Cutbanks caving	0.10
			Content of organic matter	1.00		
			Ponding	1.00		
253A:						
Typic Duraquods, sandy, ortstein----	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
	Depth to cemented pan	1.00	Thin layer	1.00		
			Seepage	0.75		
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
255B:						
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
Oxyaquic Haplorthods, sandy	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks caving	1.00
					Depth to water	0.06
			Seepage	0.75		

Table 16a.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
257:						
Endoaquolls---------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
Haplosaprists, euic	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	0.10
			Ponding	1.00		
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
262A:						
Typic Duraquods, sandy, ortstein----	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
	Depth to cemented pan	1.00	Thin layer	1.00		
			Seepage	0.75		
263B:						
Aquic Udipsamments--	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
264A:						
Typic Endoaquods, sandy----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Seepage	0.75		
272:						
Typic Endoaquods, sandy, wet---------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
273:						
Typic Psammaquents--	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Seepage	0.75		
274:						
Typic Epiaquolls, sandy over loamy---	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	1.00
			Ponding	1.00		

Table 16a.--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
280:						
Aquents	Not limited		Very limited		Somewhat limited	
			Ponding	1.00	Cutbanks caving	0.10
Histosols	Very limited		Very limited		Very limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	1.00
			Ponding	1.00		
			Depth to saturated zone	1.00		
			Seepage	1.00		
281:						
Haplosaprists, dysic	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks caving	0.10
			Content of organic matter	1.00		
			Ponding	1.00		
Haplosaprists, euic	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks caving	0.10
			Ponding	1.00		

Table 16b.--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. "Not rated" indicates that information is not available or that no rating is applicable. See text for further explanation of ratings in this table)

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
1:				
Beaches	Not rated		Not rated	
3A:				
Psamments, moderately wet	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.67	Cutbanks caving	1.00
Beaches	Not rated		Not rated	
5F:				
Udorthents	Not rated		Very limited	
			Deep to water	1.00
Udipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
10B:				
Perrinton	Very limited		Very limited	
	Water erosion	1.00	Cutbanks caving	1.00
	Restricted permeability	0.96	Depth to saturated zone	1.00
	Depth to saturated zone	0.47	Too clayey	0.02
	Slope	0.36		
10C:				
Perrinton	Very limited		Very limited	
	Water erosion	1.00	Cutbanks caving	1.00
	Slope	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.96	Slope	0.04
	Depth to saturated zone	0.47	Too clayey	0.02
11A:				
Ithaca	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	1.00	Frost action	1.00
	Restricted permeability	0.96	Cutbanks caving	1.00
	Slope	0.04	Too clayey	0.50

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
13B:				
Marlette	Very limited		Very limited	
	Water erosion	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	0.86	Cutbanks caving	1.00
	Slope	0.16		
	Restricted permeability	0.01		
13C:				
Marlette	Very limited		Very limited	
	Water erosion	1.00	Depth to saturated zone	1.00
	Slope	1.00	Cutbanks caving	1.00
	Depth to saturated zone	0.86	Slope	0.04
	Restricted permeability	0.01		
14A:				
Capac	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.89	Frost action	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
	Slope	0.04		
15:				
Parkhill	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	1.00	Frost action	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
			Ponding	1.00
18B:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
	Slope	0.16		
Spinks	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
18C:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Slope	0.83	Cutbanks caving	1.00
	Restricted permeability	0.26		
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	0.04

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
21B:				
Coloma	Somewhat limited		Very limited	
	Droughty	0.90	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Tatches	Somewhat limited		Very limited	
	Water erosion	0.17	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
	Droughty	0.04		
25:				
Gorvan	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Water erosion	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
			Frost action	1.00
			Ponding	1.00
Houghton	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
			Ponding	1.00
Glendora	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Droughty	0.45	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Ponding	1.00
29B:				
Fogg	Somewhat limited		Very limited	
	Droughty	0.20	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Benzonia	Somewhat limited		Very limited	
	Droughty	0.65	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
29C:				
Fogg	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.20	Deep to water	1.00
			Slope	0.04
Benzonia	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.65	Deep to water	1.00
			Slope	0.04
29D:				
Fogg	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.20	Deep to water	1.00
			Slope	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
29D:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.65	Deep to water	1.00
			Slope	1.00
29E:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.20	Cutbanks caving	1.00
			Deep to water	1.00
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.65	Cutbanks caving	1.00
			Deep to water	1.00
29F:				
Fogg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.20	Cutbanks caving	1.00
			Deep to water	1.00
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.65	Cutbanks caving	1.00
			Deep to water	1.00
32B:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
	Slope	0.16		
32C:				
Fern	Very limited		Very limited	
	Slope	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	0.86	Cutbanks caving	1.00
	Restricted permeability	0.26	Slope	0.04
36B:				
Fern	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
	Slope	0.16		
Remus	Somewhat limited		Very limited	
	Water erosion	0.56	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
	Restricted permeability	0.01		

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
36C:				
Fern	Very limited		Very limited	
	Slope	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	0.86	Cutbanks caving	1.00
	Restricted permeability	0.26	Slope	0.04
Remus	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Water erosion	0.56	Deep to water	1.00
	Restricted permeability	0.01	Slope	0.04
38B:				
Remus	Somewhat limited		Very limited	
	Water erosion	0.56	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
	Restricted permeability	0.01		
Spinks	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
38C:				
Remus	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Water erosion	0.56	Deep to water	1.00
	Restricted permeability	0.01	Slope	0.04
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	0.04
38D:				
Remus	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Water erosion	0.56	Deep to water	1.00
	Restricted permeability	0.01	Slope	1.00
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	1.00
38E:				
Remus	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	0.56	Cutbanks caving	1.00
	Restricted permeability	0.01	Deep to water	1.00
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
43B:				
Thompsonville--------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.34	Cutbanks caving	1.00
	Slope	0.16		
44A:				
Milnichol-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.43	Cutbanks caving	1.00
47B:				
Spinks----------	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Coloma----------	Somewhat limited		Very limited	
	Droughty	0.90	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
47C:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	0.04
Coloma----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.90	Deep to water	1.00
			Slope	0.04
47D:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	1.00
Coloma----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.90	Deep to water	1.00
			Slope	1.00
47E:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
Coloma----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.90	Cutbanks caving	1.00
			Deep to water	1.00
47F:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
47F:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.90	Cutbanks caving	1.00
			Deep to water	1.00
52C:				
Copemish	Very limited		Very limited	
	Droughty	1.00	Depth to thick cemented pan	1.00
	Slope	1.00	Cutbanks caving	1.00
			Deep to water	1.00
			Dense layer	0.50
52E:				
Copemish	Very limited		Very limited	
	Slope	1.00	Depth to thick cemented pan	1.00
	Droughty	1.00	Cutbanks caving	1.00
			Deep to water	1.00
			Slope	1.00
			Dense layer	0.50
53A:				
Saugatuck	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Droughty	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Dense layer	0.50
Jebavy	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Droughty	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Ponding	1.00
			Dense layer	0.50
54B:				
Kaleva	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
54C:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	0.04
54D:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
54E:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
54F:				
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
55B:				
Brethren	Somewhat limited		Very limited	
	Droughty	0.80	Cutbanks caving	1.00
	Depth to saturated zone	0.47	Depth to saturated zone	1.00
	Slope	0.16		
57B:				
Grattan	Somewhat limited		Very limited	
	Droughty	0.79	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
57C:				
Grattan	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.79	Deep to water	1.00
			Slope	0.04
57D:				
Grattan	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.79	Deep to water	1.00
			Slope	1.00
57E:				
Grattan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.79	Cutbanks caving	1.00
			Deep to water	1.00
57F:				
Grattan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.79	Cutbanks caving	1.00
			Deep to water	1.00
58B:				
Covert	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.79	Cutbanks caving	1.00
	Slope	0.16		
59B:				
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.60	Cutbanks caving	1.00
	Slope	0.04		

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
60:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.01	Cutbanks caving	1.00
			Ponding	1.00
63B:				
Coloma	Somewhat limited		Very limited	
	Droughty	0.90	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
63C:				
Coloma	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.90	Deep to water	1.00
			Slope	0.04
63D:				
Coloma	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.90	Deep to water	1.00
			Slope	1.00
63E:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.90	Cutbanks caving	1.00
			Deep to water	1.00
63F:				
Coloma	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.90	Cutbanks caving	1.00
			Deep to water	1.00
64B:				
Benona	Somewhat limited		Very limited	
	Droughty	0.67	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
64C:				
Benona	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.67	Deep to water	1.00
			Slope	0.04
64D:				
Benona	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.67	Deep to water	1.00
			Slope	1.00
64E:				
Benona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.67	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
64F:				
Benona	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.67	Cutbanks caving	1.00
			Deep to water	1.00
67B:				
Plainfield	Somewhat limited		Very limited	
	Droughty	0.97	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
67C:				
Plainfield	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.97	Deep to water	1.00
			Slope	0.04
67E:				
Plainfield	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.97	Deep to water	1.00
			Slope	1.00
67F:				
Plainfield	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.97	Cutbanks caving	1.00
			Deep to water	1.00
73:				
Houghton	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
			Ponding	1.00
			Cutbanks caving	1.00
Adrian	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Frost action	1.00
			Ponding	1.00
			Content of organic matter	1.00
81:				
Lumley	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
			Ponding	1.00
			Cutbanks caving	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
81:				
Makinen	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Frost action	1.00
			Too acid	1.00
			Ponding	1.00
83:				
Histosols	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Frost action	1.00
			Cutbanks caving	1.00
			Content of organic matter	1.00
Aquents	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Frost action	1.00
86D:				
Dune land	Not rated		Not rated	
Quartzipsamments	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	1.00	Deep to water	1.00
			Slope	0.63
86F:				
Dune land	Not rated		Not rated	
Quartzipsamments	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	1.00	Cutbanks caving	1.00
			Deep to water	1.00
88B:				
Udipsamments	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
91:				
Pits, sand and gravel	Not rated		Not rated	
96C:				
Goodharbor	Somewhat limited		Very limited	
	Droughty	0.91	Cutbanks caving	1.00
	Slope	0.83	Deep to water	1.00
100A:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.01	Cutbanks caving	1.00
			Ponding	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
100A:				
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.60	Cutbanks caving	1.00
102A:				
Thompsonville	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.34	Cutbanks caving	1.00
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.43	Cutbanks caving	1.00
104B:				
Covert	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.79	Cutbanks caving	1.00
	Slope	0.16		
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.60	Cutbanks caving	1.00
106B:				
Covert	Somewhat limited		Very limited	
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Droughty	0.79	Cutbanks caving	1.00
	Slope	0.16		
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.01	Cutbanks caving	1.00
			Ponding	1.00
107B:				
Benzonia	Somewhat limited		Very limited	
	Droughty	0.65	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
107C:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.65	Deep to water	1.00
			Slope	0.04
107D:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.65	Deep to water	1.00
			Slope	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
107E:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.65	Cutbanks caving	1.00
			Deep to water	1.00
107F:				
Benzonia	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.65	Cutbanks caving	1.00
			Deep to water	1.00
108A:				
Saugatuck	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Droughty	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Dense layer	0.50
109B:				
Shavenaugh	Somewhat limited		Very limited	
	Slope	0.16	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
109C:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
			Slope	0.04
109D:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
			Slope	1.00
109E:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.13	Cutbanks caving	1.00
			Deep to water	1.00
109F:				
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.13	Cutbanks caving	1.00
			Deep to water	1.00
110B:				
Healylake	Very limited		Very limited	
	Droughty	1.00	Depth to thin cemented pan	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	1.00
	Slope	0.16	Cutbanks caving	1.00
			Dense layer	0.50

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
111D:				
Onekama	Very limited		Very limited	
	Slope	1.00	Deep to water	1.00
	Restricted permeability	0.96	Slope	1.00
	Water erosion	0.89	Cutbanks caving	1.00
111E:				
Onekama	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Deep to water	1.00
	Water erosion	0.89	Cutbanks caving	1.00
111F:				
Onekama	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.96	Deep to water	1.00
	Water erosion	0.89	Cutbanks caving	1.00
114B:				
Nordhouse	Somewhat limited		Very limited	
	Droughty	0.67	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Platteriver	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.87	Cutbanks caving	1.00
	Slope	0.04		
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.01	Cutbanks caving	1.00
			Ponding	1.00
115B:				
Nordhouse	Somewhat limited		Very limited	
	Droughty	0.67	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
115D:				
Nordhouse	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.67	Deep to water	1.00
			Slope	0.63
115F:				
Nordhouse	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.67	Cutbanks caving	1.00
			Deep to water	1.00
118B:				
Spinks	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
118B:				
Shavenaugh----------	Somewhat limited		Very limited	
	Slope	0.16	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
118C:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	0.04
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
			Slope	0.04
118D:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
			Slope	1.00
118E:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.13	Cutbanks caving	1.00
			Deep to water	1.00
118F:				
Spinks----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
Shavenaugh----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.13	Cutbanks caving	1.00
			Deep to water	1.00
119:				
Madaus----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	1.00	Cutbanks caving	1.00
	Restricted permeability	0.96	Frost action	1.00
			Ponding	1.00
			Too clayey	0.88

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
120B:				
Boyer	Somewhat limited		Very limited	
	Slope	0.16	Cutbanks caving	1.00
			Deep to water	1.00
Shavenaugh	Somewhat limited		Very limited	
	Slope	0.16	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
120C:				
Boyer	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Deep to water	1.00
			Slope	0.04
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
			Slope	0.04
120D:				
Boyer	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
			Deep to water	1.00
			Slope	1.00
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.13	Deep to water	1.00
			Slope	1.00
120E:				
Boyer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
			Deep to water	1.00
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.13	Cutbanks caving	1.00
			Deep to water	1.00
120F:				
Boyer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks caving	1.00
			Deep to water	1.00
Shavenaugh	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.13	Cutbanks caving	1.00
			Deep to water	1.00
122:				
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.01	Cutbanks caving	1.00
			Ponding	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
122:				
Adrian	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Frost action	1.00
			Ponding	1.00
			Content of organic matter	1.00
123B:				
Platteriver	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.87	Cutbanks caving	1.00
	Slope	0.04		
Pipestone	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.60	Cutbanks caving	1.00
	Slope	0.04		
125B:				
Spinks	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Tekenink, sandy substratum	Somewhat limited		Very limited	
	Water erosion	0.17	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
125C:				
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	0.04
Tekenink, sandy substratum	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Water erosion	0.17	Deep to water	1.00
			Slope	0.04
125D:				
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	1.00
Tekenink, sandy substratum	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Water erosion	0.17	Deep to water	1.00
			Slope	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
125E:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
Tekenink, sandy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	0.17	Cutbanks caving	1.00
			Deep to water	1.00
125F:				
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
Tekenink, sandy substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	0.17	Cutbanks caving	1.00
			Deep to water	1.00
126D:				
Filer	Very limited		Very limited	
	Slope	1.00	Deep to water	1.00
	Water erosion	0.56	Slope	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
126E:				
Filer	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	0.56	Deep to water	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
127B:				
Kaleva, deep water table	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
			Depth to saturated zone	0.16
130A:				
Glendora	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Depth to saturated zone	1.00
	Droughty	0.45		
			Cutbanks caving	1.00
			Ponding	1.00
Algansee	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.75	Cutbanks caving	1.00
			Flooding	0.60

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
130A:				
Abscota	Somewhat limited		Very limited	
	Depth to saturated zone	0.47	Cutbanks caving	1.00
	Droughty	0.02	Depth to saturated zone	1.00
			Flooding	0.60
131A:				
Milarch	Somewhat limited		Very limited	
	Water erosion	0.89	Depth to saturated zone	1.00
	Depth to saturated zone	0.86	Cutbanks caving	1.00
	Restricted permeability	0.26		
132A:				
Milnichol	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.43	Cutbanks caving	1.00
Dair	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.01	Cutbanks caving	1.00
			Ponding	1.00
135B:				
Nessen	Somewhat limited		Very limited	
	Droughty	0.68	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
135C:				
Nessen	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.68	Deep to water	1.00
			Slope	0.04
136B:				
Nessen	Somewhat limited		Very limited	
	Droughty	0.68	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Kaleva	Somewhat limited		Very limited	
	Droughty	0.69	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
136C:				
Nessen	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.68	Deep to water	1.00
			Slope	0.04
Kaleva	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	0.04

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
136D:				
Nessen	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.68	Deep to water	1.00
			Slope	1.00
Kaleva	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	1.00
136E:				
Nessen	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.68	Cutbanks caving	1.00
			Deep to water	1.00
Kaleva	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
138D:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Restricted permeability	0.26	Deep to water	1.00
			Slope	1.00
	Droughty	0.15		
Spinks	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.69	Deep to water	1.00
			Slope	1.00
138E:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
			Deep to water	1.00
	Droughty	0.15		
Spinks	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.69	Cutbanks caving	1.00
			Deep to water	1.00
139D:				
Mollineaux	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Restricted permeability	0.26	Deep to water	1.00
			Slope	1.00
	Droughty	0.15		
Remus	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Water erosion	0.56	Deep to water	1.00
	Restricted permeability	0.01	Slope	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
139E:				
Mollineaux----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
			Deep to water	1.00
	Droughty	0.15		
Remus----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	0.56	Cutbanks caving	1.00
	Restricted permeability	0.01	Deep to water	1.00
210B:				
Plainfield----------	Somewhat limited		Very limited	
	Droughty	0.97	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
210C:				
Plainfield----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.97	Deep to water	1.00
			Slope	0.63
210D:				
Plainfield----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.97	Cutbanks caving	1.00
			Deep to water	1.00
211B:				
Plainfield, banded substratum---------	Somewhat limited		Very limited	
	Droughty	0.92	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
211C:				
Plainfield, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.92	Deep to water	1.00
			Slope	0.63
212B:				
Plainfield, very deep water table---	Somewhat limited		Very limited	
	Droughty	0.71	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
215B:				
Plainfield, loamy substratum---------	Somewhat limited		Very limited	
	Droughty	0.93	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
220B:				
Typic Udipsamments--	Somewhat limited		Very limited	
	Droughty	0.71	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
220C:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.71	Deep to water	1.00
			Slope	0.63
220D:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.71	Cutbanks caving	1.00
			Deep to water	1.00
220E:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.71	Cutbanks caving	1.00
			Deep to water	1.00
220F:				
Typic Udipsamments--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.71	Cutbanks caving	1.00
			Deep to water	1.00
221B:				
Typic Udipsamments, banded substratum--	Somewhat limited		Very limited	
	Droughty	0.82	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Lamellic Udipsamments-------	Somewhat limited		Very limited	
	Droughty	0.57	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
221C:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.82	Deep to water	1.00
			Slope	0.63
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.57	Deep to water	1.00
			Slope	0.63
221D:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.82	Cutbanks caving	1.00
			Deep to water	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.57	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
221E:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.82	Cutbanks caving	1.00
			Deep to water	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.57	Cutbanks caving	1.00
			Deep to water	1.00
221F:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.82	Cutbanks caving	1.00
			Deep to water	1.00
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.57	Cutbanks caving	1.00
			Deep to water	1.00
222B:				
Typic Udipsamments, very deep water table----------	Somewhat limited		Very limited	
	Droughty	0.76	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
222C:				
Typic Udipsamments, very deep water table----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.76	Deep to water	1.00
			Slope	0.63
223B:				
Lamellic Udipsamments-------	Somewhat limited		Very limited	
	Droughty	0.57	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Typic Udipsamments, banded substratum--	Somewhat limited		Very limited	
	Droughty	0.82	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
223C:				
Lamellic Udipsamments-------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.57	Deep to water	1.00
			Slope	0.63

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
223C:				
Typic Udipsamments, banded substratum--	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.82	Deep to water	1.00
			Slope	0.63
224B:				
Oxyaquic Udipsamments-------	Somewhat limited		Very limited	
	Droughty	0.82	Depth to saturated zone	1.00
	Depth to saturated zone	0.47	Cutbanks caving	1.00
	Slope	0.16		
225B:				
Typic Udipsamments, loamy substratum---	Somewhat limited		Very limited	
	Droughty	0.78	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
225C:				
Typic Udipsamments, loamy substratum---	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.78	Deep to water	1.00
			Slope	0.63
225D:				
Typic Udipsamments, loamy substratum---	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.78	Cutbanks caving	1.00
			Deep to water	1.00
230B:				
Entic Haplorthods, sandy----------	Somewhat limited		Very limited	
	Droughty	0.85	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
230C:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.85	Deep to water	1.00
			Slope	0.63
230D:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.85	Cutbanks caving	1.00
			Deep to water	1.00
230E:				
Entic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.85	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
230F:				
Entic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.85	Cutbanks caving	1.00
			Deep to water	1.00
231B:				
Entic Haplorthods, sandy, banded substratum	Somewhat limited		Very limited	
	Droughty	0.92	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Lamellic Haplorthods, sandy	Somewhat limited		Very limited	
	Droughty	0.23	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
231C:				
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.92	Deep to water	1.00
			Slope	0.63
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.23	Deep to water	1.00
			Slope	0.63
231D:				
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.92	Cutbanks caving	1.00
			Deep to water	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.23	Cutbanks caving	1.00
			Deep to water	1.00
231E:				
Entic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.92	Cutbanks caving	1.00
			Deep to water	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.23	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
232B:				
Entic Haplorthods, sandy, very deep water table--------	Somewhat limited		Very limited	
	Droughty	0.91	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Lamellic Haplorthods, sandy, very deep water table----------	Somewhat limited		Very limited	
	Slope	0.16	Deep to water	1.00
	Droughty	0.11	Cutbanks caving	1.00
233B:				
Lamellic Haplorthods, sandy	Somewhat limited		Very limited	
	Droughty	0.23	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Entic Haplorthods, sandy, banded substratum---------	Somewhat limited		Very limited	
	Droughty	0.92	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
233C:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.23	Deep to water	1.00
			Slope	0.63
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.92	Deep to water	1.00
			Slope	0.63
233D:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.23	Cutbanks caving	1.00
			Deep to water	1.00
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.92	Cutbanks caving	1.00
			Deep to water	1.00
233E:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.23	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
233E:				
Entic Haplorthods, sandy, banded substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.92	Cutbanks caving	1.00
			Deep to water	1.00
234B:				
Oxyaquic Haplorthods, sandy	Somewhat limited		Very limited	
	Droughty	0.82	Cutbanks caving	1.00
	Depth to saturated zone	0.47	Depth to saturated zone	1.00
	Slope	0.16		
235B:				
Alfic Haplorthods, sandy----------	Somewhat limited		Very limited	
	Droughty	0.45	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Lamellic Haplorthods, sandy	Somewhat limited		Very limited	
	Droughty	0.23	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
235C:				
Alfic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.45	Deep to water	1.00
			Slope	0.63
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.23	Deep to water	1.00
			Slope	0.63
235D:				
Alfic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.45	Cutbanks caving	1.00
			Deep to water	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.23	Cutbanks caving	1.00
			Deep to water	1.00
235E:				
Alfic Haplorthods, sandy----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.45	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
235E:				
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.23	Cutbanks caving	1.00
			Deep to water	1.00
235F:				
Alfic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.45	Cutbanks caving	1.00
			Deep to water	1.00
Lamellic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.23	Cutbanks caving	1.00
			Deep to water	1.00
237B:				
Glossudalfs, fine-loamy	Somewhat limited		Very limited	
	Water erosion	0.89	Deep to water	1.00
	Slope	0.16	Cutbanks caving	1.00
237C:				
Glossudalfs, fine-loamy	Very limited		Very limited	
	Slope	1.00	Deep to water	1.00
	Water erosion	0.89	Cutbanks caving	1.00
			Slope	0.63
237D:				
Glossudalfs, fine-loamy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	0.89	Deep to water	1.00
			Cutbanks caving	1.00
240B:				
Typic Haplorthods, sandy	Somewhat limited		Very limited	
	Droughty	1.00	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
240C:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	1.00	Deep to water	1.00
			Slope	0.63
240D:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	1.00	Cutbanks caving	1.00
			Deep to water	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
240E:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	1.00	Cutbanks caving	1.00
			Deep to water	1.00
240F:				
Typic Haplorthods, sandy	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	1.00	Cutbanks caving	1.00
			Deep to water	1.00
241B:				
Typic Haplorthods, sandy, banded substratum	Somewhat limited		Very limited	
	Droughty	0.79	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
Lamellic Haplorthods, sandy, dark subsoil	Somewhat limited		Very limited	
	Droughty	0.18	Deep to water	1.00
	Slope	0.16	Cutbanks caving	1.00
241C:				
Typic Haplorthods, sandy, banded substratum	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.79	Deep to water	1.00
			Slope	0.63
Lamellic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.18	Deep to water	1.00
			Slope	0.63
242B:				
Typic Haplorthods, sandy, very deep water table	Somewhat limited		Very limited	
	Droughty	0.92	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
243C:				
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum	Very limited		Very limited	
	Slope	1.00	Deep to water	1.00
	Droughty	0.09	Cutbanks caving	1.00
			Slope	0.63

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
244B:				
Oxyaquic Haplorthods, sandy, dark subsoil-------	Somewhat limited		Very limited	
	Droughty	0.75	Cutbanks caving	1.00
	Depth to saturated zone	0.47	Depth to saturated zone	1.00
	Slope	0.16		
245C:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Slope	1.00	Cutbanks caving	1.00
	Droughty	0.83	Deep to water	1.00
			Slope	0.63
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Water erosion	1.00	Cutbanks caving	1.00
	Slope	1.00	Deep to water	1.00
			Slope	0.63
245D:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.83	Cutbanks caving	1.00
			Deep to water	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	1.00	Cutbanks caving	1.00
			Deep to water	1.00
245E:				
Typic Haplorthods, sandy, loamy substratum---------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Droughty	0.83	Cutbanks caving	1.00
			Deep to water	1.00
Alfic Haplorthods, sandy, dark subsoil	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Water erosion	1.00	Cutbanks caving	1.00
			Deep to water	1.00
246B:				
Alfic Oxyaquic Haplorthods, sandy	Somewhat limited		Very limited	
	Depth to saturated zone	0.47	Cutbanks caving	1.00
	Droughty	0.35	Depth to saturated zone	1.00
	Slope	0.16		

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
246B:				
Typic Haplorthods, sandy, loamy substratum	Somewhat limited		Very limited	
	Droughty	0.83	Cutbanks caving	1.00
	Slope	0.16	Deep to water	1.00
250:				
Typic Psammaquents	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Depth to saturated zone	1.00
	Water erosion	0.17		
	Droughty	0.06	Cutbanks caving	1.00
			Ponding	1.00
Aquic Udipsamments	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
			Depth to saturated zone	1.00
	Droughty	0.70		
			Cutbanks caving	1.00
Haplosaprists, euic	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Flooding	1.00
			Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
252:				
Typic Endoaquods, sandy, wet	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.71	Cutbanks caving	1.00
			Ponding	1.00
Haplosaprists, dysic	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
			Cutbanks caving	1.00
253A:				
Typic Duraquods, sandy, ortstein	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Droughty	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Dense layer	0.50
Aquic Udipsamments	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.70	Cutbanks caving	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
255B:				
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.70	Cutbanks caving	1.00
	Slope	0.16		
Oxyaquic Haplorthods, sandy	Somewhat limited		Very limited	
	Droughty	0.82	Cutbanks caving	1.00
	Depth to saturated zone	0.47	Depth to saturated zone	1.00
	Slope	0.16		
257:				
Endoaquolls---------	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Water erosion	0.56	Depth to saturated zone	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
			Frost action	1.00
			Ponding	1.00
Haplosaprists, euic	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Flooding	1.00
			Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
Typic Psammaquents--	Very limited		Very limited	
	Depth to saturated zone	1.00	Flooding	1.00
	Water erosion	0.17	Depth to saturated zone	1.00
	Droughty	0.06	Cutbanks caving	1.00
			Ponding	1.00
262A:				
Typic Duraquods, sandy, ortstein----	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to thin cemented pan	1.00
	Droughty	1.00	Depth to saturated zone	1.00
			Cutbanks caving	1.00
			Dense layer	0.50
263B:				
Aquic Udipsamments--	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.70	Cutbanks caving	1.00
	Slope	0.16		

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
264A:				
Typic Endoaquods, sandy	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.64	Cutbanks caving	1.00
	Slope	0.04		
272:				
Typic Endoaquods, sandy, wet	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Droughty	0.71	Cutbanks caving	1.00
			Ponding	1.00
273:				
Typic Psammaquents	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Water erosion	0.17	Cutbanks caving	1.00
	Droughty	0.06	Ponding	1.00
274:				
Typic Epiaquolls, sandy over loamy	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.26	Cutbanks caving	1.00
			Frost action	1.00
			Ponding	1.00
280:				
Aquents	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Frost action	1.00
Histosols	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Cutbanks caving	1.00
			Depth to saturated zone	1.00
			Frost action	1.00
			Content of organic matter	1.00
281:				
Haplosaprists, dysic	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
			Cutbanks caving	1.00

Table 16b.--Water Management--Continued

Map symbol and soil name	Grassed waterways		Drainage	
	Rating class and limiting features	Value	Rating class and limiting features	Value
282:				
Haplosaprists, euic	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
			Depth to saturated zone	1.00
			Content of organic matter	1.00
			Frost action	1.00
			Cutbanks caving	1.00

Table 17.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

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	
1. Beaches												
3A: Psamments, moderately wet	0-2	Loamy sand, sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	2-80	Sand, loamy sand	SP-SM, SM	A-3, A-2	0	0	90-100	90-100	35-90	0-15	0-14	NP
Beaches.												
5F: Udorthents------	0-80	Variable	---	---	---	---	---	---	---	---	---	---
Udipsamments----	0-80	Sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	90-100	40-85	0-15	0-14	NP
10B: Perrinton-------	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	90-100	75-100	60-75	15-30	5-15
	9-13	Clay loam, fine sandy loam, clay, loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7	0	0	90-100	90-100	65-100	25-100	20-55	3-25
	13-28	Clay, silty clay, clay loam, silty clay loam	CH, CL	A-7, A-6	0	0	90-100	90-100	80-100	50-100	40-55	10-55
	28-38	Clay	CH, CL	A-7, A-6	0	0	90-100	90-100	80-100	50-100	40-55	20-55
	38-80	Clay	CH, CL	A-7, A-6	0	0	90-100	90-100	80-100	50-100	40-55	20-55
10C: Perrinton-------	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	90-100	90-100	75-100	60-75	15-30	5-15
	9-13	Clay loam, fine sandy loam, clay, loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7	0	0	90-100	90-100	65-100	25-100	20-55	3-25
	13-28	Clay, silty clay, clay loam, silty clay loam	CH, CL	A-7, A-6	0	0	90-100	90-100	80-100	50-100	40-55	10-55
	28-38	Clay	CH, CL	A-7, A-6	0	0	90-100	90-100	80-100	50-100	40-55	20-55
	38-80	Clay	CH, CL	A-7, A-6	0	0	90-100	90-100	80-100	50-100	40-55	20-55

Table 17.--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	
11A:												
Ithaca----------	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	85-100	85-100	70-95	50-75	15-30	5-15
	9-11	Fine sandy loam, clay loam, loam	CL, SC-SM	A-4, A-6, A-7	0	0	85-100	85-100	75-100	50-80	10-50	NP-30
	11-20	Clay loam, clay	CL	A-7	0	0	85-100	85-100	75-100	50-80	30-50	10-35
	20-25	Clay, clay loam	CL	A-7	0	0	85-100	85-100	75-100	50-80	30-50	10-35
	25-31	Clay, clay loam	CL	A-7	0	0	85-100	85-100	75-100	50-80	30-50	10-35
	31-80	Clay loam, clay	CL	A-7	0	0	85-100	85-100	75-100	50-80	30-50	10-35
13B:												
Marlette--------	0-7	Fine sandy loam	SC-SM	A-4	0	0	85-95	85-95	55-85	30-50	10-25	NP-10
	7-13	Sandy loam, clay loam, loam, fine sandy loam	SC-SM	A-4	0	0	85-95	85-95	50-85	25-40	10-45	NP-25
	13-27	Clay loam, loam	CL	A-7, A-6	0	0	85-95	85-95	70-85	45-80	15-45	10-25
	27-80	Clay loam, loam	CL	A-7, A-6	0	0	85-95	85-95	70-85	45-80	15-45	10-25
13C:												
Marlette--------	0-7	Fine sandy loam	SC-SM	A-4	0	0	85-95	85-95	55-85	30-50	10-25	NP-10
	7-13	Sandy loam, clay loam, loam, fine sandy loam	SC-SM	A-4	0	0	85-95	85-95	50-85	25-40	10-45	NP-25
	13-27	Clay loam, loam	CL	A-6, A-7	0	0	85-95	85-95	70-85	45-80	15-45	10-25
	27-80	Clay loam, loam	CL	A-6, A-7	0	0	85-95	85-95	70-85	45-80	15-45	10-25
14A:												
Capac----------	0-5	Loam	CL-ML, CL	A-6, A-4	0	0	95-100	90-100	75-95	50-75	15-30	5-15
	5-8	Clay loam, fine sandy loam, sandy loam	CL, CL-ML	A-6, A-4	0	0	95-100	90-100	55-100	25-80	10-45	NP-25
	8-18	Clay loam	CL	A-4, A-6, A-7	0	0	95-100	90-100	55-100	55-100	30-45	10-25
	18-80	Clay loam, clay	CL	A-4, A-6, A-7	0	0	95-100	90-100	70-100	55-100	30-45	10-30
15:												
Parkhill--------	0-9	Loam	CL, CL-ML	A-4, A-6	0	0	85-100	85-100	45-100	45-80	15-30	5-15
	9-20	Clay loam, loam	CL, CL-ML	A-6, A-7	0	0	85-100	85-100	45-100	45-80	15-45	5-25
	20-29	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	85-100	45-100	45-80	15-45	5-25
	29-80	Loam, clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	85-100	45-100	45-80	15-45	5-25

Table 17.--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	
18B:												
Fern----------	0-9	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	9-10	Sand, fine sand, loamy fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	10-24	Sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	24-29	Clay loam, fine sand, loamy fine sand, loamy sand, loam	CL-ML, CL	A-7, A-6	0	0	85-100	85-100	50-95	5-80	0-45	5-30
	29-42	Clay loam, loam	CL	A-7, A-6	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	42-50	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	50-80	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-2, A-3, A-1	0	0	75-100	75-100	35-85	0-35	0-14	NP
18C:												
Fern----------	0-9	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	9-10	Sand, fine sand, loamy fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	10-24	Sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	24-29	Clay loam, fine sand, loamy fine sand, loamy sand, loam	CL-ML, CL	A-7, A-6	0	0	85-100	85-100	50-95	5-80	0-45	5-30
	29-42	Clay loam, loam	CL	A-7, A-6	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	42-50	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	50-80	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30

Table 17.--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	
18C:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
21B:												
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
21B:												
Tatches---------	0-4	Sandy loam	SC-SM	A-4, A-2	0	0	90-100	90-100	50-70	25-40	10-25	3-10
	4-9	Sandy loam, fine sandy loam	SC-SM	A-4, A-2	0	0	90-100	90-100	50-85	25-50	10-25	3-10
	9-15	Sandy loam, fine sandy loam	SC-SM	A-4, A-2	0	0	90-100	90-100	50-85	25-50	10-25	3-10
	15-23	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	40-75	0-15	0-14	NP
	23-31	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	40-75	0-15	0-14	NP
	31-43	Sand, loamy sand, sandy loam	SP-SM, SM	A-3, A-2	0	0	90-100	90-100	40-75	5-15	0-14	NP
	43-80	Sand, loamy sand, sandy loam	SP-SM, SM	A-3, A-2	0	0	90-100	90-100	40-75	5-15	0-14	NP
25:												
Gorvan----------	0-4	Mucky silt loam	ML, CL-ML	A-6, A-4	0	0	100	100	85-100	60-90	15-40	2-15
	4-9	Silt loam, mucky silt loam, loam	ML, CL-ML	A-6, A-4	0	0	100	100	85-100	60-90	15-40	2-15
	9-27	Silt loam, clay loam, loam, silty clay loam	ML, CL-ML	A-6, A-4	0	0-5	90-100	90-100	85-100	60-90	15-40	2-25
	27-80	Sand	SP-SM, SP	A-3	0	0-14	80-100	80-100	35-70	0-15	0-14	NP
Houghton--------	0-12	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	12-26	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	26-80	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
Glendora--------	0-6	Mucky loamy sand	SP-SM	A-2	0	0	95-100	95-100	50-90	5-15	0-14	NP
	6-9	Loamy sand, sand, fine sand	SM, SP-SM	A-3, A-2	0	0	95-100	95-100	50-90	5-15	0-14	NP
	9-30	Sand, loamy sand, fine sand	SM, SP-SM	A-3, A-2	0	0	95-100	95-100	50-90	5-15	0-14	NP
	30-80	Sand, loamy sand, fine sand	SM, SP-SM	A-3, A-2, A-1	0	0	95-100	95-100	50-90	5-15	0-14	NP

Table 17.--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	
29B:												
Fogg----------	0-2	Sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	2-7	Sand, loamy sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	7-13	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	13-21	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	21-34	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	34-43	Loamy fine sand, sandy loam, loamy sand, loam	SP-SM, SC-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-15
	43-48	Sandy loam, loamy sand, loam, loamy fine sand	SC-SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-10
	48-55	Sandy loam, loam	SC-SM, SC	A-4, A-2	0	0-3	75-100	75-100	35-90	0-65	0-30	NP-15
	55-80	Sand, loamy sand	SP-SM, SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
29C:												
Fogg----------	0-2	Sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	2-7	Sand, loamy sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	7-13	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	13-21	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	21-34	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	34-43	Loamy fine sand, sandy loam, loamy sand, loam	SP-SM, SC-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-15
	43-48	Sandy loam, loamy sand, loam, loamy fine sand	SC-SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-10
	48-55	Sandy loam, loam	SC-SM, SC	A-4, A-2	0	0-3	75-100	75-100	35-90	0-65	0-30	NP-15
	55-80	Sand, loamy sand	SP-SM, SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
29D:												
Fogg----------	0-2	Sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	2-7	Sand, loamy sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	7-13	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	13-21	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	21-34	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	34-43	Loamy fine sand, sandy loam, loamy sand, loam	SP-SM, SC-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-15
	43-48	Sandy loam, loamy sand, loam, loamy fine sand	SC-SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-10
	48-55	Sandy loam, loam	SC-SM, SC	A-4, A-2	0	0-3	75-100	75-100	35-90	0-65	0-30	NP-15
	55-80	Sand, loamy sand	SP-SM, SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
29E:												
Fogg----------	0-2	Sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	2-7	Sand, loamy sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	7-13	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	13-21	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	21-34	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	34-43	Loamy fine sand, sandy loam, loamy sand, loam	SP-SM, SC-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-15
	43-48	Sandy loam, loamy sand, loam, loamy fine sand	SC-SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-10
	48-55	Sandy loam, loam	SC-SM, SC	A-4, A-2	0	0-3	75-100	75-100	35-90	0-65	0-30	NP-15
	55-80	Sand, loamy sand	SP-SM, SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
29F:												
Fogg----------	0-2	Sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	2-7	Sand, loamy sand	SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	7-13	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	13-21	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	21-34	Sand	SP, SP-SM	A-3	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
	34-43	Loamy fine sand, sandy loam, loamy sand, loam	SP-SM, SC-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-15
	43-48	Sandy loam, loamy sand, loam, loamy fine sand	SC-SM, SP-SM	A-3, A-2	0	0-3	75-100	75-100	35-90	10-65	0-30	NP-10
	48-55	Sandy loam, loam	SC-SM, SC	A-4, A-2	0	0-3	75-100	75-100	35-90	0-65	0-30	NP-15
	55-80	Sand, loamy sand	SP-SM, SM	A-3, A-2	0	0-3	75-100	75-100	35-90	0-30	0-14	NP
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
32B:												
Fern----------	0-9	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	9-10	Sand, fine sand, loamy fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	10-24	Sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	24-29	Clay loam, fine sand, loamy fine sand, loamy sand, loam	CL-ML, CL	A-7, A-6	0	0	85-100	85-100	50-95	5-80	0-45	5-30
	29-42	Clay loam, loam	CL	A-7, A-6	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	42-50	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	50-80	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30

Table 17.--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	
32C:												
Fern----------	0-9	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	9-10	Sand, fine sand, loamy fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	10-24	Sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	24-29	Clay loam, fine sand, loamy fine sand, loamy sand, loam	CL-ML, CL	A-7, A-6	0	0	85-100	85-100	50-95	5-80	0-45	5-30
	29-42	Clay loam, loam	CL	A-7, A-6	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	42-50	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	50-80	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
36B:												
Fern----------	0-9	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	9-10	Sand, fine sand, loamy fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	10-24	Sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	24-29	Clay loam, fine sand, loamy fine sand, loamy sand, loam	CL-ML, CL	A-7, A-6	0	0	85-100	85-100	50-95	5-80	0-45	5-30
	29-42	Clay loam, loam	CL	A-7, A-6	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	42-50	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	50-80	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30

Table 17.--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	
36B:												
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-4, A-2	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-4, A-2	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-4, A-2	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-6, A-4, A-2	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20
36C:												
Fern----------	0-9	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	9-10	Sand, fine sand, loamy fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	10-24	Sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	50-90	5-15	0-14	NP
	24-29	Clay loam, fine sand, loamy fine sand, loamy sand, loam	CL-ML, CL	A-7, A-6	0	0	85-100	85-100	50-95	5-80	0-45	5-30
	29-42	Clay loam, loam	CL	A-7, A-6	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	42-50	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30
	50-80	Clay loam, loam	CL	A-6, A-7	0	0	85-100	85-100	70-95	50-80	15-45	10-30

Table 17.--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	
36C:												
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-2, A-4	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-2, A-4, A-6	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	SC, CL-ML	A-4, A-6	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20
38B:												
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-2, A-4	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-2, A-4, A-6	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	SC, CL-ML	A-4, A-6	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20

Table 17.--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	
38B:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
38C:												
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-2, A-4	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-2, A-4, A-6	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	SC, CL-ML	A-4, A-6	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20

Table 17.--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	
38C:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
38D:												
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-2, A-4	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-2, A-4, A-6	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	SC, CL-ML	A-4, A-6	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20

Table 17.--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	
38D:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
38E:												
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-2, A-4	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-2, A-4, A-6	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	SC, CL-ML	A-4, A-6	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20

Table 17.--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	
38E:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
43B:												
Thompsonville---	0-5	Fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	5-15	Sand, fine sand	SP-SM, SP	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	15-29	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	29-37	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	37-55	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	55-72	Silty clay loam	CL	A-6, A-7	0	0	90-100	90-100	80-100	65-95	20-50	20-35
	72-80	Stratified very fine sandy loam to silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	90-100	90-100	80-100	65-95	10-50	3-35
44A:												
Milnichol-------	0-2	Fine sand	SP, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	0-35	0-14	NP
	2-12	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	0-35	0-14	NP
	12-15	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	0-35	0-14	NP
	15-25	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	0-35	0-14	NP
	25-33	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	0-35	0-14	NP
	33-47	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	0-35	0-14	NP
	47-50	Stratified loamy fine sand to fine sandy loam	SC-SM, SC	A-4	0	0-5	90-100	90-100	65-90	40-50	0-25	NP-10
	50-68	Clay loam, silty clay loam	CL	A-6, A-7, A-4	0	0-5	90-100	90-100	85-100	65-95	30-50	5-30
	68-80	Silt loam, clay loam, silty clay loam	CL	A-4, A-6, A-7	0	0-5	90-100	90-100	75-100	75-95	30-50	5-30

Table 17.--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	
47B:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
47C:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
47D:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
47E:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
47F:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
52C:												
Copemish--------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	2-7	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	7-11	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	11-28	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	28-36	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	36-80	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
52E:												
Copemish--------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	2-7	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	7-11	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	11-28	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	28-36	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
	36-80	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-90	0-15	0-14	NP
53A:												
Saugatuck-------	0-5	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	5-8	Sand	SP-SM, SP	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	8-11	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	15-22	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	22-26	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	26-55	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	55-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
Jebavy----------	0-4	Sand	SP, SP-SM	A-2, A-3	0	0	95-100	95-100	50-90	0-15	0-14	NP
	4-15	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	95-100	95-100	50-90	0-15	0-14	NP
	15-17	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	95-100	95-100	50-90	0-15	0-14	NP
	17-26	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	95-100	95-100	50-90	0-15	0-14	NP
	26-31	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	95-100	95-100	50-90	0-15	0-14	NP
	31-80	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	95-100	95-100	65-90	0-30	0-14	NP
54B:												
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP

Table 17.--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	
54C:												
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
54D:												
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
54E:												
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
54F:												
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
55B:												
Brethren--------	0-4	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	4-8	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	8-10	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	10-20	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	20-27	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	27-43	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	43-80	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP

Table 17.--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	
57B:												
Grattan---------	0-4	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	4-13	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	13-18	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-53	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	53-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
57C:												
Grattan---------	0-4	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	4-13	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	13-18	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-53	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	53-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
57D:												
Grattan---------	0-4	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	4-13	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	13-18	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-53	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	53-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
57E:												
Grattan---------	0-4	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	4-13	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	13-18	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-53	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	53-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
57F:												
Grattan---------	0-4	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	4-13	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	13-18	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-53	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	53-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP

Table 17.--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	
58B:												
Covert----------	0-1	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	1-8	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	8-18	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-29	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	29-38	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	38-47	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	47-80	Sand	SP-SM, SP	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
59B:												
Pipestone-------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	0-35	0-14	NP
	2-9	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	0-35	0-14	NP
	9-12	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	50-90	0-35	0-14	NP
	12-24	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	50-90	0-35	0-14	NP
	24-32	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	50-90	0-35	0-14	NP
	32-80	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	50-90	0-35	0-14	NP
60:												
Dair----------	0-4	Muck	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Mucky sandy loam, loam, mucky loam	SC-SM	A-2	0	0	100	100	60-90	30-75	15-20	NP-10
	7-11	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	11-21	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	21-50	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	50-80	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP

Table 17.--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	
63B:												
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
63C:												
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
63D:												
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
63E:												
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
63F:												
Coloma----------	0-3	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-4	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-15	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	15-25	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	25-40	Fine sand, loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-80	Sand, loamy sand, sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
64B:												
Benona----------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	2-6	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	6-9	Sand	SP-SM, SP	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-17	Sand	SP-SM, SP	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	17-28	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	28-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
64C:												
Benona----------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	2-6	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	6-9	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-17	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	17-28	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	28-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
64D:												
Benona----------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	2-6	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	6-9	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-17	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	17-28	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	28-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
64E:												
Benona----------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	2-6	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	6-9	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-17	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	17-28	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	28-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
64F:												
Benona----------	0-2	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	2-6	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	6-9	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-17	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	17-28	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	28-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
67B:												
Plainfield------	0-2	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	2-6	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	6-19	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	19-24	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	24-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
67C:												
Plainfield------	0-2	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	2-6	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	6-19	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	19-24	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	24-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP

Table 17.--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	
67E:												
Plainfield------	0-2	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	2-6	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	6-19	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	19-24	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	24-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
67F:												
Plainfield------	0-2	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	2-6	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	6-19	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	19-24	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	24-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
73:												
Houghton--------	0-12	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	12-26	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	26-80	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
Adrian----------	0-7	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	7-20	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	20-35	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	35-80	Sand	SP, SP-SM	A-3	0	0	100	100	50-70	0-15	0-14	NP
81:												
Lumley----------	0-3	Peat	PT	A-8	0	0	---	---	---	---	0-0	NP
	3-6	Peat	PT	A-8	0	0	---	---	---	---	0-0	NP
	6-8	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	8-20	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	20-45	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	45-53	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	53-80	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
Makinen---------	0-4	Muck	PT	A-8	0	0	---	---	---	---	---	---
	4-14	Muck	PT	A-8	0	0	---	---	---	---	---	---
	14-22	Muck	PT	A-8	0	0	---	---	---	---	---	---
	22-31	Muck	PT	A-8	0	0	---	---	---	---	---	---
	31-80	Sand	SP, SP-SM	A-3	0	0	100	100	50-70	0-15	0-14	NP
83:												
Histosols-------	0-45	Muck	PT	A-8	0	0	0	0	0	0	0-0	NP
	45-80	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
Aquents---------	0-80	Variable	---	---	---	---	---	---	---	---	---	---

Table 17.--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	
86D:												
Dune land.												
Quartzipsamments	0-80	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
86F:												
Dune land.												
Quartzipsamments	0-80	Sand	SP, SP-SM	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
88B:												
Udipsamments----	0-80	Sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	90-100	40-85	0-15	0-14	NP
91.												
Pits, sand and gravel												
96C:												
Goodharbor------	0-1	Sand	SP-SM, SP	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	1-3	Sand, fine sand	SP-SM, SP	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	3-23	Sand, fine sand	SP-SM, SP	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	23-40	Sand, fine sand	SP-SM, SP	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	40-80	Sand, fine sand	SP-SM, SP	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
100A:												
Dair----------	0-4	Muck	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Mucky sandy loam, loam, mucky loam	SC-SM	A-2	0	0	100	100	60-90	30-75	15-20	NP-10
	7-11	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	11-21	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	21-50	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	50-80	Sand	SP, SP-SM	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
Pipestone-------	0-2	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	2-9	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	9-12	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	12-24	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	24-32	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	32-80	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP

Table 17.--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	
102A:												
Thompsonville---	0-5	Fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	5-15	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	15-29	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	29-37	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	37-55	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-35	0-14	NP
	55-72	Silty clay loam	CL	A-6, A-7	0	0	90-100	90-100	80-100	65-95	20-50	20-35
	72-80	Stratified very fine sandy loam to silty clay loam	CL-ML, CL	A-4, A-6, A-7	0	0	90-100	90-100	80-100	65-95	10-50	3-35
Milnichol-------	0-2	Fine sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	2-12	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	12-15	Fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	15-25	Fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	25-33	Fine sand, sand	SP-SM, SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	33-47	Fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	47-50	Stratified loamy fine sand to fine sandy loam	SC, SC-SM	A-4	0	0-5	90-100	90-100	65-90	40-50	0-25	NP-10
	50-68	Clay loam, silty clay loam	CL	A-6, A-7, A-4	0	0-5	90-100	90-100	85-100	65-95	30-50	5-30
	68-80	Silt loam, clay loam, silty clay loam	CL	A-4, A-6, A-7	0	0-5	90-100	90-100	75-100	75-95	30-50	5-30
104B:												
Covert----------	0-1	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	1-8	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	8-18	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-29	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	29-38	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	38-47	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	47-80	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
Pipestone-------	0-2	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	2-9	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	9-12	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	12-24	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	24-32	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	32-80	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP

Table 17.--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	
106B:												
Covert----------	0-1	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	1-8	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	8-18	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	18-25	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	25-29	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	29-38	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	38-47	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	47-80	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
Dair----------	0-4	Muck	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Mucky sandy loam, loam, mucky loam	SC-SM	A-2	0	0	100	100	60-90	30-75	15-20	NP-10
	7-11	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	11-21	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	21-50	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	50-80	Sand	SP, SP-SM	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
107B:												
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
107C:												
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
107D:												
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
107E:												
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
107F:												
Benzonia--------	0-5	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	5-11	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	15-20	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	20-27	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	27-35	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	35-80	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
108A:												
Saugatuck-------	0-5	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	5-8	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	8-11	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	15-22	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	22-26	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	26-55	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP
	55-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-85	0-15	0-14	NP

Table 17.--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	
109B:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-1, A-3, A-2	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GP, GM, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
109C:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP

Table 17.--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	
109D:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
109E:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP

Table 17.--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	
109F:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
110B:												
Healylake-------	0-4	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	4-9	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	11-14	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	14-26	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	26-39	Sand	SP-SM, SP	A-3	0	0	100	100	50-90	0-15	0-14	NP
	39-63	Sand	SP-SM, SP	A-3	0	0	100	100	50-90	0-15	0-14	NP
	63-80	Sand	SP-SM, SP	A-3	0	0	100	100	50-90	0-15	0-14	NP
111D:												
Onekama---------	0-6	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	85-95	85-95	55-85	30-50	10-25	3-10
	6-13	Sandy loam, clay loam, fine sandy loam, clay	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7	0	0	85-95	85-95	55-95	25-80	10-55	3-35
	13-20	Clay loam, clay	CH, CL	A-7	0	0	85-95	85-95	75-95	50-95	30-55	20-35
	20-31	Clay loam, clay	CH, CL	A-7	0	0	85-95	85-95	75-95	50-95	30-55	20-35
	31-80	Clay loam, clay	CL, CH	A-6, A-7	0	0	85-95	85-95	75-95	50-95	30-55	15-35

Table 17.--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	
111E:												
Onekama---------	0-6	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	85-95	85-95	55-85	30-50	10-25	3-10
	6-13	Sandy loam, clay loam, fine sandy loam, clay	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7	0	0	85-95	85-95	55-95	25-80	10-55	3-35
	13-20	Clay loam, clay	CH, CL	A-7	0	0	85-95	85-95	75-95	50-95	30-55	20-35
	20-31	Clay loam, clay	CH, CL	A-7	0	0	85-95	85-95	75-95	50-95	30-55	20-35
	31-80	Clay loam, clay	CL, CH	A-6, A-7	0	0	85-95	85-95	75-95	50-95	30-55	15-35
111F:												
Onekama---------	0-6	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	85-95	85-95	55-85	30-50	10-25	3-10
	6-13	Sandy loam, clay loam, fine sandy loam, clay	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6, A-7	0	0	85-95	85-95	55-95	25-80	10-55	3-35
	13-20	Clay loam, clay	CH, CL	A-7	0	0	85-95	85-95	75-95	50-95	30-55	20-35
	20-31	Clay loam, clay	CH, CL	A-7	0	0	85-95	85-95	75-95	50-95	30-55	20-35
	31-80	Clay loam, clay	CL, CH	A-6, A-7	0	0	85-95	85-95	75-95	50-95	30-55	15-35
114B:												
Nordhouse-------	0-3	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	3-11	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	11-40	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	40-60	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	60-80	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
Platteriver-----	0-1	Highly decomposed plant material	---	---	0	0	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	3-14	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	14-20	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	20-29	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	29-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
Dair----------	0-4	Muck	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Mucky sandy loam, loam, mucky loam	SC-SM	A-2	0	0	100	100	60-90	30-75	15-20	NP-10
	7-11	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	11-21	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	21-50	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	50-80	Sand	SP, SP-SM	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP

Table 17.--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	
115B:												
Nordhouse-------	0-3	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	3-11	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	11-40	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	40-60	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	60-80	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
115D:												
Nordhouse-------	0-3	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	3-11	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	11-40	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	40-60	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	60-80	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
115F:												
Nordhouse-------	0-3	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	3-11	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	11-40	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	40-60	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	60-80	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
118B:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
118B:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
118C:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
118C:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
118D:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
118D:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
118E:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
118E:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
118F:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
118F:												
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP
119:												
Madaus----------	0-12	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	12-34	Marly silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	NP-10
	34-38	Marly silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	NP-10
	38-62	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	62-80	Clay	CH, CL	A-7, A-6	0	0	100	100	90-100	80-100	40-55	20-35

Table 17.--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	
120B:												
Boyer----------	0-3	Fine sandy loam	SM, SC-SM	A-4, A-2	0	0	55-99	55-99	35-70	15-55	10-20	NP-10
	3-4	Gravelly sandy loam, sandy clay loam	SM, SC-SM	A-4, A-2	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	4-14	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	14-30	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	30-45	Very gravelly sand, sand, gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
	45-80	Gravelly sand, sand, very gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP

Table 17.--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	
120C:												
Boyer----------	0-3	Fine sandy loam	SM, SC-SM	A-4, A-2	0	0	55-99	55-99	35-70	15-55	10-20	NP-10
	3-4	Gravelly sandy loam, sandy clay loam	SC-SM, SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	4-14	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	14-30	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	30-45	Very gravelly sand, sand, gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
	45-80	Gravelly sand, sand, very gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP

Table 17.--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	
120D:												
Boyer----------	0-3	Fine sandy loam	SM, SC-SM	A-4, A-2	0	0	55-99	55-99	35-70	15-55	10-20	NP-10
	3-4	Gravelly sandy loam, sandy clay loam	SC-SM, SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	4-14	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	14-30	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	30-45	Very gravelly sand, sand, gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
	45-80	Gravelly sand, sand, very gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP

Table 17.--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	
120E:												
Boyer----------	0-3	Fine sandy loam	SM, SC-SM	A-4, A-2	0	0	55-99	55-99	35-70	15-55	10-20	NP-10
	3-4	Gravelly sandy loam, sandy clay loam	SC-SM, SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	4-14	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	14-30	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	30-45	Very gravelly sand, sand, gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
	45-80	Gravelly sand, sand, very gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP

Table 17.--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	
120F:												
Boyer----------	0-3	Fine sandy loam	SM, SC-SM	A-4, A-2	0	0	55-99	55-99	35-70	15-55	10-20	NP-10
	3-4	Gravelly sandy loam, sandy clay loam	SC-SM, SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	4-14	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	14-30	Gravelly sandy loam, sandy clay loam	CL-ML, SC, SC-SM	A-2, A-4	0	0	55-99	55-99	35-70	15-55	10-40	NP-20
	30-45	Very gravelly sand, sand, gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
	45-80	Gravelly sand, sand, very gravelly sand, gravelly loamy sand	GP, GP-GM, SP, SP-SM	A-1, A-2, A-3	0	0	30-85	30-85	0-75	0-35	0-14	NP
Shavenaugh------	0-5	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-80	0-15	0-14	NP
	5-8	Sand, gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-95	70-95	50-80	0-15	0-14	NP
	8-16	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	16-28	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	28-34	Sand, gravelly sand	SP, SP-SM	A-3, A-1	0	0	70-95	70-95	50-80	0-15	0-14	NP
	34-44	Gravelly loamy sand, loamy sand	SP-SM	A-3, A-2, A-1	0	0	55-95	55-95	35-80	0-30	0-14	NP
	44-80	Gravelly sand, very gravelly sand, very gravelly loamy sand, stratified sand to gravelly sand	GM, GP, GP-GM	A-1, A-3	0	0	30-85	30-85	0-80	0-30	0-14	NP

Table 17.--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	
122:												
Dair----------	0-4	Muck	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Mucky sandy loam, loam, mucky loam	SC-SM	A-2	0	0	100	100	60-90	30-75	15-20	NP-10
	7-11	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	11-21	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	21-50	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	50-80	Sand	SP, SP-SM	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
Adrian----------	0-7	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	7-20	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	20-35	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	35-80	Sand	SP, SP-SM	A-3	0	0	100	100	50-70	0-15	0-14	NP
123B:												
Platteriver-----	0-1	Highly decomposed plant material	---	---	0	0	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	3-14	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	14-20	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	20-29	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	29-80	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
Pipestone-------	0-2	Sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	2-9	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	9-12	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	12-24	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	24-32	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
	32-80	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	50-90	5-35	0-14	NP
125B:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
125B:												
Tekenink, sandy substratum-----	0-8	Loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	65-95	15-50	0-14	NP
	8-16	Loamy fine sand, loamy sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	15-50	0-14	NP
	16-21	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-90	15-40	10-25	3-10
	21-49	Loamy sand, sandy loam, loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	10-50	0-25	NP-10
	49-62	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-80	25-40	10-25	3-10
	62-72	Loamy sand, sand	SP, SP-SM, SM	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
	72-80	Sand, loamy sand	SM, SP, SP-SM	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
125C:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
125C:												
Tekenink, sandy substratum-----	0-8	Loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	65-95	15-50	0-14	NP
	8-16	Loamy fine sand, loamy sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	15-50	0-14	NP
	16-21	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-90	15-40	10-25	3-10
	21-49	Loamy sand, sandy loam, loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	10-50	0-25	NP-10
	49-62	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-80	25-40	10-25	3-10
	62-72	Loamy sand, sand	SP, SM, SP-SM	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
	72-80	Sand, loamy sand	SP-SM, SM, SP	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
125D:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
125D:												
Tekenink, sandy substratum-----	0-8	Loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	65-95	15-50	0-14	NP
	8-16	Loamy fine sand, loamy sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	15-50	0-14	NP
	16-21	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-90	15-40	10-25	3-10
	21-49	Loamy sand, sandy loam, loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	10-50	0-25	NP-10
	49-62	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-80	25-40	10-25	3-10
	62-72	Loamy sand, sand	SP, SM, SP-SM	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
	72-80	Sand, loamy sand	SP-SM, SM, SP	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
125E:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
125E:												
Tekenink, sandy substratum-----	0-8	Loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	65-95	15-50	0-14	NP
	8-16	Loamy fine sand, loamy sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	15-50	0-14	NP
	16-21	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-90	15-40	10-25	3-10
	21-49	Loamy sand, sandy loam, loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	10-50	0-25	NP-10
	49-62	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-80	25-40	10-25	3-10
	62-72	Loamy sand, sand	SP, SM, SP-SM	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
	72-80	Sand, loamy sand	SP-SM, SM, SP	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
125F:												
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
125F:												
Tekenink, sandy substratum-----	0-8	Loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	65-95	15-50	0-14	NP
	8-16	Loamy fine sand, loamy sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	15-50	0-14	NP
	16-21	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-90	15-40	10-25	3-10
	21-49	Loamy sand, sandy loam, loamy fine sand	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	45-95	10-50	0-25	NP-10
	49-62	Sandy loam	SC-SM, SM	A-4, A-2	0	0	90-100	90-100	55-80	25-40	10-25	3-10
	62-72	Loamy sand, sand	SP, SM, SP-SM	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
	72-80	Sand, loamy sand	SP-SM, SM, SP	A-3, A-2	0	0	85-100	85-100	40-80	0-25	0-14	NP
126D:												
Filer-----------	0-9	Fine sandy loam	SC-SM	A-2, A-4	0	0	85-95	85-95	50-70	25-40	10-25	NP-10
	9-14	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam	CL, SC-SM, SC	A-6, A-2, A-4	0	0	85-95	85-95	50-95	25-95	10-45	NP-25
	14-31	Clay loam, loam, sandy clay loam	CL, SC-SM	A-6, A-4	0	0	85-95	85-95	65-95	50-95	15-45	1-25
	31-80	Loam, clay loam	CL, SC-SM	A-6, A-4	0	0	85-95	85-95	65-95	50-95	15-45	NP-25
126E:												
Filer-----------	0-9	Fine sandy loam	SC-SM	A-2, A-4	0	0	85-95	85-95	50-70	25-40	10-25	NP-10
	9-14	Sandy clay loam, sandy loam, fine sandy loam, loam, clay loam	CL, SC-SM, SC	A-6, A-2, A-4	0	0	85-95	85-95	50-95	25-95	10-45	NP-25
	14-31	Clay loam, loam, sandy clay loam	CL, SC-SM	A-6, A-4	0	0	85-95	85-95	65-95	50-95	15-45	1-25
	31-80	Loam, clay loam	CL, SC-SM	A-6, A-4	0	0	85-95	85-95	65-95	50-95	15-45	NP-25

Table 17.--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	
127B:												
Kaleva, deep water table----	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
130A:												
Glendora--------	0-6	Mucky loamy sand	SP-SM	A-2	0	0	95-100	95-100	50-90	5-15	0-14	NP
	6-9	Loamy sand, sand, fine sand	SM, SP-SM	A-2, A-3	0	0	95-100	95-100	50-90	5-15	0-14	NP
	9-30	Sand, loamy sand, fine sand	SM, SP-SM	A-2, A-3	0	0	95-100	95-100	50-90	5-15	0-14	NP
	30-80	Sand, loamy sand, fine sand	SM, SP-SM	A-1, A-2, A-3	0	0	95-100	95-100	50-90	5-15	0-14	NP
Algansee--------	0-3	Loamy fine sand	SC-SM, SM	A-2	0	0	80-100	80-100	80-95	30-50	0-14	NP
	3-9	Loamy fine sand	SC-SM, SM	A-2	0	0	80-100	80-100	80-95	30-50	0-14	NP
	9-15	Sand	SP-SM, SP	A-3	0	0	70-100	70-100	50-70	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	70-100	70-100	50-70	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	70-100	70-100	50-70	0-15	0-14	NP
	32-37	Gravelly sand	SP-SM, SP	A-1, A-3	0	0	55-100	55-90	50-70	0-15	0-14	NP
	37-80	Stratified sand to gravelly sand, fine sand	SP, SP-SM	A-1, A-3	0	0	55-100	55-90	50-80	0-30	0-14	NP

Table 17.--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	
130A:												
Abscota---------	0-4	Loamy fine sand	SC-SM, SM, SP-SM	A-4, A-2, A-3	0	0	90-100	90-100	40-95	0-90	0-30	NP-10
	4-9	Loamy sand, loamy fine sand, sand, fine sand	SC-SM, SM, SP-SM	A-4, A-2, A-3	0	0	90-100	90-100	40-95	0-90	0-14	NP
	9-18	Loamy sand, loamy fine sand, sand, fine sand	SP-SM, SC-SM	A-3, A-2	0	0	90-100	90-100	40-95	0-25	0-14	NP
	18-28	Fine sand, sand, coarse sand, loamy fine sand, loamy sand	SP-SM, SM	A-3, A-2	0	0	60-100	35-100	0-95	0-25	0-14	NP
	28-32	Fine sand, sand, coarse sand, loamy fine sand, loamy sand	SP-SM, SM	A-3, A-2	0	0	60-100	35-100	0-95	0-25	0-14	NP
	32-36	Fine sand, sand, coarse sand, loamy fine sand, loamy sand	SP-SM, SM	A-3, A-2	0	0	60-100	35-100	0-95	0-25	0-14	NP
	36-40	Fine sand, sand, coarse sand, loamy fine sand, loamy sand	SP-SM, SM	A-3, A-2	0	0	60-100	35-100	0-95	0-25	0-14	NP
	40-44	Stratified loamy sand to sand, coarse sand, gravelly sand	SC-SM, SP-SM, SP	A-3, A-2, A-1	0	0	60-100	35-100	0-95	0-25	0-14	NP
	44-80	Stratified gravelly sand to sand to very gravelly sand to loamy sand to sandy loam, gravelly sand, coarse sand	SP, SP-SM, SC-SM	A-3, A-2, A-1	0	0	60-100	35-100	0-95	0-25	0-14	NP

Table 17.--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	
131A:												
Milarch---------	0-9	Loam	CL-ML	A-4	0	0	100	100	85-100	60-75	15-30	NP-15
	9-13	Loam, fine sandy loam, very fine sandy loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	60-95	15-35	NP-35
	13-19	Clay loam, loam, silty clay loam, fine sandy loam, very fine sandy loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-100	60-95	15-50	NP-35
	19-27	Clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-95	15-50	5-50
	27-30	Clay loam, loam, silty clay loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	85-100	60-95	15-50	5-50
	30-39	Loamy sand, sandy loam, sand, fine sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-90	5-30	0-14	NP
	39-80	Fine sand, loamy sand, sandy loam, sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-90	5-30	0-14	NP
132A:												
Milnichol-------	0-2	Fine sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	2-12	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	12-15	Fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	15-25	Fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	25-33	Fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	33-47	Fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	90-100	90-100	45-80	5-35	0-14	NP
	47-50	Stratified loamy fine sand to fine sandy loam	SC, SC-SM	A-4	0	0-5	90-100	90-100	65-90	40-50	0-25	NP-10
	50-68	Clay loam, silty clay loam	CL	A-6, A-7, A-4	0	0-5	90-100	90-100	85-100	65-95	30-50	5-30
	68-80	Silt loam, clay loam, silty clay loam	CL	A-4, A-6, A-7	0	0-5	90-100	90-100	75-100	75-95	30-50	5-30

Table 17.--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	
132A:												
Dair----------	0-4	Muck	PT	A-8	---	---	---	---	---	---	---	---
	4-7	Mucky sandy loam, loam, mucky loam	SC-SM	A-2	0	0	100	100	60-90	30-75	15-20	NP-10
	7-11	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	11-21	Sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	0-15	0-14	NP
	21-50	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
	50-80	Sand	SP, SP-SM	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
135B:												
Nessen----------	0-4	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	4-11	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	15-24	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	24-39	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	39-44	Gravelly loamy sand, sand, gravelly sand, stratified sand to gravelly sand	SP, SP-SM, GP-GM	A-1, A-3	0	0	50-85	50-85	50-80	0-30	0-14	NP
	44-80	Gravelly sand, sand, stratified sand to gravelly sand	SP, SP-SM, GP-GM	A-1, A-3	0	0	50-85	50-85	50-85	0-15	0-14	NP
135C:												
Nessen----------	0-4	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	4-11	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	15-24	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	24-39	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	39-44	Gravelly loamy sand, sand, gravelly sand, stratified sand to gravelly sand	GP-GM, SP, SP-SM	A-1, A-3	0	0	50-85	50-85	50-80	0-30	0-14	NP
	44-80	Gravelly sand, sand, stratified sand to gravelly sand	SP-SM, GP-GM, SP	A-1, A-3	0	0	50-85	50-85	50-85	0-15	0-14	NP

Table 17.--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	
136B:												
Nessen----------	0-4	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	4-11	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	15-24	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	24-39	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	39-44	Gravelly loamy sand, sand, gravelly sand, stratified sand to gravelly sand	GP-GM, SP, SP-SM	A-1, A-3	0	0	50-85	50-85	50-80	0-30	0-14	NP
	44-80	Gravelly sand, sand, stratified sand to gravelly sand	SP-SM, GP-GM, SP	A-1, A-3	0	0	50-85	50-85	50-85	0-15	0-14	NP
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
136C:												
Nessen----------	0-4	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	4-11	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	15-24	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	24-39	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	39-44	Gravelly loamy sand, sand, gravelly sand, stratified sand to gravelly sand	GP-GM, SP, SP-SM	A-1, A-3	0	0	50-85	50-85	50-80	0-30	0-14	NP
	44-80	Gravelly sand, sand, stratified sand to gravelly sand	SP-SM, GP-GM, SP	A-1, A-3	0	0	50-85	50-85	50-85	0-15	0-14	NP

Table 17.--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	
136C:												
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
136D:												
Nessen----------	0-4	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	4-11	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	15-24	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	24-39	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	39-44	Gravelly loamy sand, sand, gravelly sand, stratified sand to gravelly sand	GP-GM, SP, SP-SM	A-1, A-3	0	0	50-85	50-85	50-80	0-30	0-14	NP
	44-80	Gravelly sand, sand, stratified sand to gravelly sand	SP-SM, GP-GM, SP	A-1, A-3	0	0	50-85	50-85	50-85	0-15	0-14	NP
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP

Table 17.--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	
136E:												
Nessen----------	0-4	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	4-11	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	11-15	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	15-24	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	24-39	Sand	SP, SP-SM	A-3	0	0	85-95	85-95	50-85	0-15	0-14	NP
	39-44	Gravelly loamy sand, sand, gravelly sand, stratified sand to gravelly sand	GP-GM, SP, SP-SM	A-1, A-3	0	0	50-85	50-85	50-80	0-30	0-14	NP
	44-80	Gravelly sand, sand, stratified sand to gravelly sand	SP-SM, GP-GM, SP	A-1, A-3	0	0	50-85	50-85	50-85	0-15	0-14	NP
Kaleva----------	0-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	3-9	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	9-11	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	11-16	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	16-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	21-70	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	70-80	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP

Table 17.--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	
138D:												
Mollineaux------	0-6	Loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	6-9	Sand, fine sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	9-15	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	15-27	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	27-38	Loamy sand, sand, fine sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	38-64	Clay loam, loam	CL	A-4, A-6, A-7	0	0	85-100	85-100	70-95	50-70	30-45	5-25
	64-80	Sand, loamy sand, loamy fine sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
138E:												
Mollineaux------	0-6	Loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	6-9	Sand, fine sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	9-15	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	15-27	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	27-38	Loamy sand, sand, fine sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	38-64	Clay loam, loam	CL	A-4, A-6, A-7	0	0	85-100	85-100	70-95	50-70	30-45	5-25
	64-80	Sand, loamy sand, loamy fine sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
Spinks----------	0-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-10	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	10-17	Fine sand, sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-35	0-14	NP
	17-62	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	62-72	Sand, loamy sand, loamy fine sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-55	0-14	NP
	72-80	Fine sand, sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	35-85	0-35	0-14	NP

Table 17.--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	
139D:												
Mollineaux------	0-6	Loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	6-9	Sand, fine sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	9-15	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	15-27	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	27-38	Loamy sand, sand, fine sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	38-64	Clay loam, loam	CL	A-4, A-6, A-7	0	0	85-100	85-100	70-95	50-70	30-45	5-25
	64-80	Sand, loamy sand, loamy fine sand, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-2, A-4	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-2, A-4, A-6	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	SC, CL-ML	A-4, A-6	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20

Table 17.--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	
139E:												
Mollineaux------	0-6	Loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	6-9	Sand, fine sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	9-15	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	15-27	Fine sand, sand, loamy sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	27-38	Loamy sand, sand, fine sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
	38-64	Clay loam, loam	CL	A-4, A-6, A-7	0	0	85-100	85-100	70-95	50-70	30-45	5-25
	64-80	Sand, loamy sand, loamy fine sand,	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-90	5-35	0-14	NP
Remus----------	0-9	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-85	30-50	10-25	3-10
	9-15	Fine sandy loam, loam, loamy sand	SC, SC-SM	A-2, A-4	0	0	80-100	80-100	50-95	30-75	0-30	NP-15
	15-24	Loamy sand, loam, fine sandy loam, sandy clay loam, sandy loam	CL-ML, SC, SM	A-2, A-4	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	24-35	Sandy clay loam, sandy loam, loamy sand, fine sandy loam, loam	CL-ML, SC	A-2, A-4, A-6	0	0	80-100	80-100	50-95	10-75	0-40	NP-20
	35-66	Sandy clay loam, loam	SC, CL-ML	A-4, A-6	0	0	80-100	80-100	60-95	25-75	15-40	1-20
	66-80	Sandy loam, sandy clay loam, loam	CL-ML, SC	A-6, A-4	0	0	80-100	80-100	60-95	25-75	15-40	1-20

Table 17.--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	
210B:												
Plainfield------	0-2	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	2-6	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	6-19	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	19-24	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	24-180	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
210C:												
Plainfield------	0-2	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	2-6	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	6-19	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	19-24	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	24-180	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
210D:												
Plainfield------	0-2	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	2-6	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	6-19	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	19-24	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	24-180	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
211B:												
Plainfield, banded substratum-----	0-1	Highly decomposed plant material	---	---	0	0	---	---	---	---	---	---
	1-5	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-35	0-14	NP
	5-19	Fine sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	50-90	0-35	0-14	NP
	19-31	Fine sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	50-90	0-35	0-14	NP
	31-121	Fine sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	50-90	0-35	0-14	NP
	121-160	Fine sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	50-90	0-35	0-14	NP
	160-180	Coarse sand, loam	SP, CL-ML, SP-SM	A-1, A-4, A-3	0	0	90-100	90-100	50-95	0-75	0-30	NP-15
212B:												
Plainfield, very deep water table----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	3-13	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	13-21	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	21-115	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	115-127	Coarse sand	SP, SP-SM	A-1, A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	127-135	Fine sand	SP, SP-SM	A-2, A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP

Table 17.--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	
215B:												
Plainfield, loamy substratum-----	0-1	Highly decomposed plant material	---	---	0	0	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	3-7	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	7-25	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	25-40	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	40-121	Sand	SP, SP-SM	A-3	0	0	90-100	90-100	50-90	0-15	0-14	NP
	121-139	Sand, clay loam	CL-ML, SP-SM	A-6, A-3	0	0	90-100	90-100	50-95	0-50	0-30	NP-15
220B:												
Typic Udipsamments---	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-23	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	23-41	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	41-180	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
220C:												
Typic Udipsamments---	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-23	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	23-41	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	41-180	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
220D:												
Typic Udipsamments---	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-23	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	23-41	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	41-180	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP

Table 17.--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	
220E:												
Typic Udipsamments---	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-23	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	23-41	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	41-180	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
220F:												
Typic Udipsamments---	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-23	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	23-41	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	41-180	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
221B:												
Typic Udipsamments, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-15	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-119	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	119-127	Gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	127-131	Coarse sand, sandy clay loam	SM, SP, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	85-100	30-90	0-40	0-40	NP-20

Table 17.--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	
221B:												
Lamellic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	4-21	Sand, coarse sand	SP-SM, SP	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	21-31	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	31-100	Sand, loamy sand, coarse sand, loamy fine sand, coarse sandy loam	SP-SM, SP	A-1, A-2, A-3	0	0	80-100	80-100	40-70	0-30	0-30	NP-8
221C:												
Typic Udipsamments, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-15	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-119	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	119-127	Gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	127-131	Coarse sand, sandy clay loam	SM, SP, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	85-100	30-90	0-40	0-40	NP-20

Table 17.--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	
221C:												
Lamellic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	4-21	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	21-31	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	31-100	Sand, loamy sand, coarse sand, loamy fine sand, coarse sandy loam	SP, SP-SM	A-1, A-2, A-3	0	0	80-100	80-100	40-70	0-30	0-30	NP-8
221D:												
Typic Udipsamments, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-15	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-119	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	119-127	Gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	127-131	Coarse sand, sandy clay loam	SM, SP, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	85-100	30-90	0-40	0-40	NP-20

Table 17.--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	
221D:												
Lamellic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	4-21	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	21-31	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	31-100	Sand, loamy sand, coarse sand, loamy fine sand, coarse sandy loam	SP, SP-SM	A-1, A-2, A-3	0	0	80-100	80-100	40-70	0-30	0-30	NP-8
221E:												
Typic Udipsamments, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-15	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-119	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	119-127	Gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	127-131	Coarse sand, sandy clay loam	SM, SP, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	85-100	30-90	0-40	0-40	NP-20

Table 17.--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	
221E:												
Lamellic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	4-21	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	21-31	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	31-100	Sand, loamy sand, coarse sand, loamy fine sand, coarse sandy loam	SP, SP-SM	A-1, A-2, A-3	0	0	80-100	80-100	40-70	0-30	0-30	NP-8
221F:												
Typic Udipsamments, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-15	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-119	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	119-127	Gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	127-131	Coarse sand, sandy clay loam	SM, SP, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	85-100	30-90	0-40	0-40	NP-20

Table 17.--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	
221F:												
Lamellic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	4-21	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	21-31	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	31-100	Sand, loamy sand, coarse sand, loamy fine sand, coarse sandy loam	SP, SP-SM	A-1, A-2, A-3	0	0	80-100	80-100	40-70	0-30	0-30	NP-8
222B:												
Typic Udipsamments, very deep water table----------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-43	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	43-58	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	58-84	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
222C:												
Typic Udipsamments, very deep water table----------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-43	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	43-58	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	58-84	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP

Table 17.--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	
223B:												
Lamellic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	4-21	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	21-31	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	31-100	Sand, loamy sand, coarse sand, loamy fine sand, coarse sandy loam	SP, SP-SM	A-1, A-2, A-3	0	0	80-100	80-100	40-70	0-30	0-30	NP-8
Typic Udipsamments, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-15	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-119	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	119-127	Gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	127-131	Coarse sand, sandy clay loam	SM, SP, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	85-100	30-90	0-40	0-40	NP-20

Table 17.--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	
223C:												
Lamellic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	4-21	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	21-31	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	80-100	80-100	40-70	0-15	0-14	NP
	31-100	Sand, loamy sand, coarse sand, loamy fine sand, coarse sandy loam	SP, SP-SM	A-1, A-2, A-3	0	0	80-100	80-100	40-70	0-30	0-30	NP-8
Typic Udipsamments, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	4-15	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	15-21	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	21-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-119	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	119-127	Gravelly sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	127-131	Coarse sand, sandy clay loam	SM, SP, SP-SM	A-1, A-2, A-3, A-4	0	0	85-100	85-100	30-90	0-40	0-40	NP-20

Table 17.--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	
224B:												
Oxyaquic Udipsamments---	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	2-3	Sand	SP, SP-SM	A-3	0	0	100	100	50-90	0-15	0-14	NP
	3-15	Sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	55-100	55-100	0-90	0-15	0-14	NP
	15-24	Sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	55-100	55-100	0-90	0-15	0-14	NP
	24-29	Sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	55-100	55-100	0-90	0-15	0-14	NP
	29-40	Sand, fine sand, coarse sand, loamy sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	55-100	55-100	0-90	0-15	0-14	NP
	40-49	Sand, fine sand, coarse sand, loamy sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	55-100	55-100	0-90	0-15	0-14	NP
	49-85	Sand, fine sand, coarse sand, loamy sand, gravelly sand	SP, SP-SM	A-1, A-2, A-3	0	0	55-100	55-100	0-90	0-15	0-14	NP
225B:												
Typic Udipsamments, loamy substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand	SP-SM, SP	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	2-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-40	Sand	SP-SM, SP	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	40-49	Fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	49-85	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	85-180	Stratified fine sandy loam to clay loam	CL, SC	A-2, A-6, A-7	0	0	85-100	85-100	45-95	20-80	10-45	8-25

Table 17.--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	
225C:												
Typic Udipsamments, loamy substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	2-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-40	Sand	SP-SM, SP	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	40-49	Fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	49-85	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	85-180	Stratified fine sandy loam to clay loam	CL, SC	A-2, A-6, A-7	0	0	85-100	85-100	45-95	20-80	10-45	8-25
225D:												
Typic Udipsamments, loamy substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	2-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	5-32	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	32-40	Sand	SP-SM, SP	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	40-49	Fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	49-85	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	85-180	Stratified fine sandy loam to clay loam	CL, SC	A-2, A-6, A-7	0	0	85-100	85-100	45-95	20-80	10-45	8-25

Table 17.--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	
230B:												
Entic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	4-6	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	6-21	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	21-36	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	36-180	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
230C:												
Entic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	4-6	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	6-21	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	21-36	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	36-180	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP

Table 17.--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	
230D:												
Entic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	4-6	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	6-21	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	21-36	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	36-180	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
230E:												
Entic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	4-6	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	6-21	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	21-36	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	36-180	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP

Table 17.--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	
230F:												
Entic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	4-6	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	6-21	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	21-36	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	36-180	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP

Table 17.--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	
231B:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
231C:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
231D:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
231E:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
232B:												
Entic Haplorthods, sandy, very deep water table----------	0-2	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-6	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	6-10	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	10-22	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	22-61	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	61-65	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	65-69	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	69-156	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	156-180	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP

Table 17.--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	
232B:												
Lamellic Haplorthods, sandy, very deep water table----------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-7	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	7-17	Sand, loamy sand	SM, SP-SM	A-3, A-2	0	0	85-100	85-100	40-90	5-30	0-14	NP
	17-21	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	21-64	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	64-68	Sand, sandy clay loam, loamy sand	SP-SM, SC-SM, SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-40	NP-20
	68-88	Sand, loamy sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	88-114	Sand, loamy sand	SM, SP-SM	A-1, A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
233B:												
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
233B:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
233C:												
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
233C:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
233D:												
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
233D:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
233E:												
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
233E:												
Entic Haplorthods, sandy, banded substratum-----	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	2-3	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	3-19	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	19-25	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	25-56	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	56-85	Sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP
	85-180	Sand, sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	90-100	90-100	45-90	5-30	0-14	NP

Table 17.--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	
234B:												
Oxyaquic Haplorthods, sandy----------	0-2	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	2-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	4-7	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	7-17	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	17-23	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	23-30	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	30-54	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	54-70	Sand, coarse sand, fine sand, loamy sand, sandy clay loam	SP, SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-40	NP-20
	70-84	Sand, coarse sand, fine sand, loamy sand, sandy clay loam	SP, SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-40	NP-20

Table 17.--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	
235B:												
Alfic Haplorthods, sandy----------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-5	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	5-6	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	6-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	24-44	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	44-52	Fine sandy loam, loam, sandy loam	CL-ML, SC-SM	A-4, A-6	0	0	85-100	85-100	60-95	40-75	15-25	NP-20
	52-84	Fine sand, sandy loam, sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	84-92	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	92-180	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10

Table 17.--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	
235B: Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
235C:												
Alfic Haplorthods, sandy----------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-5	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	5-6	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	6-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	24-44	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	44-52	Fine sandy loam, loam, sandy loam	CL-ML, SC-SM	A-4, A-6	0	0	85-100	85-100	60-95	40-75	15-25	NP-20
	52-84	Fine sand, sandy loam, sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	84-92	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	92-180	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10

Table 17.--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	
235C: Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
235D:												
Alfic Haplorthods, sandy----------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-5	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	5-6	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	6-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	24-44	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	44-52	Fine sandy loam, loam, sandy loam	CL-ML, SC-SM	A-4, A-6	0	0	85-100	85-100	60-95	40-75	15-25	NP-20
	52-84	Fine sand, sandy loam, sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	84-92	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	92-180	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10

Table 17.--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	
235D: Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
235E:												
Alfic Haplorthods, sandy----------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-5	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	5-6	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	6-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	24-44	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	44-52	Fine sandy loam, loam, sandy loam	CL-ML, SC-SM	A-4, A-6	0	0	85-100	85-100	60-95	40-75	15-25	NP-20
	52-84	Fine sand, sandy loam, sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	84-92	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	92-180	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10

Table 17.--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	
235E:												
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP

Table 17.--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	
235F:												
Alfic Haplorthods, sandy----------	0-2	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-5	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	5-6	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	6-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	24-44	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-30	0-14	NP
	44-52	Fine sandy loam, loam, sandy loam	CL-ML, SC-SM	A-4, A-6	0	0	85-100	85-100	60-95	40-75	15-25	NP-20
	52-84	Fine sand, sandy loam, sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	84-92	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10
	92-180	Loamy sand, sand, sandy loam, fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	45-85	5-35	0-14	NP-10

Table 17.--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	
235F:												
Lamellic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-24	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	24-29	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	29-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
237B:												
Glossudalfs, fine-loamy-----	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Sandy loam	SC-SM	A-2, A-4	0	0-14	75-100	75-100	45-75	20-40	10-25	NP-10
	5-11	Sandy loam, fine sandy loam, loamy sand	SC-SM, SP-SM	A-2, A-4	0	0-14	75-100	75-100	35-80	10-75	0-25	NP-10
	11-21	Sandy loam, loam, fine sandy loam, loamy sand	SC-SM, SP-SM	A-2, A-4	0	0-14	75-100	75-100	35-80	10-75	0-25	NP-15
	21-46	Clay loam, silt loam, silty clay loam, sandy clay loam	CL, SC	A-2, A-4, A-6	0	0-14	75-100	75-100	60-80	20-80	20-45	5-30
	46-60	Sandy loam, sandy clay loam, clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0-14	75-100	75-100	60-80	20-80	10-45	NP-25

Table 17.--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	
237C:												
Glossudalfs, fine-loamy-----	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Sandy loam	SC-SM	A-2, A-4	0	0-14	75-100	75-100	45-75	20-40	10-25	NP-10
	5-11	Sandy loam, fine sandy loam, loamy sand	SC-SM, SP-SM	A-2, A-4	0	0-14	75-100	75-100	35-80	10-75	0-25	NP-10
	11-21	Sandy loam, loam, fine sandy loam, loamy sand	SC-SM, SP-SM	A-2, A-4	0	0-14	75-100	75-100	35-80	10-75	0-25	NP-15
	21-46	Clay loam, silt loam, silty clay loam, sandy clay loam	CL, SC	A-2, A-4, A-6	0	0-14	75-100	75-100	60-80	20-80	20-45	5-30
	46-60	Sandy loam, sandy clay loam, clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0-14	75-100	75-100	60-80	20-80	10-45	NP-25
237D:												
Glossudalfs, fine-loamy-----	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Sandy loam	SC-SM	A-2, A-4	0	0-14	75-100	75-100	45-75	20-40	10-25	NP-10
	5-11	Sandy loam, fine sandy loam, loamy sand	SC-SM, SP-SM	A-2, A-4	0	0-14	75-100	75-100	35-80	10-75	0-25	NP-10
	11-21	Sandy loam, loam, fine sandy loam, loamy sand	SC-SM, SP-SM	A-2, A-4	0	0-14	75-100	75-100	35-80	10-75	0-25	NP-15
	21-46	Clay loam, silt loam, silty clay loam, sandy clay loam	CL, SC	A-2, A-4, A-6	0	0-14	75-100	75-100	60-80	20-80	20-45	5-30
	46-60	Sandy loam, sandy clay loam, clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0	0-14	75-100	75-100	60-80	20-80	10-45	NP-25

Table 17.--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	
240B:												
Typic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, fine sand, fine sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-7	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	7-8	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	8-15	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	15-23	Sand, fine sand	SM, SP-SM, SP	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	23-85	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	85-157	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	157-175	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	175-180	Gravelly sand, sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	35-80	0-15	0-14	NP
240C:												
Typic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, fine sand, fine sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-7	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	7-8	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	8-15	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	15-23	Sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	23-85	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	85-157	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	157-175	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	175-180	Gravelly sand, sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	35-80	0-15	0-14	NP

Table 17.--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	
240D:												
Typic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, fine sand, fine sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-7	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	7-8	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	8-15	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	15-23	Sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	23-85	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	85-157	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	157-175	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	175-180	Gravelly sand, sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	35-80	0-15	0-14	NP
240E:												
Typic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, fine sand, fine sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-7	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	7-8	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	8-15	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	15-23	Sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	23-85	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	85-157	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	157-175	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	175-180	Gravelly sand, sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	35-80	0-15	0-14	NP

Table 17.--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	
240F:												
Typic Haplorthods, sandy----------	0-1	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, fine sand, fine sandy loam	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-85	0-15	0-14	NP
	3-7	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	7-8	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	8-15	Sand, fine sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	15-23	Sand, fine sand	SP, SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	23-85	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	85-157	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	157-175	Sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	85-100	85-100	35-80	0-15	0-14	NP
	175-180	Gravelly sand, sand, coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	35-80	0-15	0-14	NP
241B:												
Typic Haplorthods, sandy, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-7	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	7-13	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-82	0-15	0-14	NP
	13-21	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	21-25	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	25-72	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	72-141	Loamy sand, very fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	5-15	0-14	NP
	141-180	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP

Table 17.--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	
241B:												
Lamellic Haplorthods, sandy, dark subsoil--------	0-2	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-12	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	12-28	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	28-49	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	49-104	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	104-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
241C:												
Typic Haplorthods, sandy, banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-7	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	7-13	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-82	0-15	0-14	NP
	13-21	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	21-25	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	25-72	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	72-141	Loamy sand, very fine sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	5-15	0-14	NP
	141-180	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP

Table 17.--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	
241C:												
Lamellic Haplorthods, sandy, dark subsoil--------	0-2	Highly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	2-4	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	4-8	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	8-12	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	12-28	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	28-49	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	49-104	Sand, loamy sand	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	104-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
242B:												
Typic Haplorthods, sandy, very deep water table----------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-2	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	2-5	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	5-7	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	45-80	0-15	0-14	NP
	7-13	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	13-25	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	25-99	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	99-106	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP

Table 17.--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	
243C:												
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	3-7	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	7-9	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	9-11	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	11-17	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	17-23	Sand, loamy sand	SM, SP-SM	A-3, A-2	0	0	85-100	85-100	40-90	5-30	0-14	NP
	23-40	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	40-56	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
	56-87	Loamy sand, sandy clay loam	SP-SM, SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-40	NP-20
	87-180	Sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	5-30	0-14	NP
244B:												
Oxyaquic Haplorthods, sandy, dark subsoil--------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	4-12	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	12-13	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	13-34	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	34-41	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP
	41-84	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-90	0-15	0-14	NP

Table 17.--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	
245C:												
Typic Haplorthods, sandy, loamy substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	4-9	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	9-19	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	19-72	Gravelly coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	72-92	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	92-102	Clay loam	CL	A-6, A-7	0	0	85-100	85-100	60-100	45-80	30-45	10-25
Alfic Haplorthods, sandy, dark subsoil--------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Loamy fine sand	SC-SM, SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	5-13	Loamy fine sand	SC-SM, SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	13-23	Loamy fine sand	SC-SM, SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	23-34	Sandy clay loam	SC-SM, SC	A-2, A-6	0	0	85-100	85-100	80-90	35-55	20-40	10-20
	34-72	Fine sand, fine sandy loam	SM, SP-SM, SC-SM	A-2	0	0	85-100	85-100	75-95	5-35	0-25	NP-10
	72-84	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	50-75	5-30	0-14	NP
245D:												
Typic Haplorthods, sandy, loamy substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	4-9	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	9-19	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	19-72	Gravelly coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	72-92	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	92-102	Clay loam	CL	A-6, A-7	0	0	85-100	85-100	60-100	45-80	30-45	10-25

Table 17.--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	
245D:												
Alfic Haplorthods, sandy, dark subsoil--------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Loamy fine sand	SC-SM, SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	5-13	Loamy fine sand	SM, SC-SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	13-23	Loamy fine sand	SM, SC-SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	23-34	Sandy clay loam	SC, SC-SM	A-2, A-6	0	0	85-100	85-100	80-90	35-55	20-40	10-20
	34-72	Fine sand, fine sandy loam	SC-SM, SM, SP-SM	A-2	0	0	85-100	85-100	75-95	5-35	0-25	NP-10
	72-84	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	50-75	5-30	0-14	NP
245E:												
Typic Haplorthods, sandy, loamy substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	4-9	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	9-19	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	19-72	Gravelly coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	72-92	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	92-102	Clay loam	CL	A-6, A-7	0	0	85-100	85-100	60-100	45-80	30-45	10-25
Alfic Haplorthods, sandy, dark subsoil--------	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Loamy fine sand	SC-SM, SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	5-13	Loamy fine sand	SM, SC-SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	13-23	Loamy fine sand	SM, SC-SM	A-2	0	0	85-100	85-100	45-95	35-50	0-14	NP
	23-34	Sandy clay loam	SC, SC-SM	A-2, A-6	0	0	85-100	85-100	80-90	35-55	20-40	10-20
	34-72	Fine sand, fine sandy loam	SC-SM, SM, SP-SM	A-2	0	0	85-100	85-100	75-95	5-35	0-25	NP-10
	72-84	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	50-75	5-30	0-14	NP

Table 17.--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	
246B: Alfic Oxyaquic Haplorthods, sandy----------	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-5	Sand, loamy fine sand, fine sandy loam, loamy sand	SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-80	5-35	0-14	NP
	5-8	Sand, fine sand	SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-80	5-35	0-14	NP
	8-12	Sand, loamy sand, fine sand, loamy fine sand, loamy coarse sand	SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-80	5-35	0-14	NP
	12-31	Sand, loamy sand, fine sand, loamy fine sand, loamy coarse sand	SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-80	5-35	0-14	NP
	31-42	Sand, loamy sand, fine sand, loamy fine sand, loamy coarse sand	SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-80	5-35	0-14	NP
	42-44	Sand, loamy sand, fine sand, loamy fine sand, loamy coarse sand	SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-80	5-35	0-14	NP
	44-49	Loamy sand, clay loam, fine sand, gravelly sand	SP-SM, CL-ML, CL	A-4, A-6, A-2	0	0	80-100	80-100	70-95	5-75	0-45	NP-25
	49-57	Sandy clay loam, clay loam, gravelly sandy clay loam	CL-ML, SC-SM	A-7, A-6	0	0	80-100	80-100	50-80	30-75	20-45	1-20
	57-84	Sand, gravelly sand	SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-80	0-35	0-14	NP

Table 17.--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	
246B:												
Typic Haplorthods, sandy, loamy substratum-----	0-1	Slightly decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	3-4	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	4-9	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	9-19	Loamy sand	SM, SP-SM	A-2	0	0	85-100	85-100	40-80	5-15	0-14	NP
	19-72	Gravelly coarse sand	SP, SP-SM	A-1, A-3	0	0	70-100	70-100	40-80	0-15	0-14	NP
	72-92	Sand	SP, SP-SM	A-3	0	0	85-100	85-100	40-80	0-15	0-14	NP
	92-102	Clay loam	CL	A-6, A-7	0	0	85-100	85-100	60-100	45-80	30-45	10-25
250:												
Typic Psammaquents---	0-3	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	3-6	Fine sandy loam, loamy sand	SC, SC-SM, SM	A-2, A-4	0	0	100	100	50-85	30-50	10-25	3-10
	6-9	Loamy sand, sand	SM, SP-SM, SP	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
	9-18	Sand, loamy sand, coarse sand, fine sand	SM, SP-SM, SP	A-2, A-3, A-1	0	0	100	100	50-85	0-15	0-14	NP
	18-60	Fine sand, coarse sand, sand, loamy sand	SM, SP-SM, SP	A-2, A-3, A-1	0	0	100	100	50-85	0-15	0-14	NP
Aquic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	3-8	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	8-26	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	26-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-60	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP

Table 17.--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	
250:												
Haplosaprists, euic----------	0-6	Muck	PT	A-8	0	0	---	---	---	---	---	---
	6-84	Muck	PT	A-8	0	0	---	---	---	---	---	---
252:												
Typic Endoaquods, sandy, wet-----	0-4	Mucky sand, sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
	4-7	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	7-9	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	9-25	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	25-60	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
Haplosaprists, dysic----------	0-4	Peat	PT	A-8	0	0	---	---	---	---	---	---
	4-7	Peat	PT	A-8	0	0	---	---	---	---	---	---
	7-13	Muck	PT	A-8	0	0	---	---	---	---	---	---
	13-60	Muck	PT	A-8	0	0	---	---	---	---	---	---
	60-72	Muck	PT	A-8	0	0	---	---	---	---	---	---
	72-80	Sand, variable	SP-SM, SP	A-2, A-3	0	0	100	100	50-100	0-100	0-14	NP
253A:												
Typic Duraquods, sandy, ortstein	0-2	Sand, fine sand, loam	SP, SM, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-75	0-14	NP
	2-12	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	12-16	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	16-18	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	18-52	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	52-66	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-80	0-35	0-14	NP
Aquic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	3-8	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	8-26	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	26-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-60	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP

Table 17.--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	
255B:												
Aquic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	3-8	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	8-26	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	26-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-60	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
Oxyaquic Haplorthods, sandy----------	0-2	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	2-4	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	4-7	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	7-17	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	17-23	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	23-30	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	30-54	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-14	NP
	54-70	Sand, coarse sand, fine sand, loamy sand, sandy clay loam	SP, SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-40	NP-20
	70-84	Sand, coarse sand, fine sand, loamy sand, sandy clay loam	SP, SM, SP-SM	A-2, A-3	0	0	80-100	80-100	50-90	0-15	0-40	NP-20
257:												
Endoaquolls-----	0-4	Loam, mucky silt loam, silt loam	ML, CL-ML	A-6, A-4	0	0	100	100	85-100	60-90	20-40	NP-15
	4-11	Loam, silt loam	ML, CL-ML	A-6, A-4	0	0	100	100	85-100	60-90	20-40	NP-15
	11-27	Silt loam, clay loam, loam, silty clay loam	ML, CL-ML	A-6, A-4	0	0-5	90-100	90-100	75-95	55-90	20-50	NP-30
	27-80	Sand	SP, SP-SM, SM	A-3, A-2	0	0-14	75-100	75-100	35-90	0-15	0-14	NP

Table 17.--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	
257:												
Haplosaprists, euic----------	0-6	Muck	PT	A-8	0	0	---	---	---	---	---	---
	6-84	Muck	PT	A-8	0	0	---	---	---	---	---	---
Typic Psammaquents---	0-3	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	3-6	Fine sandy loam, loamy sand	SC, SC-SM, SM	A-2, A-4	0	0	100	100	50-85	30-50	10-25	3-10
	6-9	Loamy sand, sand	SM, SP-SM, SP	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
	9-18	Sand, loamy sand, coarse sand, fine sand	SM, SP-SM, SP	A-2, A-3, A-1	0	0	100	100	50-85	0-15	0-14	NP
	18-60	Fine sand, coarse sand, sand, loamy sand	SM, SP-SM, SP	A-2, A-3, A-1	0	0	100	100	50-85	0-15	0-14	NP
262A:												
Typic Duraquods, sandy, ortstein	0-2	Sand, fine sand, loam	SM, SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-95	0-75	0-14	NP
	2-12	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	12-16	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	16-18	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	18-52	Sand	SP, SP-SM	A-3	0	0	80-100	80-100	40-80	0-15	0-14	NP
	52-66	Sand, fine sand	SP, SP-SM	A-2, A-3	0	0	80-100	80-100	40-80	0-35	0-14	NP
263B:												
Aquic Udipsamments---	0-1	Moderately decomposed plant material	---	---	---	---	---	---	---	---	---	---
	1-3	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	3-8	Sand, loamy sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-30	0-14	NP
	8-26	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	26-46	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP
	46-60	Sand	SP, SP-SM	A-2, A-3	0	0	85-100	85-100	40-90	0-15	0-14	NP

Table 17.--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	
264A:												
Typic Endoaquods, sandy----------	0-2	Loamy sand, fine sand, sand, mucky sand	SP, SM, SP-SM	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
	2-8	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	8-10	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	10-12	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	12-48	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	48-54	Sand	SP-SM, SP	A-3	0	0	100	100	50-85	0-15	0-14	NP
	54-66	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
272:												
Typic Endoaquods, sandy, wet-----	0-4	Mucky sand, sand, fine sand, loamy sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
	4-7	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	7-9	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	9-25	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
	25-60	Sand	SP, SP-SM	A-3	0	0	100	100	50-85	0-15	0-14	NP
273:												
Typic Psammaquents---	0-3	Muck	PT	A-8	0	0	---	---	---	---	0-0	NP
	3-6	Fine sandy loam, loamy sand	SC, SC-SM, SM	A-2, A-4	0	0	100	100	50-85	30-50	10-25	3-10
	6-9	Loamy sand, sand	SM, SP-SM, SP	A-2, A-3	0	0	100	100	50-85	0-15	0-14	NP
	9-18	Sand, loamy sand, coarse sand, fine sand	SM, SP-SM, SP	A-2, A-3, A-1	0	0	100	100	50-85	0-15	0-14	NP
	18-60	Fine sand, coarse sand, sand, loamy sand	SM, SP-SM, SP	A-2, A-3, A-1	0	0	100	100	50-85	0-15	0-14	NP

Table 17.--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	
274:												
Typic Epiaquolls, sandy over loamy----------	0-4	Muck	PT	A-8	0	0	---	---	---	---	---	---
	4-14	Loamy fine sand	SM, SP-SM	A-4, A-2	0	0	100	100	50-95	5-50	0-14	NP
	14-19	Loamy fine sand, sand, fine sand, loamy sand	SM, SP-SM	A-3, A-4, A-2	0	0	100	100	50-95	5-50	0-14	NP
	19-29	Fine sand, sand, loamy fine sand, loamy sand	SM, SP-SM	A-2, A-3, A-4	0	0	100	100	50-95	5-50	0-14	NP
	29-44	Silt loam, sandy clay loam, silty clay loam	CL, CL-ML, SC, SC-SM	A-6, A-7	0	0	100	100	80-100	35-95	20-50	NP-30
	44-60	Silty clay loam, sandy clay loam, silt loam	CL, CL-ML, SC, SC-SM	A-6, A-7	0	0	100	100	80-100	35-95	20-50	5-30
280:												
Aquents---------	0-80	Variable	---	---	---	---	---	---	---	---	---	---
Histosols-------	0-45	Muck	PT	A-8	0	0	0	0	0	0	0-0	NP
	45-80	Sand	SP-SM, SP	A-3, A-2	0	0	90-100	90-100	45-90	0-15	0-14	NP
281:												
Haplosaprists, dysic----------	0-4	Peat	PT	A-8	0	0	---	---	---	---	---	---
	4-7	Peat	PT	A-8	0	0	---	---	---	---	---	---
	7-13	Muck	PT	A-8	0	0	---	---	---	---	---	---
	13-60	Muck	PT	A-8	0	0	---	---	---	---	---	---
	60-72	Muck	PT	A-8	0	0	---	---	---	---	---	---
	72-80	Sand, variable	SP-SM, SP	A-2, A-3	0	0	100	100	50-100	0-100	0-14	NP
282:												
Haplosaprists, euic----------	0-6	Muck	PT	A-8	0	0	---	---	---	---	---	---
	6-84	Muck	PT	A-8	0	0	---	---	---	---	---	---

Table 18.--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)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
1.											
Beaches											
3A:											
Psamments,											
moderately wet	0-2	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17	5	1	220
	2-80	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Beaches.											
5F:											
Udorthents------	0-80	---	---	---	---	---	---	---	5	5	56
Udipsamments----	0-80	0-10	1.35-1.65	5.95-19.98	0.05-0.09	0.0-2.9	.17	.17	5	1	220
10B:											
Perrinton-------	0-9	7-26	1.35-1.55	0.06-1.98	0.20-0.22	0.0-2.9	.32	.32	3	5	56
	9-13	7-50	1.35-1.65	0.06-1.98	0.15-0.19	0.0-5.9	.37	.37			
	13-28	27-50	1.35-1.65	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
	28-38	40-50	1.35-1.65	0.06-0.20	0.09-0.11	3.0-5.9	.32	.32			
	38-80	40-50	1.50-1.70	0.06-0.20	0.09-0.11	3.0-5.9	.32	.32			
10C:											
Perrinton-------	0-9	7-26	1.35-1.55	0.06-1.98	0.20-0.22	0.0-2.9	.32	.32	3	5	56
	9-13	7-50	1.35-1.65	0.06-1.98	0.15-0.19	0.0-5.9	.37	.37			
	13-28	27-50	1.35-1.65	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
	28-38	40-50	1.35-1.65	0.06-0.20	0.09-0.11	3.0-5.9	.32	.32			
	38-80	40-50	1.50-1.70	0.06-0.20	0.09-0.11	3.0-5.9	.32	.32			
11A:											
Ithaca----------	0-9	7-26	1.40-1.70	0.57-1.98	0.20-0.22	0.0-2.9	.32	.32	3	5	56
	9-11	7-35	1.40-1.60	0.57-1.98	0.15-0.19	0.0-5.9	.28	.28			
	11-20	35-60	1.40-1.65	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
	20-25	27-60	1.40-1.65	0.06-0.20	0.09-0.19	3.0-5.9	.37	.37			
	25-31	27-60	1.40-1.65	0.06-0.20	0.09-0.19	3.0-5.9	.37	.37			
	31-80	27-60	1.50-1.65	0.06-0.20	0.09-0.19	3.0-5.9	.37	.37			
13B:											
Marlette--------	0-7	7-19	1.50-1.65	0.57-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	7-13	7-35	1.50-1.75	0.57-1.98	0.12-0.19	0.0-2.9	.24	.24			
	13-27	7-35	1.50-1.75	0.20-0.57	0.17-0.19	0.0-2.9	.37	.37			
	27-80	7-35	1.50-1.75	0.20-0.57	0.14-0.19	0.0-2.9	.37	.37			
13C:											
Marlette--------	0-7	7-19	1.50-1.65	0.57-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	7-13	7-35	1.50-1.75	0.57-1.98	0.12-0.19	0.0-2.9	.24	.24			
	13-27	7-35	1.50-1.75	0.20-0.57	0.17-0.19	0.0-2.9	.37	.37			
	27-80	7-35	1.50-1.75	0.20-0.57	0.14-0.19	0.0-2.9	.37	.37			
14A:											
Capac-----------	0-5	7-26	1.40-1.60	0.20-0.57	0.20-0.22	0.0-2.9	.32	.32	5	5	56
	5-8	7-34	1.40-1.70	0.20-0.57	0.12-0.19	0.0-2.9	.32	.32			
	8-18	20-34	1.45-1.70	0.20-0.57	0.15-0.19	3.0-5.9	.32	.32			
	18-80	27-40	1.50-1.70	0.06-0.57	0.08-0.16	3.0-5.9	.32	.32			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
15:											
Parkhill--------	0-9	7-26	1.10-1.60	0.57-1.98	0.20-0.22	0.0-2.9	.24	.24	5	5	56
	9-20	7-35	1.45-1.70	0.20-1.98	0.15-0.19	0.0-5.9	.37	.37			
	20-29	7-35	1.50-1.70	0.20-1.98	0.14-0.19	0.0-5.9	.37	.37			
	29-80	7-35	1.50-1.70	0.20-1.98	0.14-0.19	0.0-5.9	.37	.37			
18B:											
Fern----------	0-9	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	9-10	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	10-24	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	5-35	1.50-1.70	0.20-1.98	0.06-0.19	0.0-5.9	.37	.37			
	29-42	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	42-50	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	50-80	7-35	1.50-1.70	0.20-1.98	0.14-0.19	3.0-5.9	.37	.37			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
18C:											
Fern----------	0-9	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	9-10	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	10-24	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	5-35	1.50-1.70	0.20-1.98	0.06-0.19	0.0-5.9	.37	.37			
	29-42	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	42-50	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	50-80	7-35	1.50-1.70	0.20-1.98	0.14-0.19	3.0-5.9	.37	.37			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
21B:											
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
Tatches---------	0-4	5-19	1.30-1.60	1.98-5.95	0.13-0.15	0.0-2.9	.24	.24	5	3	86
	4-9	5-19	1.40-1.70	1.98-5.95	0.12-0.17	0.0-2.9	.24	.24			
	9-15	5-19	1.40-1.70	1.98-5.95	0.12-0.17	0.0-2.9	.24	.24			
	15-23	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	23-31	0-9	1.40-1.65	5.95-19.98	0.06-0.14	0.0-2.9	.15	.15			
	31-43	0-14	1.40-1.65	5.95-19.98	0.06-0.14	0.0-2.9	.15	.15			
	43-80	0-14	1.40-1.65	5.95-19.98	0.06-0.14	0.0-2.9	.15	.15			
25:											
Gorvan----------	0-4	7-26	1.10-1.60	0.20-0.57	0.20-0.24	0.0-2.9	.28	.28	5	8	0
	4-9	7-26	1.48-1.80	0.20-0.57	0.17-0.22	0.0-2.9	.28	.28			
	9-27	7-35	1.48-1.80	0.20-0.57	0.15-0.22	0.0-5.9	.43	.43			
	27-80	0-9	1.46-1.80	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
25:											
Houghton--------	0-12	---	0.20-0.35	0.20-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	12-26	---	0.15-0.25	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	26-80	---	0.15-0.25	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
Glendora--------	0-6	0-14	1.00-1.35	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17	5	8	0
	6-9	0-14	1.40-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	9-30	0-14	1.40-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	30-80	0-14	1.40-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
29B:											
Fogg----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-7	0-14	1.40-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	7-13	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-34	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	34-43	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.17	.17			
	43-48	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.24	.24			
	48-55	7-26	1.45-1.70	0.20-5.95	0.12-0.19	0.0-2.9	.32	.32			
	55-80	0-14	1.40-1.65	1.98-19.98	0.06-0.11	0.0-2.9	.15	.15			
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
29C:											
Fogg----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-7	0-14	1.40-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	7-13	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-34	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	34-43	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.17	.17			
	43-48	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.24	.24			
	48-55	7-26	1.45-1.70	0.20-5.95	0.12-0.19	0.0-2.9	.32	.32			
	55-80	0-14	1.40-1.65	1.98-19.98	0.06-0.11	0.0-2.9	.15	.15			
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
29D:											
Fogg----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-7	0-14	1.40-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	7-13	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-34	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	34-43	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.17	.17			
	43-48	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.24	.24			
	48-55	7-26	1.45-1.70	0.20-5.95	0.12-0.19	0.0-2.9	.32	.32			
	55-80	0-14	1.40-1.65	1.98-19.98	0.06-0.11	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
29D:											
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
29E:											
Fogg----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-7	0-14	1.40-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	7-13	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-34	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	34-43	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.17	.17			
	43-48	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.24	.24			
	48-55	7-26	1.45-1.70	0.20-5.95	0.12-0.19	0.0-2.9	.32	.32			
	55-80	0-14	1.40-1.65	1.98-19.98	0.06-0.11	0.0-2.9	.15	.15			
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
29F:											
Fogg----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-7	0-14	1.40-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	7-13	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-34	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	34-43	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.17	.17			
	43-48	3-26	1.45-1.70	0.20-19.98	0.09-0.19	0.0-2.9	.24	.24			
	48-55	7-26	1.45-1.70	0.20-5.95	0.12-0.19	0.0-2.9	.32	.32			
	55-80	0-14	1.40-1.65	1.98-19.98	0.06-0.11	0.0-2.9	.15	.15			
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
32B:											
Fern----------	0-9	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	9-10	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	10-24	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	5-35	1.50-1.70	0.20-1.98	0.06-0.19	0.0-5.9	.37	.37			
	29-42	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	42-50	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	50-80	7-35	1.50-1.70	0.20-1.98	0.14-0.19	3.0-5.9	.37	.37			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
32C:											
Fern----------	0-9	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	9-10	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	10-24	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	5-35	1.50-1.70	0.20-1.98	0.06-0.19	0.0-5.9	.37	.37			
	29-42	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	42-50	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	50-80	7-35	1.50-1.70	0.20-1.98	0.14-0.19	3.0-5.9	.37	.37			
36B:											
Fern----------	0-9	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	9-10	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	10-24	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	5-35	1.50-1.70	0.20-1.98	0.06-0.19	0.0-5.9	.37	.37			
	29-42	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	42-50	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	50-80	7-35	1.50-1.70	0.20-1.98	0.14-0.19	3.0-5.9	.37	.37			
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			
36C:											
Fern----------	0-9	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	9-10	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	10-24	0-14	1.30-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	5-35	1.50-1.70	0.20-1.98	0.06-0.19	0.0-5.9	.37	.37			
	29-42	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	42-50	7-35	1.50-1.70	0.20-1.98	0.17-0.19	3.0-5.9	.37	.37			
	50-80	7-35	1.50-1.70	0.20-1.98	0.14-0.19	3.0-5.9	.37	.37			
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			
38B:											
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
38C:											
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
38D:											
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
38E:											
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
43B:											
Thompsonville---	0-5	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	250
	5-15	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-29	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	29-37	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	37-55	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	55-72	27-35	1.50-1.70	0.06-0.20	0.16-0.18	3.0-5.9	.43	.43			
	72-80	10-35	1.50-1.70	0.06-0.20	0.14-0.17	3.0-5.9	.43	.43			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
44A:											
Milnichol-------	0-2	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	250
	2-12	0-9	1.30-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-15	0-9	1.30-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-25	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-33	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	33-47	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	47-50	0-19	1.50-1.70	0.20-5.95	0.08-0.17	0.0-2.9	.17	.17			
	50-68	27-35	1.50-1.70	0.20-0.57	0.14-0.17	3.0-6.0	.43	.43			
	68-80	12-35	1.50-1.70	0.20-0.57	0.14-0.22	0.0-6.0	.43	.43			
47B:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
47C:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
47D:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
47E:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
47F:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
52C:											
Copemish--------	0-2	0-9	1.30-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	2	1	220
	2-7	0-9	1.30-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	7-11	0-9	1.30-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-28	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	28-36	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	36-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
52E:											
Copemish--------	0-2	0-9	1.30-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	2	1	220
	2-7	0-9	1.30-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	7-11	0-9	1.30-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-28	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	28-36	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	36-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
53A:											
Saugatuck-------	0-5	0-9	1.20-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-11	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-22	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	22-26	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-55	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	55-80	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
53A:											
Jebavy----------	0-4	0-5	1.20-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	8	0
	4-15	0-5	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-17	0-5	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-26	0-5	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-31	0-5	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-80	0-5	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
54B:											
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
54C:											
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
54D:											
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
54E:											
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
54F:											
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
55B:											
Brethren--------	0-4	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-8	0-5	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-10	0-5	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-20	0-5	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-5	1.50-1.60	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	27-43	0-5	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	43-80	0-5	1.50-1.60	5.95-19.98	0.06-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
57B:											
Grattan---------	0-4	0-9	1.35-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-13	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-18	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-53	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	53-80	0-9	1.35-1.55	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
57C:											
Grattan---------	0-4	0-9	1.35-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-13	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-18	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-53	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	53-80	0-9	1.35-1.55	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
57D:											
Grattan---------	0-4	0-9	1.35-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-13	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-18	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-53	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	53-80	0-9	1.35-1.55	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
57E:											
Grattan---------	0-4	0-9	1.35-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-13	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-18	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-53	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	53-80	0-9	1.35-1.55	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
57F:											
Grattan---------	0-4	0-9	1.35-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-13	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-18	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-53	0-9	1.35-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	53-80	0-9	1.35-1.55	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
58B:											
Covert----------	0-1	0-9	1.30-1.55	5.95-19.98	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	1-8	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-18	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-29	0-9	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	29-38	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	38-47	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	47-80	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
59B:											
Pipestone-------	0-2	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-9	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-12	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-24	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-32	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
60:											
Dair----------	0-4	---	0.30-0.50	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	4-7	7-26	1.35-1.50	0.57-1.98	0.13-0.15	0.0-2.9	.20	.20			
	7-11	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.17	.17			
	11-21	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	21-50	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	50-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
63B:											
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
63C:											
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
63D:											
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
63E:											
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
63F:											
Coloma----------	0-3	0-9	1.35-1.65	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	3-4	0-14	1.35-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	8-15	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	15-25	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	25-40	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	40-80	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
64B:											
Benona----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-6	0-14	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-9	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-17	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-28	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	28-46	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-80	2-14	1.55-1.65	5.95-19.98	0.06-0.10	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
64C:											
Benona----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-6	0-14	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-9	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-17	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-28	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	28-46	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-80	2-14	1.55-1.65	5.95-19.98	0.06-0.10	0.0-2.9	.15	.15			
64D:											
Benona----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-6	0-14	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-9	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-17	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-28	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	28-46	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-80	2-14	1.55-1.65	5.95-19.98	0.06-0.10	0.0-2.9	.15	.15			
64E:											
Benona----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-6	0-14	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-9	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-17	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-28	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	28-46	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-80	2-14	1.55-1.65	5.95-19.98	0.06-0.10	0.0-2.9	.15	.15			
64F:											
Benona----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	1	220
	2-6	0-14	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-9	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-17	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-28	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	28-46	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-80	2-14	1.55-1.65	5.95-19.98	0.06-0.10	0.0-2.9	.15	.15			
67B:											
Plainfield------	0-2	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-24	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-80	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
67C:											
Plainfield------	0-2	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-24	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-80	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
67E:											
Plainfield------	0-2	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-24	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-80	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
67F:											
Plainfield------	0-2	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-24	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-80	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
73:											
Houghton--------	0-12	---	0.20-0.35	0.20-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	12-26	---	0.15-0.25	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	26-80	---	0.15-0.25	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
Adrian----------	0-7	---	0.30-0.55	0.20-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	7-20	---	0.30-0.55	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	20-35	---	0.30-0.55	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	35-80	0-10	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
81:											
Lumley----------	0-3	---	0.05-0.14	0.20-5.95	0.55-0.65	0.0-0.0	---	---	5	8	0
	3-6	---	0.05-0.14	0.20-5.95	0.55-0.65	0.0-0.0	---	---			
	6-8	---	0.13-0.23	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	8-20	---	0.13-0.23	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	20-45	---	0.13-0.23	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	45-53	---	0.13-0.23	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	53-80	---	0.13-0.23	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
Makinen---------	0-4	---	0.15-0.30	0.20-5.95	0.55-0.65	---	---	---	5	8	0
	4-14	---	0.15-0.30	0.20-5.95	0.55-0.65	---	---	---			
	14-22	---	0.15-0.30	0.20-5.95	0.55-0.65	---	---	---			
	22-31	---	0.15-0.30	0.20-5.95	0.55-0.65	---	---	---			
	31-80	0-10	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
83:											
Histosols-------	0-45	---	---	0.20-5.95	0.32-0.45	0.0-0.0	---	---	5	8	0
	45-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Aquents---------	0-80	---	---	---	---	---	---	---	5	8	0
86D:											
Dune land.											
Quartzipsamments	0-80	0-5	1.30-1.60	5.95-19.98	0.03-0.08	0.0-2.9	.15	.15	5	1	220
86F:											
Dune land.											
Quartzipsamments	0-80	0-5	1.30-1.60	5.95-19.98	0.03-0.08	0.0-2.9	.15	.15	5	1	220
88B:											
Udipsamments----	0-80	0-10	1.35-1.65	5.95-19.98	0.05-0.09	0.0-2.9	.17	.17	5	1	220
91.											
Pits, sand and gravel											
96C:											
Goodharbor------	0-1	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	250
	1-3	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	3-23	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	23-40	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	40-80	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
100A:											
Dair----------	0-4	---	0.30-0.50	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	4-7	7-26	1.35-1.50	0.57-1.98	0.13-0.15	0.0-2.9	.20	.20			
	7-11	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.17	.17			
	11-21	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	21-50	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	50-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
100A:											
Pipestone-------	0-2	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-9	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-12	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-24	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-32	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
102A:											
Thompsonville---	0-5	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	250
	5-15	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-29	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	29-37	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	37-55	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	55-72	27-35	1.50-1.70	0.06-0.20	0.16-0.18	3.0-5.9	.43	.43			
	72-80	10-35	1.50-1.70	0.06-0.20	0.14-0.17	3.0-5.9	.43	.43			
Milnichol-------	0-2	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	250
	2-12	0-9	1.30-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-15	0-9	1.30-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-25	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-33	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	33-47	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	47-50	0-19	1.50-1.70	0.20-5.95	0.08-0.17	0.0-2.9	.17	.17			
	50-68	27-35	1.50-1.70	0.20-0.57	0.14-0.17	3.0-6.0	.43	.43			
	68-80	12-35	1.50-1.70	0.20-0.57	0.14-0.22	0.0-6.0	.43	.43			
104B:											
Covert----------	0-1	0-9	1.30-1.55	5.95-19.98	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	1-8	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-18	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-29	0-9	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	29-38	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	38-47	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	47-80	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Pipestone-------	0-2	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-9	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-12	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-24	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-32	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
106B:											
Covert----------	0-1	0-9	1.30-1.55	5.95-19.98	0.06-0.09	0.0-2.9	.15	.15	5	1	220
	1-8	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-18	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	18-25	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-29	0-9	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	29-38	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	38-47	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	47-80	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Dair----------	0-4	---	0.30-0.50	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	4-7	7-26	1.35-1.50	0.57-1.98	0.13-0.15	0.0-2.9	.20	.20			
	7-11	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.17	.17			
	11-21	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	21-50	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	50-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
107B:											
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
107C:											
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
107D:											
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
107E:											
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
107F:											
Benzonia--------	0-5	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-11	0-9	1.35-1.45	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-20	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-27	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	27-35	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	35-80	0-14	1.35-1.45	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
108A:											
Saugatuck-------	0-5	0-9	1.20-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-11	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-22	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	22-26	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-55	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	55-80	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
109B:											
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
109C:											
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
109D:											
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
109E:											
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
109F:											
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
110B:											
Healylake-------	0-4	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-9	0-5	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-5	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-14	0-5	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	14-26	0-5	1.75-2.00	1.98-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-39	0-5	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	39-63	0-5	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	63-80	0-5	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
111D:											
Onekama---------	0-6	7-19	1.35-1.55	0.57-1.98	0.16-0.18	0.0-2.9	.24	.24	3	3	86
	6-13	7-40	1.35-1.65	0.06-1.98	0.09-0.19	0.0-5.9	.24	.24			
	13-20	30-50	1.50-1.70	0.06-0.20	0.09-0.19	0.0-5.9	.32	.32			
	20-31	30-50	1.50-1.70	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
	31-80	30-50	1.60-1.70	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
111E:											
Onekama---------	0-6	7-19	1.35-1.55	0.57-1.98	0.16-0.18	0.0-2.9	.24	.24	3	3	86
	6-13	7-40	1.35-1.65	0.06-1.98	0.09-0.19	0.0-5.9	.24	.24			
	13-20	30-50	1.50-1.70	0.06-0.20	0.09-0.19	0.0-5.9	.32	.32			
	20-31	30-50	1.50-1.70	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
	31-80	30-50	1.60-1.70	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
111F:											
Onekama---------	0-6	7-19	1.35-1.55	0.57-1.98	0.16-0.18	0.0-2.9	.24	.24	3	3	86
	6-13	7-40	1.35-1.65	0.06-1.98	0.09-0.19	0.0-5.9	.24	.24			
	13-20	30-50	1.50-1.70	0.06-0.20	0.09-0.19	0.0-5.9	.32	.32			
	20-31	30-50	1.50-1.70	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
	31-80	30-50	1.60-1.70	0.06-0.20	0.09-0.19	3.0-5.9	.32	.32			
114B:											
Nordhouse-------	0-3	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-11	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-40	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	40-60	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	60-80	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Platteriver-----	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-14	0-5	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	14-20	0-5	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-29	0-5	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	29-80	0-5	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Dair----------	0-4	---	0.30-0.50	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	4-7	7-26	1.35-1.50	0.57-1.98	0.13-0.15	0.0-2.9	.20	.20			
	7-11	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.17	.17			
	11-21	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	21-50	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	50-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
115B:											
Nordhouse-------	0-3	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-11	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-40	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	40-60	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	60-80	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
115D:											
Nordhouse-------	0-3	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-11	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-40	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	40-60	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	60-80	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
115F:											
Nordhouse-------	0-3	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-11	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-40	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	40-60	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	60-80	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
118B:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
118B:											
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
118C:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
118D:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
118E:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
118F:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
119:											
Madaus----------	0-12	---	0.25-0.45	0.20-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	12-34	7-25	0.25-0.45	0.06-0.20	0.20-0.22	0.0-2.9	.43	.43			
	34-38	7-25	0.25-0.45	0.06-0.20	0.20-0.22	0.0-2.9	.43	.43			
	38-62	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	62-80	40-70	1.55-1.70	0.06-0.20	0.08-0.10	6.0-8.9	.32	.32			
120B:											
Boyer----------	0-3	7-19	1.35-1.60	0.57-1.98	0.16-0.18	0.0-2.9	.17	.24	4	3	86
	3-4	7-34	1.30-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	4-14	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.10	.24			
	14-30	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	30-45	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.05	.15			
	45-80	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
120C:											
Boyer----------	0-3	7-19	1.35-1.60	0.57-1.98	0.16-0.18	0.0-2.9	.17	.24	4	3	86
	3-4	7-34	1.30-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	4-14	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.10	.24			
	14-30	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	30-45	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.05	.15			
	45-80	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
120D:											
Boyer----------	0-3	7-19	1.35-1.60	0.57-1.98	0.16-0.18	0.0-2.9	.17	.24	4	3	86
	3-4	7-34	1.30-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	4-14	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.10	.24			
	14-30	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	30-45	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.05	.15			
	45-80	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
120D:											
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
120E:											
Boyer----------	0-3	7-19	1.35-1.60	0.57-1.98	0.16-0.18	0.0-2.9	.17	.24	4	3	86
	3-4	7-34	1.30-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	4-14	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.10	.24			
	14-30	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	30-45	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.05	.15			
	45-80	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
120F:											
Boyer----------	0-3	7-19	1.35-1.60	0.57-1.98	0.16-0.18	0.0-2.9	.17	.24	4	3	86
	3-4	7-34	1.30-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	4-14	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.10	.24			
	14-30	7-34	1.35-1.60	1.98-5.95	0.15-0.18	0.0-5.9	.15	.24			
	30-45	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.05	.15			
	45-80	0-14	1.40-1.55	5.95-19.98	0.02-0.10	0.0-2.9	.10	.15			
Shavenaugh------	0-5	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-8	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	8-16	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	16-28	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	28-34	0-9	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	34-44	5-14	1.30-1.70	5.95-19.98	0.03-0.11	0.0-2.9	.15	.15			
	44-80	0-9	1.30-1.70	5.95-19.98	0.02-0.06	0.0-2.9	.05	.15			
122:											
Dair----------	0-4	---	0.30-0.50	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	4-7	7-26	1.35-1.50	0.57-1.98	0.13-0.15	0.0-2.9	.20	.20			
	7-11	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.17	.17			
	11-21	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	21-50	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	50-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
Adrian----------	0-7	---	0.30-0.55	0.20-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	7-20	---	0.30-0.55	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	20-35	---	0.30-0.55	0.20-5.95	0.35-0.45	0.0-0.0	---	---			
	35-80	0-10	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
123B:											
Platteriver-----	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-14	0-5	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	14-20	0-5	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	20-29	0-5	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	29-80	0-5	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
123B:											
Pipestone-------	0-2	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-9	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-12	0-9	1.30-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-24	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-32	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-80	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
125B:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Tekenink--------	0-8	0-14	1.30-1.60	1.98-5.95	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	8-16	0-14	1.45-1.60	1.98-5.95	0.09-0.11	0.0-2.9	.17	.17			
	16-21	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	21-49	0-19	1.45-1.60	1.98-5.95	0.09-0.14	0.0-2.9	.17	.17			
	49-62	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	62-72	0-14	1.45-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	72-80	0-14	1.55-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
125C:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Tekenink--------	0-8	0-14	1.30-1.60	1.98-5.95	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	8-16	0-14	1.45-1.60	1.98-5.95	0.09-0.11	0.0-2.9	.17	.17			
	16-21	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	21-49	0-19	1.45-1.60	1.98-5.95	0.09-0.14	0.0-2.9	.17	.17			
	49-62	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	62-72	0-14	1.45-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	72-80	0-14	1.55-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
125D:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Tekenink--------	0-8	0-14	1.30-1.60	1.98-5.95	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	8-16	0-14	1.45-1.60	1.98-5.95	0.09-0.11	0.0-2.9	.17	.17			
	16-21	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	21-49	0-19	1.45-1.60	1.98-5.95	0.09-0.14	0.0-2.9	.17	.17			
	49-62	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	62-72	0-14	1.45-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	72-80	0-14	1.55-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
125E:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
125E:											
Tekenink--------	0-8	0-14	1.30-1.60	1.98-5.95	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	8-16	0-14	1.45-1.60	1.98-5.95	0.09-0.11	0.0-2.9	.17	.17			
	16-21	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	21-49	0-19	1.45-1.60	1.98-5.95	0.09-0.14	0.0-2.9	.17	.17			
	49-62	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	62-72	0-14	1.45-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	72-80	0-14	1.55-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
125F:											
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
Tekenink--------	0-8	0-14	1.30-1.60	1.98-5.95	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	8-16	0-14	1.45-1.60	1.98-5.95	0.09-0.11	0.0-2.9	.17	.17			
	16-21	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	21-49	0-19	1.45-1.60	1.98-5.95	0.09-0.14	0.0-2.9	.17	.17			
	49-62	7-19	1.45-1.60	1.98-5.95	0.12-0.14	0.0-2.9	.24	.24			
	62-72	0-14	1.45-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	72-80	0-14	1.55-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
126D:											
Filer----------	0-9	7-19	1.40-1.60	0.20-0.57	0.20-0.22	0.0-2.9	.24	.24	5	5	56
	9-14	7-35	1.40-1.70	0.20-0.57	0.15-0.19	0.0-5.9	.28	.28			
	14-31	7-35	1.40-1.70	0.20-0.57	0.15-0.19	0.0-5.9	.28	.28			
	31-80	7-35	1.50-1.70	0.20-0.57	0.14-0.16	0.0-5.9	.32	.32			
126E:											
Filer----------	0-9	7-19	1.40-1.60	0.20-0.57	0.20-0.22	0.0-2.9	.24	.24	5	5	56
	9-14	7-35	1.40-1.70	0.20-0.57	0.15-0.19	0.0-5.9	.28	.28			
	14-31	7-35	1.40-1.70	0.20-0.57	0.15-0.19	0.0-5.9	.28	.28			
	31-80	7-35	1.50-1.70	0.20-0.57	0.14-0.16	0.0-5.9	.32	.32			
127B:											
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
130A:											
Glendora--------	0-6	0-14	1.00-1.35	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17	5	8	0
	6-9	0-14	1.40-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	9-30	0-14	1.40-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	30-80	0-14	1.40-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
Algansee--------	0-3	0-14	1.30-1.50	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	3-9	0-14	1.30-1.50	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	9-15	0-9	1.40-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	21-32	0-9	1.40-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	32-37	0-9	1.35-1.50	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			
	37-80	0-9	1.40-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
130A:											
Abscota---------	0-4	5-25	1.30-1.50	5.95-19.98	0.10-0.18	0.0-2.9	.17	.17	5	2	134
	4-9	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	9-18	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.15	.15			
	18-28	0-14	1.40-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	28-32	0-14	1.40-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	32-36	0-14	1.40-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	36-40	0-14	1.40-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	40-44	0-10	1.30-1.65	5.95-19.98	0.02-0.13	0.0-2.9	.15	.15			
	44-80	0-10	1.30-1.65	5.95-19.98	0.02-0.13	0.0-2.9	.05	.15			
131A:											
Milarch---------	0-9	7-26	1.30-1.50	0.20-0.57	0.20-0.22	0.0-2.9	.32	.32	5	5	56
	9-13	7-26	1.40-1.70	0.20-0.57	0.15-0.22	0.0-2.9	.32	.32			
	13-19	7-35	1.40-1.70	0.20-0.57	0.15-0.22	0.0-5.9	.32	.32			
	19-27	7-35	1.45-1.70	0.20-0.57	0.15-0.19	0.0-5.9	.32	.32			
	27-30	7-35	1.45-1.70	0.20-0.57	0.15-0.19	3.0-5.9	.32	.32			
	30-39	0-19	1.55-1.65	5.95-19.98	0.06-0.14	0.0-2.9	.17	.17			
	39-80	0-19	1.55-1.65	5.95-19.98	0.06-0.14	0.0-2.9	.15	.15			
132A:											
Milnichol-------	0-2	0-9	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	250
	2-12	0-9	1.30-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-15	0-9	1.30-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-25	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-33	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	33-47	0-9	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	47-50	0-19	1.50-1.70	0.20-5.95	0.08-0.17	0.0-2.9	.17	.17			
	50-68	27-35	1.50-1.70	0.20-0.57	0.14-0.17	3.0-6.0	.43	.43			
	68-80	12-35	1.50-1.70	0.20-0.57	0.14-0.22	0.0-6.0	.43	.43			
Dair----------	0-4	---	0.30-0.50	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	4-7	7-26	1.35-1.50	0.57-1.98	0.13-0.15	0.0-2.9	.20	.20			
	7-11	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.17	.17			
	11-21	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	21-50	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
	50-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
135B:											
Nessen----------	0-4	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-24	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-39	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	39-44	0-14	1.30-1.50	1.98-19.98	0.03-0.11	0.0-2.9	.10	.15			
	44-80	0-9	1.25-1.50	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			
135C:											
Nessen----------	0-4	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-24	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-39	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	39-44	0-14	1.30-1.50	1.98-19.98	0.03-0.11	0.0-2.9	.10	.15			
	44-80	0-9	1.25-1.50	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
136B:											
Nessen----------	0-4	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-24	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-39	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	39-44	0-14	1.30-1.50	1.98-19.98	0.03-0.11	0.0-2.9	.10	.15			
	44-80	0-9	1.25-1.50	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
136C:											
Nessen----------	0-4	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-24	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-39	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	39-44	0-14	1.30-1.50	1.98-19.98	0.03-0.11	0.0-2.9	.10	.15			
	44-80	0-9	1.25-1.50	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
136D:											
Nessen----------	0-4	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-24	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-39	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	39-44	0-14	1.30-1.50	1.98-19.98	0.03-0.11	0.0-2.9	.10	.15			
	44-80	0-9	1.25-1.50	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
136E:											
Nessen----------	0-4	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	4-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-15	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-24	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-39	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	39-44	0-14	1.30-1.50	1.98-19.98	0.03-0.11	0.0-2.9	.10	.15			
	44-80	0-9	1.25-1.50	5.95-19.98	0.02-0.07	0.0-2.9	.10	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
136E:											
Kaleva----------	0-3	0-9	1.25-1.45	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	3-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-11	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	11-16	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	16-21	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-70	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	70-80	0-9	1.35-1.50	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
138D:											
Mollineaux------	0-6	0-14	1.30-1.50	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	6-9	0-14	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	9-15	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	15-27	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	27-38	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	38-64	10-35	1.50-1.70	0.20-1.98	0.15-0.19	0.0-2.9	.32	.32			
	64-80	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
138E:											
Mollineaux------	0-6	0-14	1.30-1.50	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	6-9	0-14	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	9-15	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	15-27	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	27-38	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	38-64	10-35	1.50-1.70	0.20-1.98	0.15-0.19	0.0-2.9	.32	.32			
	64-80	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Spinks----------	0-5	0-9	1.40-1.70	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	5-10	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-17	0-9	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-62	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	62-72	3-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	72-80	0-9	1.40-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.10	.15			
139D:											
Mollineaux------	0-6	0-14	1.30-1.50	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	6-9	0-14	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	9-15	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	15-27	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	27-38	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	38-64	10-35	1.50-1.70	0.20-1.98	0.15-0.19	0.0-2.9	.32	.32			
	64-80	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
139E:											
Mollineaux------	0-6	0-14	1.30-1.50	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17	5	2	134
	6-9	0-14	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	9-15	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	15-27	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	27-38	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	38-64	10-35	1.50-1.70	0.20-1.98	0.15-0.19	0.0-2.9	.32	.32			
	64-80	0-14	1.55-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Remus----------	0-9	7-19	1.50-1.65	0.20-1.98	0.16-0.18	0.0-2.9	.24	.24	5	3	86
	9-15	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-2.9	.28	.28			
	15-24	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.17	.17			
	24-35	0-34	1.50-1.75	0.20-1.98	0.10-0.19	0.0-5.9	.37	.37			
	35-66	7-34	1.50-1.75	0.20-0.57	0.16-0.19	0.0-5.9	.37	.37			
	66-80	7-34	1.50-1.75	0.20-0.57	0.15-0.19	0.0-5.9	.37	.37			
210B:											
Plainfield------	0-2	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-24	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-180	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
210C:											
Plainfield------	0-2	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-24	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-180	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
210D:											
Plainfield------	0-2	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-6	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	6-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-24	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	24-180	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
211B:											
Plainfield------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-5	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	5-19	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	19-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-121	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	121-160	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	160-180	0-26	1.50-1.70	1.98-19.98	0.02-0.19	0.0-2.9	.15	.15			
212B:											
Plainfield------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-13	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-115	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	115-127	0-9	1.50-1.70	5.95-19.98	0.02-0.04	0.0-2.9	.15	.15			
	127-135	0-9	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
215B:											
Plainfield------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-5	1.50-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-7	0-7	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	7-25	0-7	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-40	0-7	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	40-121	0-4	1.50-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	121-139	0-35	1.50-1.70	1.98-19.98	0.02-0.19	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
220B:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-23	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	23-41	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	41-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
220C:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-23	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	23-41	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	41-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
220D:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-23	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	23-41	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	41-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
220E:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-23	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	23-41	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	41-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
220F:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-23	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	23-41	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	41-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
221B:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	250
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-15	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-119	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	119-127	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	127-131	0-34	1.50-1.65	0.57-19.98	0.05-0.16	0.0-2.9	.15	.15			
Lamellic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-100	0-19	1.55-1.70	1.98-19.98	0.06-0.14	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
221C:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	250
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-15	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-119	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	119-127	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	127-131	0-34	1.50-1.65	0.57-19.98	0.05-0.16	0.0-2.9	.15	.15			
Lamellic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-100	0-19	1.55-1.70	1.98-19.98	0.06-0.14	0.0-2.9	.15	.15			
221D:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-15	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-119	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	119-127	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	127-131	0-34	1.50-1.65	0.57-19.98	0.05-0.16	0.0-2.9	.15	.15			
Lamellic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-100	0-19	1.55-1.70	1.98-19.98	0.06-0.14	0.0-2.9	.15	.15			
221E:											
Typic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-15	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-119	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	119-127	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	127-131	0-34	1.50-1.65	0.57-19.98	0.05-0.16	0.0-2.9	.15	.15			
Lamellic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-100	0-19	1.55-1.70	1.98-19.98	0.06-0.14	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
221F:											
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-15	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-119	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	119-127	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	127-131	0-34	1.50-1.65	0.57-19.98	0.05-0.16	0.0-2.9	.15	.15			
Lamellic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-100	0-19	1.55-1.70	1.98-19.98	0.06-0.14	0.0-2.9	.15	.15			
222B:											
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-32	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-43	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	43-58	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	58-84	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
222C:											
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-32	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-43	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	43-58	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	58-84	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
223B:											
Lamellic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	250
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-100	0-19	1.55-1.70	1.98-19.98	0.06-0.14	0.0-2.9	.15	.15			
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-15	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-119	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	119-127	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	127-131	0-34	1.50-1.65	0.57-19.98	0.05-0.16	0.0-2.9	.15	.15			
223C:											
Lamellic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-31	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	31-100	0-19	1.55-1.70	1.98-19.98	0.06-0.14	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
223C:											
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-15	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-21	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-32	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-119	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	119-127	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	127-131	0-34	1.50-1.65	0.57-19.98	0.05-0.16	0.0-2.9	.15	.15			
224B:											
Oxyaquic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	2-3	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	3-15	0-9	1.30-1.60	5.95-19.98	0.03-0.08	0.0-2.9	.15	.15			
	15-24	0-9	1.30-1.60	5.95-19.98	0.03-0.08	0.0-2.9	.15	.15			
	24-29	0-9	1.45-1.65	5.95-19.98	0.03-0.08	0.0-2.9	.15	.15			
	29-40	0-14	1.45-1.65	5.95-19.98	0.02-0.10	0.0-2.9	.15	.15			
	40-49	0-14	1.45-1.65	5.95-19.98	0.02-0.10	0.0-2.9	.15	.15			
	49-85	0-14	1.45-1.65	5.95-19.98	0.02-0.10	0.0-2.9	.15	.15			
225B:											
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	2-5	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	5-32	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-40	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	40-49	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	49-85	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	85-180	7-35	1.30-1.65	0.20-0.57	0.14-0.16	0.0-5.9	.37	.37			
225C:											
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	2-5	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	5-32	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-40	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	40-49	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	49-85	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	85-180	7-35	1.30-1.65	0.20-0.57	0.14-0.16	0.0-5.9	.37	.37			
225D:											
Typic											
Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	2-5	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	5-32	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	32-40	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	40-49	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	49-85	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	85-180	7-35	1.30-1.65	0.20-0.57	0.14-0.16	0.0-5.9	.37	.37			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
230B:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	4-6	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-21	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	21-36	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	36-180	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
230C:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	4-6	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-21	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	21-36	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	36-180	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
230D:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	4-6	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-21	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	21-36	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	36-180	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
230E:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	4-6	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-21	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	21-36	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	36-180	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
230F:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	4-6	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-21	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	21-36	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	36-180	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
231B:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
231B:											
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
231C:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
231D:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
231E:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
232B:											
Entic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-6	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	6-10	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	10-22	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	22-61	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	61-65	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	65-69	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	69-156	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	156-180	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-7	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	7-17	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	17-21	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	21-64	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	64-68	0-34	1.50-1.60	5.95-19.98	0.06-0.18	0.0-5.9	.15	.15			
	68-88	0-14	1.40-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	88-114	0-14	1.40-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
233B:											
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
233B:											
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
233C:											
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
233D:											
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
233E:											
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
Entic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-3	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	3-19	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	19-25	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	25-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-85	0-14	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
	85-180	0-19	1.50-1.65	5.95-19.98	0.08-0.10	0.0-2.9	.15	.15			
234B:											
Oxyaquic Haplorthods, sandy----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-7	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	7-17	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-23	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	23-30	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	30-54	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	54-70	0-34	1.45-1.65	0.20-19.98	0.02-0.17	0.0-2.9	.15	.15			
	70-84	0-34	1.45-1.65	0.20-19.98	0.02-0.17	0.0-2.9	.15	.15			
235B:											
Alfic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-5	2-10	1.30-1.50	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	5-6	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-9	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-44	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	44-52	10-25	1.50-1.70	0.20-0.57	0.12-0.19	0.0-2.9	.32	.32			
	52-84	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	84-92	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	92-180	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	4	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
235C:											
Alfic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-5	2-10	1.30-1.50	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	5-6	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-9	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-44	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	44-52	10-25	1.50-1.70	0.20-0.57	0.12-0.19	0.0-2.9	.32	.32			
	52-84	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	84-92	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	92-180	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	4	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
235D:											
Alfic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-5	2-10	1.30-1.50	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	5-6	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-9	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-44	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	44-52	10-25	1.50-1.70	0.20-0.57	0.12-0.19	0.0-2.9	.32	.32			
	52-84	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	84-92	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	92-180	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	4	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
235E:											
Alfic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-5	2-10	1.30-1.50	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	5-6	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-9	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-44	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	44-52	10-25	1.50-1.70	0.20-0.57	0.12-0.19	0.0-2.9	.32	.32			
	52-84	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	84-92	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	92-180	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
235E:											
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	4	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
235F:											
Alfic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-5	2-10	1.30-1.50	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	5-6	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	6-9	2-10	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-44	2-10	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	44-52	10-25	1.50-1.70	0.20-0.57	0.12-0.19	0.0-2.9	.32	.32			
	52-84	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	84-92	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
	92-180	2-18	1.40-1.65	0.57-19.98	0.05-0.13	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	4	1	220
	1-2	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-24	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	24-29	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	29-180	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
237B:											
Glossudalfs, fine-loamy-----	0-1	---	---	0.57-1.98	---	---	---	---	5	3	86
	1-5	7-19	1.30-1.60	0.57-1.98	0.13-0.15	0.0-2.9	.24	.24			
	5-11	5-19	1.30-1.60	0.57-1.98	0.09-0.17	0.0-2.9	.24	.24			
	11-21	5-19	1.30-1.60	0.57-1.98	0.08-0.19	0.0-2.9	.24	.24			
	21-46	5-35	1.35-1.65	0.57-1.98	0.11-0.22	0.0-5.9	.32	.32			
	46-60	5-35	1.50-1.70	0.57-1.98	0.11-0.17	0.0-5.9	.37	.37			
237C:											
Glossudalfs, fine-loamy-----	0-1	---	---	0.57-1.98	---	---	---	---	5	3	86
	1-5	7-19	1.30-1.60	0.57-1.98	0.13-0.15	0.0-2.9	.24	.24			
	5-11	5-19	1.30-1.60	0.57-1.98	0.09-0.17	0.0-2.9	.24	.24			
	11-21	5-19	1.30-1.60	0.57-1.98	0.08-0.19	0.0-2.9	.24	.24			
	21-46	5-35	1.35-1.65	0.57-1.98	0.11-0.22	0.0-5.9	.32	.32			
	46-60	5-35	1.50-1.70	0.57-1.98	0.11-0.17	0.0-5.9	.37	.37			
237D:											
Glossudalfs, fine-loamy-----	0-1	---	---	0.57-1.98	---	---	---	---	5	3	86
	1-5	7-19	1.30-1.60	0.57-1.98	0.13-0.15	0.0-2.9	.24	.24			
	5-11	5-19	1.30-1.60	0.57-1.98	0.09-0.17	0.0-2.9	.24	.24			
	11-21	5-19	1.30-1.60	0.57-1.98	0.08-0.19	0.0-2.9	.24	.24			
	21-46	5-35	1.35-1.65	0.57-1.98	0.11-0.22	0.0-5.9	.32	.32			
	46-60	5-35	1.50-1.70	0.57-1.98	0.11-0.17	0.0-5.9	.37	.37			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
240B:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-19	1.30-1.55	5.95-19.98	0.07-0.18	0.0-2.9	.15	.15			
	3-7	0-9	1.40-1.65	5.95-19.98	0.06-0.17	0.0-2.9	.15	.15			
	7-8	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-15	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-23	0-9	1.50-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	23-85	0-14	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	85-157	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	157-175	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	175-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
240C:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-19	1.30-1.55	5.95-19.98	0.07-0.18	0.0-2.9	.15	.15			
	3-7	0-9	1.40-1.65	5.95-19.98	0.06-0.17	0.0-2.9	.15	.15			
	7-8	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-15	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-23	0-9	1.50-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	23-85	0-14	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	85-157	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	157-175	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	175-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
240D:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-19	1.30-1.55	5.95-19.98	0.07-0.18	0.0-2.9	.15	.15			
	3-7	0-9	1.40-1.65	5.95-19.98	0.06-0.17	0.0-2.9	.15	.15			
	7-8	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-15	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-23	0-9	1.50-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	23-85	0-14	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	85-157	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	157-175	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	175-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
240E:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-19	1.30-1.55	5.95-19.98	0.07-0.18	0.0-2.9	.15	.15			
	3-7	0-9	1.40-1.65	5.95-19.98	0.06-0.17	0.0-2.9	.15	.15			
	7-8	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-15	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-23	0-9	1.50-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	23-85	0-14	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	85-157	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	157-175	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	175-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
240F:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-19	1.30-1.55	5.95-19.98	0.07-0.18	0.0-2.9	.15	.15			
	3-7	0-9	1.40-1.65	5.95-19.98	0.06-0.17	0.0-2.9	.15	.15			
	7-8	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-15	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	15-23	0-9	1.50-1.65	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	23-85	0-14	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	85-157	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	157-175	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
	175-180	0-9	1.50-1.65	5.95-19.98	0.02-0.07	0.0-2.9	.15	.15			
241B:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-7	0-9	1.40-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-25	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-72	0-9	1.50-1.65	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	72-141	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	141-180	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	8-12	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	12-28	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	28-49	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	49-104	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	104-180	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
241C:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-7	0-9	1.40-1.65	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	7-13	0-9	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-21	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	21-25	0-9	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-72	0-9	1.50-1.65	5.95-19.98	0.05-0.08	0.0-2.9	.15	.15			
	72-141	0-14	1.50-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	141-180	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Lamellic Haplorthods, sandy----------	0-2	---	---	5.95-19.98	---	---	---	---	5	1	220
	2-4	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	4-8	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	8-12	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	12-28	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	28-49	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	49-104	0-14	1.50-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	104-180	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
242B:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-2	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	2-5	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	5-7	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	7-13	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	13-25	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	25-99	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	99-106	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
243C:											
Lamellic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-14	1.30-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	3-7	0-14	1.30-1.55	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	7-9	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	9-11	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	11-17	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	17-23	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	23-40	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	40-56	0-14	1.40-1.60	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	56-87	0-34	1.50-1.60	1.98-19.98	0.06-0.18	0.0-5.9	.17	.17			
	87-180	0-14	1.40-1.60	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
244B:											
Oxyaquic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-4	0-5	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	4-12	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-13	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	13-34	0-5	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	34-41	0-5	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	41-84	0-5	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
245C:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	9-19	0-14	1.50-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	19-72	0-9	1.50-1.65	5.95-19.98	0.03-0.05	0.0-2.9	.10	.15			
	72-92	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	92-102	27-35	1.30-1.65	0.20-0.57	0.10-0.12	3.0-5.9	.37	.37			
Alfic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-5	0-14	1.30-1.55	5.95-19.98	0.10-0.12	0.0-2.9	.15	.15			
	5-13	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.15	.15			
	13-23	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.15	.15			
	23-34	20-34	1.45-1.60	0.57-1.98	0.16-0.18	3.0-5.9	.37	.37			
	34-72	0-19	1.40-1.65	0.57-19.98	0.06-0.17	0.0-2.9	.15	.15			
	72-84	0-14	1.40-1.65	5.95-19.98	0.09-0.10	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
245D:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	9-19	0-14	1.50-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	19-72	0-9	1.50-1.65	5.95-19.98	0.03-0.05	0.0-2.9	.10	.15			
	72-92	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	92-102	27-35	1.30-1.65	0.20-0.57	0.10-0.12	3.0-5.9	.37	.37			
Alfic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-5	0-14	1.30-1.55	5.95-19.98	0.10-0.12	0.0-2.9	.15	.15			
	5-13	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.15	.15			
	13-23	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.15	.15			
	23-34	20-34	1.45-1.60	0.57-1.98	0.16-0.18	3.0-5.9	.37	.37			
	34-72	0-19	1.40-1.65	0.57-19.98	0.06-0.17	0.0-2.9	.15	.15			
	72-84	0-14	1.40-1.65	5.95-19.98	0.09-0.10	0.0-2.9	.15	.15			
245E:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	9-19	0-14	1.50-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	19-72	0-9	1.50-1.65	5.95-19.98	0.03-0.05	0.0-2.9	.10	.15			
	72-92	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	92-102	27-35	1.30-1.65	0.20-0.57	0.10-0.12	3.0-5.9	.37	.37			
Alfic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-5	0-14	1.30-1.55	5.95-19.98	0.10-0.12	0.0-2.9	.15	.15			
	5-13	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.15	.15			
	13-23	0-14	1.40-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.15	.15			
	23-34	20-34	1.45-1.60	0.57-1.98	0.16-0.18	3.0-5.9	.37	.37			
	34-72	0-19	1.40-1.65	0.57-19.98	0.06-0.17	0.0-2.9	.15	.15			
	72-84	0-14	1.40-1.65	5.95-19.98	0.09-0.10	0.0-2.9	.15	.15			
246B:											
Alfic oxyaquic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-5	0-14	1.30-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	5-8	0-14	1.40-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-12	0-14	1.30-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	12-31	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	31-42	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	42-44	0-14	1.40-1.70	5.95-19.98	0.06-0.11	0.0-2.9	.15	.15			
	44-49	0-35	1.50-1.70	0.57-1.98	0.06-0.19	0.0-2.9	.32	.32			
	49-57	20-35	1.40-1.65	0.57-1.98	0.06-0.19	0.0-2.9	.15	.15			
	57-84	0-5	1.40-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
246B:											
Typic Haplorthods, sandy----------	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15			
	3-4	0-9	1.40-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-9	0-14	1.40-1.60	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	9-19	0-14	1.50-1.65	5.95-19.98	0.09-0.11	0.0-2.9	.17	.17			
	19-72	0-9	1.50-1.65	5.95-19.98	0.03-0.05	0.0-2.9	.10	.15			
	72-92	0-9	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	92-102	27-35	1.30-1.65	0.20-0.57	0.10-0.12	3.0-5.9	.37	.37			
250:											
Typic Psammaquents---	0-3	---	0.30-0.50	1.98-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	3-6	0-19	1.30-1.60	1.98-5.95	0.10-0.17	0.0-2.9	.24	.24			
	6-9	0-14	1.45-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	9-18	0-14	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	18-60	0-14	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
Aquic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-14	1.20-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	3-8	0-14	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-26	0-10	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-46	0-10	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-60	0-10	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Haplosaprists, euic----------	0-6	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	6-84	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
252:											
Typic Endoaquods, sandy, wet-----	0-4	0-14	1.25-1.40	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	8	0
	4-7	0-9	1.25-1.40	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	7-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-25	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-60	0-9	1.45-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Haplosaprists, dysic----------	0-4	---	0.15-0.25	0.20-5.95	0.35-0.65	---	---	---	5	8	0
	4-7	---	0.15-0.25	0.20-5.95	0.35-0.65	---	---	---			
	7-13	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
	13-60	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
	60-72	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
	72-80	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
253A:											
Typic Duraquods, sandy, ortstein	0-2	0-26	1.20-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-12	0-9	1.20-1.50	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-16	0-9	1.75-2.00	0.57-5.95	0.06-0.08	0.0-2.9	.15	.15			
	16-18	0-9	1.75-2.00	0.57-5.95	0.06-0.08	0.0-2.9	.15	.15			
	18-52	0-9	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	52-66	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
253A:											
Aquic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-14	1.20-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	3-8	0-14	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-26	0-10	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-46	0-10	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-60	0-10	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
255B:											
Aquic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-14	1.20-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	3-8	0-14	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-26	0-10	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-46	0-10	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-60	0-10	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
Oxyaquic Haplorthods, sandy----------	0-2	0-9	1.30-1.55	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-4	0-9	1.30-1.55	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	4-7	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	7-17	0-9	1.30-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	17-23	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	23-30	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	30-54	0-9	1.45-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
	54-70	0-34	1.45-1.65	0.20-19.98	0.02-0.17	0.0-2.9	.15	.15			
	70-84	0-34	1.45-1.65	0.20-19.98	0.02-0.17	0.0-2.9	.15	.15			
257:											
Endoaquolls-----	0-4	7-26	1.10-1.60	0.57-1.98	0.22-0.24	0.0-2.9	.28	.28	5	3	86
	4-11	7-26	1.10-1.60	0.57-1.98	0.22-0.24	0.0-2.9	.28	.28			
	11-27	7-35	1.48-1.80	0.20-1.98	0.20-0.22	0.0-5.9	.28	.28			
	27-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.17	.17			
Haplosaprists, euic----------	0-6	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	6-84	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
Typic Psammaquents---	0-3	---	0.30-0.50	1.98-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	3-6	0-19	1.30-1.60	1.98-5.95	0.10-0.17	0.0-2.9	.24	.24			
	6-9	0-14	1.45-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	9-18	0-14	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	18-60	0-14	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
262A:											
Typic Duraquods, sandy, ortstein	0-2	0-26	1.20-1.50	5.95-19.98	0.07-0.09	0.0-2.9	.15	.15	5	1	220
	2-12	0-9	1.20-1.50	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-16	0-9	1.75-2.00	0.57-5.95	0.06-0.08	0.0-2.9	.15	.15			
	16-18	0-9	1.75-2.00	0.57-5.95	0.06-0.08	0.0-2.9	.15	.15			
	18-52	0-9	1.50-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	52-66	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Erosion factors K	Erosion factors Kf	Erosion factors T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
263B:											
Aquic Udipsamments---	0-1	---	---	5.95-19.98	---	---	---	---	5	1	220
	1-3	0-14	1.20-1.55	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15			
	3-8	0-14	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-26	0-10	1.40-1.60	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	26-46	0-10	1.50-1.65	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	46-60	0-10	1.50-1.65	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
264A:											
Typic Endoaquods, sandy----------	0-2	0-14	1.25-1.40	5.95-19.98	0.07-0.11	0.0-2.9	.15	.15	5	2	220
	2-8	0-9	1.25-1.40	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	8-10	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	10-12	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	12-48	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	48-54	0-9	1.45-1.70	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	54-66	0-9	1.45-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
272:											
Typic Endoaquods, sandy, wet-----	0-4	0-14	1.25-1.40	5.95-19.98	0.07-0.12	0.0-2.9	.15	.15	5	8	0
	4-7	0-9	1.25-1.40	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	7-9	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	9-25	0-9	1.35-1.45	5.95-19.98	0.06-0.08	0.0-2.9	.15	.15			
	25-60	0-9	1.45-1.70	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
273:											
Typic Psammaquents---	0-3	---	0.30-0.50	1.98-5.95	0.35-0.45	0.0-0.0	---	---	5	8	0
	3-6	0-19	1.30-1.60	1.98-5.95	0.10-0.17	0.0-2.9	.24	.24			
	6-9	0-14	1.45-1.65	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	9-18	0-14	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
	18-60	0-14	1.50-1.70	5.95-19.98	0.05-0.10	0.0-2.9	.15	.15			
274:											
Typic Epiaquolls, sandy over loamy----------	0-4	---	---	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	4-14	0-14	1.30-1.50	5.95-19.98	0.10-0.12	0.0-2.9	.17	.17			
	14-19	0-14	1.30-1.50	5.95-19.98	0.06-0.11	0.0-2.9	.17	.17			
	19-29	0-14	1.40-1.55	5.95-19.98	0.05-0.10	0.0-2.9	.17	.17			
	29-44	10-35	1.50-1.70	0.20-0.57	0.10-0.22	0.0-5.9	.43	.43			
	44-60	12-35	1.50-1.70	0.20-0.57	0.10-0.22	0.0-5.9	.43	.43			
280:											
Aquents---------	0-80	---	---	---	---	---	---	---	5	8	0
Histosols-------	0-45	---	---	0.20-5.95	0.32-0.45	0.0-0.0	---	---	5	8	0
	45-80	0-9	1.40-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			
281:											
Haplosaprists, dysic----------	0-4	---	0.15-0.25	0.20-5.95	0.35-0.65	---	---	---	5	8	0
	4-7	---	0.15-0.25	0.20-5.95	0.35-0.65	---	---	---			
	7-13	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
	13-60	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
	60-72	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			
	72-80	0-9	1.50-1.60	5.95-19.98	0.05-0.07	0.0-2.9	.15	.15			

Table 18.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Erosion factors K	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct					
282:											
Haplosaprists, euic----------	0-6	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---	5	8	0
	6-84	---	0.15-0.25	0.20-5.95	0.35-0.45	---	---	---			

Table 19.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
1.						
Beaches						
3A:						
Psamments, moderately wet	0-2	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	2-80	6.1-6.5	0.0-0.5	1.0-3.0	---	0
Beaches.						
5F:						
Udorthents.						
Udipsamments----	0-80	5.1-6.5	0.5-1.0	0.0-2.0	0.0-1.0	0
10B:						
Perrinton-------	0-9	5.6-7.8	2.0-5.0	10-20	---	0-15
	9-13	5.6-7.8	0.5-2.0	10-25	---	0-15
	13-28	5.6-7.8	0.0-0.5	10-25	---	0-15
	28-38	5.6-8.4	0.0-0.5	10-25	---	0-30
	38-80	5.6-8.4	0.0-0.5	10-25	---	0-30
10C:						
Perrinton-------	0-9	5.6-7.8	2.0-5.0	10-20	---	0-15
	9-13	5.6-7.8	0.5-2.0	10-25	---	0-15
	13-28	5.6-7.8	0.0-0.5	10-25	---	0-15
	28-38	5.6-8.4	0.0-0.5	10-25	---	0-30
	38-80	5.6-8.4	0.0-0.5	10-25	---	0-30
11A:						
Ithaca----------	0-9	5.6-8.4	2.0-5.0	5.0-20	---	0
	9-11	5.6-8.4	0.5-2.0	5.0-15	---	0
	11-20	5.6-8.4	0.0-0.5	10-20	---	0-15
	20-25	5.6-8.4	0.0-0.5	10-20	---	0-30
	25-31	5.6-8.4	0.0-0.5	10-20	---	0-30
	31-80	7.4-8.4	0.0-0.5	5.0-20	---	10-30
13B:						
Marlette--------	0-7	5.6-7.3	2.0-5.0	5.0-15	---	0
	7-13	5.6-7.3	0.5-2.0	2.5-20	---	0
	13-27	5.6-7.3	0.0-0.5	2.5-20	---	0
	27-80	7.4-8.4	0.0-0.5	5.0-20	---	10-30
13C:						
Marlette--------	0-7	5.6-7.3	2.0-5.0	5.0-15	---	0
	7-13	5.6-7.3	0.5-2.0	2.5-20	---	0
	13-27	5.6-7.3	0.0-0.5	2.5-20	---	0
	27-80	7.4-8.4	0.0-0.5	5.0-20	---	10-30
14A:						
Capac----------	0-5	5.6-7.3	2.0-5.0	5.0-20	---	0
	5-8	5.6-7.3	0.5-2.0	5.0-20	---	0
	8-18	5.6-7.3	0.0-0.5	10-20	---	0
	18-80	7.4-8.4	0.0-0.5	5.0-10	---	10-30

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
15:						
Parkhill--------	0-9	6.1-7.3	2.0-5.0	2.5-20	---	0
	9-20	6.1-7.8	0.5-1.0	2.5-20	---	0-15
	20-29	7.4-8.4	0.0-0.5	2.5-20	---	10-30
	29-80	7.4-8.4	0.0-0.5	2.5-20	---	10-30
18B:						
Fern----------	0-9	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	9-10	5.6-7.3	0.5-2.0	1.0-3.0	---	0
	10-24	5.6-7.3	0.5-1.0	2.0-4.0	---	0
	24-29	5.6-7.3	0.0-0.5	3.0-20	---	0
	29-42	6.1-7.8	0.0-0.5	4.0-20	---	0-20
	42-50	6.1-8.4	0.0-0.5	3.0-10	---	0-30
	50-80	6.1-8.4	0.0-0.5	3.0-10	---	0-30
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
18C:						
Fern----------	0-9	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	9-10	5.6-7.3	0.5-2.0	1.0-3.0	---	0
	10-24	5.6-7.3	0.5-1.0	2.0-4.0	---	0
	24-29	5.6-7.3	0.0-0.5	3.0-20	---	0
	29-42	6.1-7.8	0.0-0.5	4.0-20	---	0-20
	42-50	6.1-8.4	0.0-0.5	3.0-10	---	0-30
	50-80	6.1-8.4	0.0-0.5	3.0-10	---	0-30
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
21B:						
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
Tatches---------	0-4	5.1-6.5	2.0-5.0	5.0-15	3.0-10	0
	4-9	5.1-6.5	0.5-1.0	3.0-10	1.0-7.0	0
	9-15	5.1-6.5	0.5-1.0	3.0-10	1.0-7.0	0
	15-23	5.1-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	23-31	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	31-43	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	43-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
25:						
Gorvan----------	0-4	6.1-7.8	2.0-20	2.5-15	---	0-15
	4-9	6.1-7.8	2.0-5.0	2.5-15	---	0-15
	9-27	6.6-7.8	0.0-0.5	2.5-15	---	0-15
	27-80	6.6-8.4	0.0-0.5	1.0-3.0	---	0-15

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
25:						
Houghton--------	0-12	4.5-7.3	50-100	125-200	95-150	0
	12-26	4.5-7.3	50-100	125-200	95-150	0
	26-80	4.5-7.3	50-100	125-200	95-159	0
Glendora--------	0-6	5.6-7.3	10-20	25-100	---	0
	6-9	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	9-30	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	30-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
29B:						
Fogg----------	0-2	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-7	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	7-13	4.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	13-21	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-34	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	34-43	5.6-7.3	0.0-0.5	3.0-10	---	0
	43-48	5.6-7.3	0.0-0.5	3.0-10	---	0
	48-55	5.6-7.3	0.0-0.5	5.0-15	---	0
	55-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
29C:						
Fogg----------	0-2	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-7	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	7-13	4.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	13-21	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-34	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	34-43	5.6-7.3	0.0-0.5	3.0-10	---	0
	43-48	5.6-7.3	0.0-0.5	3.0-10	---	0
	48-55	5.6-7.3	0.0-0.5	5.0-15	---	0
	55-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
29D:						
Fogg----------	0-2	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-7	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	7-13	4.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	13-21	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-34	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	34-43	5.6-7.3	0.0-0.5	3.0-10	---	0
	43-48	5.6-7.3	0.0-0.5	3.0-10	---	0
	48-55	5.6-7.3	0.0-0.5	5.0-15	---	0
	55-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
29D:						
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
29E:						
Fogg----------	0-2	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-7	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	7-13	4.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	13-21	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-34	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	34-43	5.6-7.3	0.0-0.5	3.0-10	---	0
	43-48	5.6-7.3	0.0-0.5	3.0-10	---	0
	48-55	5.6-7.3	0.0-0.5	5.0-15	---	0
	55-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
29F:						
Fogg----------	0-2	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-7	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	7-13	4.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	13-21	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-34	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	34-43	5.6-7.3	0.0-0.5	3.0-10	---	0
	43-48	5.6-7.3	0.0-0.5	3.0-10	---	0
	48-55	5.6-7.3	0.0-0.5	5.0-15	---	0
	55-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
32B:						
Fern----------	0-9	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	9-10	5.6-7.3	0.5-2.0	1.0-3.0	---	0
	10-24	5.6-7.3	0.5-1.0	2.0-4.0	---	0
	24-29	5.6-7.3	0.0-0.5	3.0-20	---	0
	29-42	6.1-7.8	0.0-0.5	4.0-20	---	0-20
	42-50	6.1-8.4	0.0-0.5	3.0-10	---	0-30
	50-80	6.1-8.4	0.0-0.5	3.0-10	---	0-30

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
32C:						
Fern----------	0-9	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	9-10	5.6-7.3	0.5-2.0	1.0-3.0	---	0
	10-24	5.6-7.3	0.5-1.0	2.0-4.0	---	0
	24-29	5.6-7.3	0.0-0.5	3.0-20	---	0
	29-42	6.1-7.8	0.0-0.5	4.0-20	---	0-20
	42-50	6.1-8.4	0.0-0.5	3.0-10	---	0-30
	50-80	6.1-8.4	0.0-0.5	3.0-10	---	0-30
36B:						
Fern----------	0-9	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	9-10	5.6-7.3	0.5-2.0	1.0-3.0	---	0
	10-24	5.6-7.3	0.5-1.0	2.0-4.0	---	0
	24-29	5.6-7.3	0.0-0.5	3.0-20	---	0
	29-42	6.1-7.8	0.0-0.5	4.0-20	---	0-20
	42-50	6.1-8.4	0.0-0.5	3.0-10	---	0-30
	50-80	6.1-8.4	0.0-0.5	3.0-10	---	0-30
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
36C:						
Fern----------	0-9	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	9-10	5.6-7.3	0.5-2.0	1.0-3.0	---	0
	10-24	5.6-7.3	0.5-1.0	2.0-4.0	---	0
	24-29	5.6-7.3	0.0-0.5	3.0-20	---	0
	29-42	6.1-7.8	0.0-0.5	4.0-20	---	0-20
	42-50	6.1-8.4	0.0-0.5	3.0-10	---	0-30
	50-80	6.1-8.4	0.0-0.5	3.0-10	---	0-30
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
38B:						
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
38C:						
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
38D:						
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
38E:						
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
43B:						
Thompsonville---	0-5	3.5-6.0	3.0-5.0	3.0-6.0	1.0-4.0	0
	5-15	3.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	15-29	3.5-6.0	1.0-3.0	2.0-4.0	1.0-3.0	0
	29-37	3.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	37-55	3.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	55-72	5.1-7.8	0.0-0.5	5.0-20	3.0-15	0-20
	72-80	5.1-7.8	0.0-0.5	5.0-20	3.0-15	0-20

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
44A:						
Milnichol-------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	2-12	3.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	12-15	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-25	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-33	4.5-6.0	0.5-3.0	1.0-3.0	0.8-3.0	0
	33-47	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	47-50	6.6-8.4	0.0-0.5	5.0-15	---	0-30
	50-68	6.6-8.4	0.0-0.5	5.0-20	---	0-30
	68-80	6.6-8.4	0.0-0.5	5.0-15	---	0-30
47B:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
47C:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
47D:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
47E:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
47F:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
52C:						
Copemish--------	0-2	3.5-5.0	2.0-5.0	---	2.0-5.0	0
	2-7	3.5-5.0	0.5-2.0	---	0.8-2.0	0
	7-11	3.5-5.0	0.5-2.0	---	0.8-2.0	0
	11-28	3.5-5.0	0.5-3.0	---	0.8-3.0	0
	28-36	3.5-5.0	0.5-3.0	---	0.8-3.0	0
	36-80	3.5-5.0	0.0-0.5	---	0.8-2.0	0
52E:						
Copemish--------	0-2	3.5-5.0	2.0-5.0	---	2.0-5.0	0
	2-7	3.5-5.0	0.5-2.0	---	0.8-2.0	0
	7-11	3.5-5.0	0.5-2.0	---	0.8-2.0	0
	11-28	3.5-5.0	0.5-3.0	---	0.8-3.0	0
	28-36	3.5-5.0	0.5-3.0	---	0.8-3.0	0
	36-80	3.5-5.0	0.0-0.5	---	0.8-2.0	0
53A:						
Saugatuck-------	0-5	3.5-6.0	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-8	3.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	8-11	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-15	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-22	3.5-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	22-26	3.5-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	26-55	3.5-6.0	0.0-1.0	1.0-3.0	0.8-2.0	0
	55-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
53A:						
Jebavy----------	0-4	3.5-5.5	2.0-20	---	2.0-4.0	0
	4-15	3.5-5.5	0.5-2.0	---	0.8-2.0	0
	15-17	3.5-5.5	0.5-2.0	---	0.8-2.0	0
	17-26	3.5-5.5	2.0-5.0	---	1.0-4.0	0
	26-31	3.5-5.5	2.0-5.0	---	1.0-4.0	0
	31-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
54B:						
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
54C:						
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
54D:						
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
54E:						
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
54F:						
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
55B:						
Brethren--------	0-4	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-8	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	8-10	5.1-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	10-20	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	20-27	5.1-6.0	0.0-0.5	1.0-3.0	0.8-2.0	0
	27-43	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	43-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
57B:						
Grattan---------	0-4	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-13	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	13-18	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-53	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	53-80	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
57C:						
Grattan---------	0-4	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-13	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	13-18	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-53	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	53-80	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
57D:						
Grattan---------	0-4	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-13	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	13-18	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-53	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	53-80	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
57E:						
Grattan---------	0-4	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-13	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	13-18	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-53	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	53-80	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
57F:						
Grattan---------	0-4	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-13	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	13-18	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-53	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	53-80	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
58B:						
Covert----------	0-1	4.5-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	1-8	4.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	8-18	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-7.3	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-29	4.5-7.3	0.0-0.5	2.0-3.0	0.8-3.0	0
	29-38	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
	38-47	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
	47-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
59B:						
Pipestone-------	0-2	3.5-7.3	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-9	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-12	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	12-24	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	24-32	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	32-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
60:						
Dair----------	0-4	5.6-7.3	60-100	125-140	---	---
	4-7	6.1-7.3	10-20	20-45	---	0
	7-11	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	11-21	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	21-50	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	50-80	6.6-7.8	0.0-0.5	1.0-3.0	---	0
63B:						
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
63C:						
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
63D:						
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
63E:						
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
63F:						
Coloma----------	0-3	4.5-6.5	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-4	4.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	4-8	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	8-15	4.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	15-25	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	25-40	4.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
64B:						
Benona----------	0-2	3.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-6	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	6-9	4.5-6.0	0.5-3.0	2.0-6.0	1.0-4.0	0
	9-17	4.5-5.5	0.5-3.0	2.0-5.0	1.0-3.0	0
	17-28	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	28-46	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	46-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
64C:						
Benona----------	0-2	3.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-6	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	6-9	4.5-6.0	0.5-3.0	2.0-6.0	1.0-4.0	0
	9-17	4.5-5.5	0.5-3.0	2.0-5.0	1.0-3.0	0
	17-28	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	28-46	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	46-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
64D:						
Benona----------	0-2	3.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-6	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	6-9	4.5-6.0	0.5-3.0	2.0-6.0	1.0-4.0	0
	9-17	4.5-5.5	0.5-3.0	2.0-5.0	1.0-3.0	0
	17-28	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	28-46	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	46-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
64E:						
Benona----------	0-2	3.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-6	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	6-9	4.5-6.0	0.5-3.0	2.0-6.0	1.0-4.0	0
	9-17	4.5-5.5	0.5-3.0	2.0-5.0	1.0-3.0	0
	17-28	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	28-46	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	46-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
64F:						
Benona----------	0-2	3.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	2-6	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	6-9	4.5-6.0	0.5-3.0	2.0-6.0	1.0-4.0	0
	9-17	4.5-5.5	0.5-3.0	2.0-5.0	1.0-3.0	0
	17-28	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	28-46	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	46-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
67B:						
Plainfield------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-6	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	6-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-24	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	24-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
67C:						
Plainfield------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-6	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	6-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-24	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	24-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
67E:						
Plainfield------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-6	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	6-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-24	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	24-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
67F:						
Plainfield------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-6	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	6-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-24	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	24-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
73:						
Houghton--------	0-12	4.5-7.3	50-100	125-200	95-150	0
	12-26	4.5-7.3	50-100	125-200	95-150	0
	26-80	4.5-7.3	50-100	125-200	95-159	0
Adrian----------	0-7	5.1-7.3	55-100	125-200	---	0
	7-20	5.1-7.3	55-100	125-200	---	0
	20-35	5.1-7.3	55-100	125-200	---	0
	35-80	6.1-8.4	0.0-0.5	1.0-3.0	---	0-25
81:						
Lumley----------	0-3	3.5-4.4	70-100	---	140-180	0
	3-6	3.5-4.4	70-100	---	140-180	0
	6-8	3.5-4.4	70-100	---	140-180	0
	8-20	3.5-4.4	70-100	---	140-180	0
	20-45	3.5-4.4	70-100	---	140-180	0
	45-53	3.5-4.4	70-100	---	140-180	0
	53-80	3.5-4.4	70-100	---	140-180	0
Makinen---------	0-4	1.8-4.4	75-100	---	95-150	0
	4-14	1.8-4.4	75-100	---	95-150	0
	14-22	1.8-4.4	75-100	---	95-150	0
	22-31	1.8-4.4	75-100	---	95-150	0
	31-80	6.1-8.4	0.0-0.5	1.0-3.0	---	0-25
83:						
Histosols-------	0-45	4.5-7.3	50-100	125-200	95-150	0
	45-80	4.5-7.8	0.0-0.5	1.0-3.0	---	0
Aquents.						
86D:						
Dune land.						
Quartzipsamments	0-80	5.1-6.5	0.0-0.1	0.0-1.0	---	0
86F:						
Dune land.						
Quartzipsamments	0-80	5.1-6.5	0.0-0.1	0.0-1.0	---	0
88B:						
Udipsamments----	0-80	5.1-6.5	0.5-1.0	0.0-2.0	0.0-1.0	0
91.						
Pits, sand and gravel						
96C:						
Goodharbor------	0-1	5.1-7.3	2.0-5.0	3.0-6.0	2.0-4.0	0
	1-3	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	3-23	7.4-8.4	0.5-1.0	1.0-3.0	---	10-25
	23-40	7.4-8.4	0.5-1.0	1.0-3.0	---	10-25
	40-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
100A:						
Dair----------	0-4	5.6-7.3	60-100	125-140	---	---
	4-7	6.1-7.3	10-20	20-45	---	0
	7-11	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	11-21	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	21-50	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	50-80	6.6-7.8	0.0-0.5	1.0-3.0	---	0
Pipestone-------	0-2	3.5-7.3	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-9	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-12	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	12-24	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	24-32	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	32-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
102A:						
Thompsonville---	0-5	3.5-6.0	3.0-5.0	3.0-6.0	1.0-4.0	0
	5-15	3.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	15-29	3.5-6.0	1.0-3.0	2.0-4.0	1.0-3.0	0
	29-37	3.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	37-55	3.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	55-72	5.1-7.8	0.0-0.5	5.0-20	3.0-15	0-20
	72-80	5.1-7.8	0.0-0.5	5.0-20	3.0-15	0-20
Milnichol-------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	2-12	3.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	12-15	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-25	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-33	4.5-6.0	0.5-3.0	1.0-3.0	0.8-3.0	0
	33-47	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	47-50	6.6-8.4	0.0-0.5	5.0-15	---	0-30
	50-68	6.6-8.4	0.0-0.5	5.0-20	---	0-30
	68-80	6.6-8.4	0.0-0.5	5.0-15	---	0-30
104B:						
Covert----------	0-1	4.5-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	1-8	4.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	8-18	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-7.3	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-29	4.5-7.3	0.0-0.5	2.0-3.0	0.8-3.0	0
	29-38	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
	38-47	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
	47-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
Pipestone-------	0-2	3.5-7.3	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-9	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-12	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	12-24	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	24-32	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	32-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
106B:						
Covert----------	0-1	4.5-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	1-8	4.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	8-18	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	18-25	4.5-7.3	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-29	4.5-7.3	0.0-0.5	2.0-3.0	0.8-3.0	0
	29-38	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
	38-47	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
	47-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
106B:						
Dair----------	0-4	5.6-7.3	60-100	125-140	---	---
	4-7	6.1-7.3	10-20	20-45	---	0
	7-11	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	11-21	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	21-50	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	50-80	6.6-7.8	0.0-0.5	1.0-3.0	---	0
107B:						
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
107C:						
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
107D:						
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
107E:						
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
107F:						
Benzonia--------	0-5	4.5-5.5	2.0-5.0	---	2.0-4.0	0
	5-11	4.5-5.5	0.5-2.0	---	0.8-2.0	0
	11-15	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	15-20	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	20-27	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	27-35	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	35-80	5.6-6.0	0.0-0.5	1.0-3.0	---	0
108A:						
Saugatuck-------	0-5	3.5-6.0	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-8	3.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	8-11	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-15	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-22	3.5-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	22-26	3.5-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	26-55	3.5-6.0	0.0-1.0	1.0-3.0	0.8-2.0	0
	55-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
109B:						
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
109C:						
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
109D:						
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
109E:						
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
109F:						
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
110B:						
Healylake-------	0-4	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-3.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	11-14	5.1-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	14-26	5.1-6.0	0.5-3.0	1.0-3.0	0.8-2.0	0
	26-39	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	39-63	5.6-6.5	0.0-0.5	1.0-3.0	---	0
	63-80	5.6-6.5	0.0-0.5	1.0-3.0	---	0
111D:						
Onekama---------	0-6	5.6-7.3	2.0-5.0	5.0-10	---	0-15
	6-13	5.6-7.3	0.5-2.0	5.0-15	---	0-15
	13-20	5.6-8.4	0.0-0.5	10-25	---	0-30
	20-31	5.6-8.4	0.0-0.5	10-25	---	0-30
	31-80	7.9-8.4	0.0-0.5	10-20	---	10-30

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
111E:						
Onekama---------	0-6	5.6-7.3	2.0-5.0	5.0-10	---	0-15
	6-13	5.6-7.3	0.5-2.0	5.0-15	---	0-15
	13-20	5.6-8.4	0.0-0.5	10-25	---	0-30
	20-31	5.6-8.4	0.0-0.5	10-25	---	0-30
	31-80	7.9-8.4	0.0-0.5	10-20	---	10-30
111F:						
Onekama---------	0-6	5.6-7.3	2.0-5.0	5.0-10	---	0-15
	6-13	5.6-7.3	0.5-2.0	5.0-15	---	0-15
	13-20	5.6-8.4	0.0-0.5	10-25	---	0-30
	20-31	5.6-8.4	0.0-0.5	10-25	---	0-30
	31-80	7.9-8.4	0.0-0.5	10-20	---	10-30
114B:						
Nordhouse-------	0-3	3.5-7.3	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-11	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	11-40	3.5-7.3	0.5-1.0	2.0-4.0	1.0-3.0	0
	40-60	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	60-80	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
Platteriver-----	0-1	3.5-6.5	25-100	---	---	---
	1-3	3.5-6.5	2.0-5.0	2.0-6.0	1.0-4.0	0
	3-14	3.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	14-20	3.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	20-29	3.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	29-80	3.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
Dair----------	0-4	5.6-7.3	60-100	125-140	---	---
	4-7	6.1-7.3	10-20	20-45	---	0
	7-11	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	11-21	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	21-50	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	50-80	6.6-7.8	0.0-0.5	1.0-3.0	---	0
115B:						
Nordhouse-------	0-3	3.5-7.3	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-11	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	11-40	3.5-7.3	0.5-1.0	2.0-4.0	1.0-3.0	0
	40-60	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	60-80	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
115D:						
Nordhouse-------	0-3	3.5-7.3	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-11	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	11-40	3.5-7.3	0.5-1.0	2.0-4.0	1.0-3.0	0
	40-60	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	60-80	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
115F:						
Nordhouse-------	0-3	3.5-7.3	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-11	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	11-40	3.5-7.3	0.5-1.0	2.0-4.0	1.0-3.0	0
	40-60	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	60-80	3.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
118B:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
118C:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
118D:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
118E:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
118E:						
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
118F:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
119:						
Madaus----------	0-12	6.1-8.4	25-100	125-200	---	---
	12-34	7.4-8.4	10-20	2.0-10	---	50-90
	34-38	7.4-8.4	10-20	2.0-10	---	50-90
	38-62	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
	62-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-30
120B:						
Boyer----------	0-3	5.6-8.4	2.0-5.0	3.0-8.0	---	0
	3-4	5.6-8.4	0.5-2.0	1.0-6.0	---	0
	4-14	5.6-8.4	0.0-0.5	4.0-20	---	0
	14-30	5.6-8.4	0.0-0.5	4.0-20	---	0
	30-45	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
	45-80	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
120C:						
Boyer----------	0-3	5.6-8.4	2.0-5.0	3.0-8.0	---	0
	3-4	5.6-8.4	0.5-2.0	1.0-6.0	---	0
	4-14	5.6-8.4	0.0-0.5	4.0-20	---	0
	14-30	5.6-8.4	0.0-0.5	4.0-20	---	0
	30-45	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
	45-80	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
120C:						
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
120D:						
Boyer----------	0-3	5.6-8.4	2.0-5.0	3.0-8.0	---	0
	3-4	5.6-8.4	0.5-2.0	1.0-6.0	---	0
	4-14	5.6-8.4	0.0-0.5	4.0-20	---	0
	14-30	5.6-8.4	0.0-0.5	4.0-20	---	0
	30-45	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
	45-80	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
120E:						
Boyer----------	0-3	5.6-8.4	2.0-5.0	3.0-8.0	---	0
	3-4	5.6-8.4	0.5-2.0	1.0-6.0	---	0
	4-14	5.6-8.4	0.0-0.5	4.0-20	---	0
	14-30	5.6-8.4	0.0-0.5	4.0-20	---	0
	30-45	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
	45-80	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
120F:						
Boyer----------	0-3	5.6-8.4	2.0-5.0	3.0-8.0	---	0
	3-4	5.6-8.4	0.5-2.0	1.0-6.0	---	0
	4-14	5.6-8.4	0.0-0.5	4.0-20	---	0
	14-30	5.6-8.4	0.0-0.5	4.0-20	---	0
	30-45	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
	45-80	7.9-8.4	0.0-0.5	1.0-3.0	---	10-25
Shavenaugh------	0-5	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	5-8	5.1-7.3	0.5-3.0	1.0-3.0	0.8-2.0	0
	8-16	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	16-28	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	28-34	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	34-44	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
122:						
Dair----------	0-4	5.6-7.3	60-100	125-140	---	---
	4-7	6.1-7.3	10-20	20-45	---	0
	7-11	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	11-21	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	21-50	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	50-80	6.6-7.8	0.0-0.5	1.0-3.0	---	0
Adrian----------	0-7	5.1-7.3	55-100	125-200	---	0
	7-20	5.1-7.3	55-100	125-200	---	0
	20-35	5.1-7.3	55-100	125-200	---	0
	35-80	6.1-8.4	0.0-0.5	1.0-3.0	---	0-25
123B:						
Platteriver-----	0-1	3.5-6.5	25-100	---	---	---
	1-3	3.5-6.5	2.0-5.0	2.0-6.0	1.0-4.0	0
	3-14	3.5-6.5	0.5-2.0	1.0-3.0	0.8-2.0	0
	14-20	3.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	20-29	3.5-6.5	0.5-1.0	1.0-3.0	0.8-2.0	0
	29-80	3.5-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
Pipestone-------	0-2	3.5-7.3	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-9	3.5-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-12	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	12-24	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	24-32	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	32-80	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
125B:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Tekenink, sandy substratum-----	0-8	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	8-16	5.1-7.3	0.5-2.0	5.0-10	3.0-7.0	0
	16-21	5.1-7.3	0.5-1.0	5.0-10	3.0-7.0	0
	21-49	5.1-7.3	0.5-1.0	3.0-10	3.0-7.0	0
	49-62	5.1-7.8	0.5-1.0	5.0-15	3.0-10	0-25
	62-72	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
	72-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
125C:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Tekenink, sandy substratum-----	0-8	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	8-16	5.1-7.3	0.5-2.0	5.0-10	3.0-7.0	0
	16-21	5.1-7.3	0.5-1.0	5.0-10	3.0-7.0	0
	21-49	5.1-7.3	0.5-1.0	3.0-10	3.0-7.0	0
	49-62	5.1-7.8	0.5-1.0	5.0-15	3.0-10	0-25
	62-72	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
	72-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
125D:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Tekenink, sandy substratum-----	0-8	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	8-16	5.1-7.3	0.5-2.0	5.0-10	3.0-7.0	0
	16-21	5.1-7.3	0.5-1.0	5.0-10	3.0-7.0	0
	21-49	5.1-7.3	0.5-1.0	3.0-10	3.0-7.0	0
	49-62	5.1-7.8	0.5-1.0	5.0-15	3.0-10	0-25
	62-72	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
	72-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
125E:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Tekenink, sandy substratum-----	0-8	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	8-16	5.1-7.3	0.5-2.0	5.0-10	3.0-7.0	0
	16-21	5.1-7.3	0.5-1.0	5.0-10	3.0-7.0	0
	21-49	5.1-7.3	0.5-1.0	3.0-10	3.0-7.0	0
	49-62	5.1-7.8	0.5-1.0	5.0-15	3.0-10	0-25
	62-72	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
	72-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
125F:						
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
Tekenink, sandy substratum-----	0-8	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	8-16	5.1-7.3	0.5-2.0	5.0-10	3.0-7.0	0
	16-21	5.1-7.3	0.5-1.0	5.0-10	3.0-7.0	0
	21-49	5.1-7.3	0.5-1.0	3.0-10	3.0-7.0	0
	49-62	5.1-7.8	0.5-1.0	5.0-15	3.0-10	0-25
	62-72	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
	72-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
126D:						
Filer----------	0-9	5.6-7.3	2.0-5.0	5.0-15	---	0
	9-14	6.1-7.3	0.5-2.0	2.5-20	---	0
	14-31	6.1-8.4	0.0-0.5	2.5-20	---	0-30
	31-80	7.4-8.4	0.0-0.5	3.0-10	---	0-30
126E:						
Filer----------	0-9	5.6-7.3	2.0-5.0	5.0-15	---	0
	9-14	6.1-7.3	0.5-2.0	2.5-20	---	0
	14-31	6.1-8.4	0.0-0.5	2.5-20	---	0-30
	31-80	7.4-8.4	0.0-0.5	3.0-10	---	0-30

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
127B:						
Kaleva, deep water table----	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
130A:						
Glendora--------	0-6	5.6-7.3	10-20	25-100	---	0
	6-9	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	9-30	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	30-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Algansee--------	0-3	4.5-7.8	2.0-5.0	3.0-6.0	2.0-4.0	0-15
	3-9	4.5-7.8	2.0-5.0	3.0-6.0	2.0-4.0	0-15
	9-15	4.5-7.8	0.0-0.5	1.0-3.0	0.8-2.0	0-15
	15-21	4.5-7.8	0.0-0.5	1.0-3.0	0.8-2.0	0-15
	21-32	4.5-7.8	0.0-0.5	1.0-3.0	0.8-2.0	0-15
	32-37	4.5-7.8	0.0-0.5	1.0-3.0	0.8-2.0	0-15
	37-80	4.5-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-25
Abscota---------	0-4	5.1-7.3	2.0-5.0	3.0-5.0	1.0-3.0	0
	4-9	5.6-7.8	0.5-1.0	1.0-3.0	---	0
	9-18	6.1-7.8	0.5-1.0	1.0-3.0	---	0-15
	18-28	6.1-7.8	0.0-0.5	1.0-3.0	---	0-15
	28-32	6.1-7.8	0.0-0.5	1.0-3.0	---	0-15
	32-36	6.1-7.8	0.0-0.5	1.0-3.0	---	0-15
	36-40	6.1-7.8	0.0-0.5	1.0-3.0	---	0-15
	40-44	6.1-7.8	0.0-0.5	1.0-3.0	---	0-15
	44-80	6.1-7.8	0.0-0.5	1.0-3.0	---	0-15
131A:						
Milarch---------	0-9	5.6-7.3	2.0-5.0	5.0-20	---	0
	9-13	5.6-7.3	0.5-2.0	5.0-15	---	0
	13-19	5.6-7.3	0.5-2.0	10-20	---	0
	19-27	5.6-7.3	0.0-0.5	10-20	---	0
	27-30	5.6-7.3	0.0-0.5	10-20	---	0
	30-39	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	39-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
132A:						
Milnichol-------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	2.0-4.0	0
	2-12	3.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	12-15	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-25	4.5-6.0	0.5-3.0	2.0-4.0	1.0-3.0	0
	25-33	4.5-6.0	0.5-3.0	1.0-3.0	0.8-3.0	0
	33-47	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	47-50	6.6-8.4	0.0-0.5	5.0-15	---	0-30
	50-68	6.6-8.4	0.0-0.5	5.0-20	---	0-30
	68-80	6.6-8.4	0.0-0.5	5.0-15	---	0-30
Dair----------	0-4	5.6-7.3	60-100	125-140	---	---
	4-7	6.1-7.3	10-20	20-45	---	0
	7-11	6.6-7.8	0.5-1.0	1.0-3.0	---	0
	11-21	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	21-50	6.6-7.8	0.0-0.5	1.0-3.0	---	0
	50-80	6.6-7.8	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
135B:						
Nessen----------	0-4	5.1-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-11	5.1-6.0	0.0-2.0	1.0-3.0	0.8-2.0	0
	11-15	5.1-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-24	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	24-39	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	39-44	5.1-6.0	0.0-0.5	1.0-3.0	0.8-2.0	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
135C:						
Nessen----------	0-4	5.1-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-11	5.1-6.0	0.0-2.0	1.0-3.0	0.8-2.0	0
	11-15	5.1-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-24	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	24-39	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	39-44	5.1-6.0	0.0-0.5	1.0-3.0	0.8-2.0	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
136B:						
Nessen----------	0-4	5.1-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-11	5.1-6.0	0.0-2.0	1.0-3.0	0.8-2.0	0
	11-15	5.1-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-24	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	24-39	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	39-44	5.1-6.0	0.0-0.5	1.0-3.0	0.8-2.0	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
136C:						
Nessen----------	0-4	5.1-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-11	5.1-6.0	0.0-2.0	1.0-3.0	0.8-2.0	0
	11-15	5.1-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-24	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	24-39	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	39-44	5.1-6.0	0.0-0.5	1.0-3.0	0.8-2.0	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
136D:						
Nessen----------	0-4	5.1-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-11	5.1-6.0	0.0-2.0	1.0-3.0	0.8-2.0	0
	11-15	5.1-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-24	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	24-39	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	39-44	5.1-6.0	0.0-0.5	1.0-3.0	0.8-2.0	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
136D:						
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
136E:						
Nessen----------	0-4	5.1-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	4-11	5.1-6.0	0.0-2.0	1.0-3.0	0.8-2.0	0
	11-15	5.1-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	15-24	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	24-39	5.1-6.0	0.5-2.0	2.0-4.0	1.0-3.0	0
	39-44	5.1-6.0	0.0-0.5	1.0-3.0	0.8-2.0	0
	44-80	7.4-8.4	0.0-0.5	1.0-3.0	---	10-25
Kaleva----------	0-3	4.5-6.0	2.0-5.0	3.0-6.0	2.0-4.0	0
	3-9	4.5-6.0	0.5-2.0	1.0-3.0	0.8-2.0	0
	9-11	4.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	11-16	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	16-21	5.1-6.5	0.5-3.0	2.0-4.0	1.0-3.0	0
	21-70	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
	70-80	5.1-6.5	0.0-0.5	1.0-3.0	0.8-2.0	0
138D:						
Mollineaux------	0-6	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	6-9	5.6-7.3	0.0-1.0	1.0-3.0	---	0
	9-15	5.6-6.0	0.5-2.0	2.0-4.0	---	0
	15-27	5.6-6.5	0.5-2.0	2.0-4.0	---	0
	27-38	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	38-64	5.6-7.3	0.0-0.5	5.0-20	---	0
	64-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20
138E:						
Mollineaux------	0-6	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	6-9	5.6-7.3	0.0-1.0	1.0-3.0	---	0
	9-15	5.6-6.0	0.5-2.0	2.0-4.0	---	0
	15-27	5.6-6.5	0.5-2.0	2.0-4.0	---	0
	27-38	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	38-64	5.6-7.3	0.0-0.5	5.0-20	---	0
	64-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Spinks----------	0-5	5.1-7.3	2.0-5.0	3.0-6.0	1.0-4.0	0
	5-10	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	10-17	5.1-7.3	0.5-2.0	1.0-3.0	0.8-2.0	0
	17-62	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	62-72	5.1-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	72-80	5.1-8.4	0.0-0.5	1.0-3.0	0.8-2.0	0-20

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
139D:						
Mollineaux------	0-6	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	6-9	5.6-7.3	0.0-1.0	1.0-3.0	---	0
	9-15	5.6-6.0	0.5-2.0	2.0-4.0	---	0
	15-27	5.6-6.5	0.5-2.0	2.0-4.0	---	0
	27-38	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	38-64	5.6-7.3	0.0-0.5	5.0-20	---	0
	64-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
139E:						
Mollineaux------	0-6	5.6-7.3	2.0-5.0	3.0-6.0	---	0
	6-9	5.6-7.3	0.0-1.0	1.0-3.0	---	0
	9-15	5.6-6.0	0.5-2.0	2.0-4.0	---	0
	15-27	5.6-6.5	0.5-2.0	2.0-4.0	---	0
	27-38	5.6-7.3	0.0-0.5	1.0-3.0	---	0
	38-64	5.6-7.3	0.0-0.5	5.0-20	---	0
	64-80	5.6-7.3	0.0-0.5	1.0-3.0	---	0
Remus----------	0-9	5.1-7.3	2.0-5.0	5.0-15	3.0-10	0
	9-15	5.1-7.3	0.5-1.0	5.0-15	3.0-10	0
	15-24	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	24-35	5.1-7.3	0.5-1.0	1.0-15	3.0-10	0
	35-66	5.1-7.3	0.0-0.5	5.0-20	3.0-15	0
	66-80	7.4-8.4	0.0-0.5	5.0-15	---	10-30
210B:						
Plainfield------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-6	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	6-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-24	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	24-180	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
210C:						
Plainfield------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-6	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	6-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-24	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	24-180	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
210D:						
Plainfield------	0-2	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	2-6	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	6-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-24	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	24-180	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
211B:						
Plainfield, banded substratum-----	0-1	3.5-6.0	60-100	---	---	---
	1-5	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	5-19	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	19-31	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	31-121	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	121-160	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	160-180	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
212B:						
Plainfield, very deep water table----------	0-1	3.5-6.0	---	---	---	---
	1-3	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	3-13	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	13-21	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	21-115	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	115-127	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	127-135	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
215B:						
Plainfield, loamy substratum-----	0-1	3.5-6.0	60-100	---	---	---
	1-3	3.5-6.0	2.0-5.0	2.0-6.0	1.0-4.0	0
	3-7	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	7-25	4.5-7.3	0.5-1.0	1.0-3.0	0.8-2.0	0
	25-40	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	40-121	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
	121-139	4.5-7.3	0.0-0.5	1.0-3.0	0.8-2.0	0
220B:						
Typic Udipsamments---	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	2.0-10	1.0-4.0	0
	3-23	5.1-5.5	0.5-1.0	1.0-2.0	0.8-2.0	0
	23-41	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
	41-180	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
220C:						
Typic Udipsamments---	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	2.0-10	1.0-4.0	0
	3-23	5.1-5.5	0.5-1.0	1.0-2.0	0.8-2.0	0
	23-41	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
	41-180	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
220D:						
Typic Udipsamments---	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	2.0-10	1.0-4.0	0
	3-23	5.1-5.5	0.5-1.0	1.0-2.0	0.8-2.0	0
	23-41	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
	41-180	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
220E:						
Typic Udipsamments---	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	2.0-10	1.0-4.0	0
	3-23	5.1-5.5	0.5-1.0	1.0-2.0	0.8-2.0	0
	23-41	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
	41-180	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
220F:						
Typic Udipsamments---	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	2.0-10	1.0-4.0	0
	3-23	5.1-5.5	0.5-1.0	1.0-2.0	0.8-2.0	0
	23-41	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
	41-180	5.1-5.5	0.0-0.5	1.0-2.0	0.8-2.0	0
221B:						
Typic Udipsamments, banded substratum-----	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	3-4	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	4-15	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	15-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-32	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	32-119	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	119-127	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	127-131	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Lamellic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-31	6.1-6.5	0.5-1.0	1.0-3.0	---	0
	31-100	6.1-6.5	0.0-0.5	1.0-3.0	---	0
221C:						
Typic Udipsamments, banded substratum-----	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	3-4	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	4-15	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	15-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-32	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	32-119	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	119-127	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	127-131	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Lamellic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-31	6.1-6.5	0.5-1.0	1.0-3.0	---	0
	31-100	6.1-6.5	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
221D:						
Typic Udipsamments, banded substratum-----	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	3-4	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	4-15	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	15-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-32	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	32-119	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	119-127	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	127-131	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Lamellic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-31	6.1-6.5	0.5-1.0	1.0-3.0	---	0
	31-100	6.1-6.5	0.0-0.5	1.0-3.0	---	0
221E:						
Typic Udipsamments, banded substratum-----	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	3-4	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	4-15	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	15-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-32	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	32-119	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	119-127	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	127-131	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Lamellic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-31	6.1-6.5	0.5-1.0	1.0-3.0	---	0
	31-100	6.1-6.5	0.0-0.5	1.0-3.0	---	0
221F:						
Typic Udipsamments, banded substratum-----	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	3-4	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	4-15	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	15-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-32	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	32-119	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	119-127	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	127-131	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Lamellic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-31	6.1-6.5	0.5-1.0	1.0-3.0	---	0
	31-100	6.1-6.5	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
222B:						
Typic Udipsamments, very deep water table----------	0-1	5.1-5.5	---	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	4-32	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	32-43	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	43-58	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	58-84	5.1-5.5	0.0-0.5	---	0.8-2.0	0
222C:						
Typic Udipsamments, very deep water table----------	0-1	5.1-5.5	---	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	4-32	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	32-43	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	43-58	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	58-84	5.1-5.5	0.0-0.5	---	0.8-2.0	0
223B:						
Lamellic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-31	6.1-6.5	0.5-1.0	1.0-3.0	---	0
	31-100	6.1-6.5	0.0-0.5	1.0-3.0	---	0
Typic Udipsamments, banded substratum-----	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	3-4	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	4-15	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	15-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-32	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	32-119	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	119-127	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	127-131	5.1-5.5	0.0-0.5	---	0.8-2.0	0
223C:						
Lamellic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-31	6.1-6.5	0.5-1.0	1.0-3.0	---	0
	31-100	6.1-6.5	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
223C:						
Typic Udipsamments, banded substratum-----	0-1	5.1-5.5	---	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	3-4	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	4-15	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	15-21	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	21-32	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	32-119	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	119-127	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	127-131	5.1-5.5	0.0-0.5	---	0.8-2.0	0
224B:						
Oxyaquic Udipsamments---	0-1	---	60-100	---	---	---
	1-2	1.8-3.4	2.0-5.0	---	2.0-4.0	0
	2-3	1.8-3.4	0.5-2.0	---	0.8-2.0	0
	3-15	3.5-4.4	0.5-1.0	---	0.8-2.0	0
	15-24	3.5-4.4	0.5-1.0	---	0.8-2.0	0
	24-29	3.5-4.4	0.5-1.0	---	0.8-2.0	0
	29-40	3.5-4.4	0.0-0.5	---	0.8-2.0	0
	40-49	3.5-4.4	0.0-0.5	---	0.8-2.0	0
	49-85	3.5-4.4	0.0-0.5	---	0.8-2.0	0
225B:						
Typic Udipsamments, loamy substratum-----	0-1	5.1-5.5	---	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	2-5	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	5-32	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	32-40	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	40-49	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	49-85	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	85-180	7.9-8.4	0.0-0.5	5.0-15	---	10-25
225C:						
Typic Udipsamments, loamy substratum-----	0-1	5.1-5.5	---	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	2-5	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	5-32	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	32-40	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	40-49	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	49-85	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	85-180	7.9-8.4	0.0-0.5	5.0-15	---	10-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
225D:						
Typic Udipsamments, loamy substratum-----	0-1	5.1-5.5	---	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	2-5	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	5-32	5.1-5.5	0.5-1.0	---	0.8-2.0	0
	32-40	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	40-49	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	49-85	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	85-180	7.9-8.4	0.0-0.5	5.0-15	---	10-25
230B:						
Entic Haplorthods, sandy----------	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-6	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	6-21	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	21-36	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	36-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
230C:						
Entic Haplorthods, sandy----------	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-6	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	6-21	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	21-36	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	36-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
230D:						
Entic Haplorthods, sandy----------	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-6	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	6-21	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	21-36	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	36-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
230E:						
Entic Haplorthods, sandy----------	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-6	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	6-21	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	21-36	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	36-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
230F:						
Entic Haplorthods, sandy----------	0-1	5.1-5.5	60-100	---	---	---
	1-4	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	4-6	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	6-21	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	21-36	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	36-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
231B:						
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
231C:						
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
231D:						
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
231D:						
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
231E:						
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
232B:						
Entic Haplorthods, sandy, very deep water table----------	0-2	5.1-5.5	80-100	---	---	---
	2-6	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	6-10	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	10-22	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	22-61	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	61-65	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	65-69	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	69-156	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	156-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
232B:						
Lamellic Haplorthods, sandy, very deep water table----------	0-1	---	---	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-7	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	7-17	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	17-21	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	21-64	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	64-68	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	68-88	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	88-114	5.1-5.5	0.0-0.5	---	0.8-2.0	0
233B:						
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
233C:						
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
233D:						
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
233E:						
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Entic Haplorthods, sandy, banded substratum-----	0-1	5.1-5.5	60-100	---	---	---
	1-2	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	2-3	5.1-5.5	0.5-3.0	---	0.8-2.0	0
	3-19	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	19-25	5.1-5.5	0.5-3.0	---	2.0-4.0	0
	25-56	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	56-85	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	85-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
234B:						
Oxyaquic Haplorthods, sandy----------	0-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	4.5-5.0	0.5-2.0	---	0.8-2.0	0
	4-7	4.5-5.0	0.5-2.0	---	1.0-3.0	0
	7-17	4.5-5.0	0.5-2.0	---	1.0-3.0	0
	17-23	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	23-30	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	30-54	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	54-70	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	70-84	5.6-6.0	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
235B:						
Alfic Haplorthods, sandy----------	0-2	5.6-6.0	60-100	---	---	---
	2-5	5.6-6.0	2.0-5.0	3.0-5.0	---	0
	5-6	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	6-9	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	9-24	5.6-6.0	0.5-3.0	2.0-3.0	---	0
	24-44	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	44-52	6.1-6.5	0.0-0.5	5.0-10	---	0
	52-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	84-92	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	92-180	6.1-6.5	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
235C:						
Alfic Haplorthods, sandy----------	0-2	5.6-6.0	60-100	---	---	---
	2-5	5.6-6.0	2.0-5.0	3.0-5.0	---	0
	5-6	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	6-9	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	9-24	5.6-6.0	0.5-3.0	2.0-3.0	---	0
	24-44	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	44-52	6.1-6.5	0.0-0.5	5.0-10	---	0
	52-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	84-92	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	92-180	6.1-6.5	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
235D:						
Alfic Haplorthods, sandy----------	0-2	5.6-6.0	60-100	---	---	---
	2-5	5.6-6.0	2.0-5.0	3.0-5.0	---	0
	5-6	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	6-9	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	9-24	5.6-6.0	0.5-3.0	2.0-3.0	---	0
	24-44	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	44-52	6.1-6.5	0.0-0.5	5.0-10	---	0
	52-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	84-92	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	92-180	6.1-6.5	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
235D:						
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
235E:						
Alfic Haplorthods, sandy----------	0-2	5.6-6.0	60-100	---	---	---
	2-5	5.6-6.0	2.0-5.0	3.0-5.0	---	0
	5-6	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	6-9	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	9-24	5.6-6.0	0.5-3.0	2.0-3.0	---	0
	24-44	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	44-52	6.1-6.5	0.0-0.5	5.0-10	---	0
	52-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	84-92	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	92-180	6.1-6.5	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
235F:						
Alfic Haplorthods, sandy----------	0-2	5.6-6.0	60-100	---	---	---
	2-5	5.6-6.0	2.0-5.0	3.0-5.0	---	0
	5-6	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	6-9	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	9-24	5.6-6.0	0.5-3.0	2.0-3.0	---	0
	24-44	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	44-52	6.1-6.5	0.0-0.5	5.0-10	---	0
	52-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	84-92	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	92-180	6.1-6.5	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy----------	0-1	3.5-4.4	60-100	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	9-24	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	24-29	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	29-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
237B:						
Glossudalfs, fine-loamy-----	0-1	6.6-7.3	70-100	---	---	---
	1-5	6.6-7.3	2.0-5.0	5.0-10	---	0
	5-11	6.6-7.3	0.5-2.0	5.0-10	---	0
	11-21	6.6-7.3	0.0-0.5	10-20	---	0
	21-46	6.6-7.3	0.0-0.5	10-20	---	0
	46-60	6.6-7.3	0.0-0.5	5.0-10	---	0
237C:						
Glossudalfs, fine-loamy-----	0-1	6.6-7.3	70-100	---	---	---
	1-5	6.6-7.3	2.0-5.0	5.0-10	---	0
	5-11	6.6-7.3	0.5-2.0	5.0-10	---	0
	11-21	6.6-7.3	0.0-0.5	10-20	---	0
	21-46	6.6-7.3	0.0-0.5	10-20	---	0
	46-60	6.6-7.3	0.0-0.5	5.0-10	---	0
237D:						
Glossudalfs, fine-loamy-----	0-1	6.6-7.3	70-100	---	---	---
	1-5	6.6-7.3	2.0-5.0	5.0-10	---	0
	5-11	6.6-7.3	0.5-2.0	5.0-10	---	0
	11-21	6.6-7.3	0.0-0.5	10-20	---	0
	21-46	6.6-7.3	0.0-0.5	10-20	---	0
	46-60	6.6-7.3	0.0-0.5	5.0-10	---	0
240B:						
Typic Haplorthods, sandy----------	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	1.0-4.0	0
	3-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-8	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	8-15	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	15-23	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	23-85	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	85-157	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	157-175	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
	175-180	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
240C:						
Typic Haplorthods, sandy----------	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	1.0-4.0	0
	3-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-8	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	8-15	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	15-23	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	23-85	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	85-157	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	157-175	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
	175-180	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
240D:						
Typic Haplorthods, sandy----------	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	1.0-4.0	0
	3-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-8	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	8-15	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	15-23	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	23-85	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	85-157	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	157-175	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
	175-180	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
240E:						
Typic Haplorthods, sandy----------	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	1.0-4.0	0
	3-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-8	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	8-15	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	15-23	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	23-85	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	85-157	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	157-175	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
	175-180	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
240F:						
Typic Haplorthods, sandy----------	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	1.0-4.0	0
	3-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-8	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	8-15	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	15-23	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	23-85	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	85-157	5.6-6.0	0.0-0.5	0.0-1.0	---	0
	157-175	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
	175-180	7.4-7.8	0.0-0.5	0.0-1.0	---	0-10
241B:						
Typic Haplorthods, sandy, banded substratum-----	0-1	3.5-4.4	---	---	---	---
	1-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-13	4.5-5.0	2.0-5.0	---	2.0-4.0	0
	13-21	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	21-25	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	25-72	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	72-141	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	141-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
241B:						
Lamellic Haplorthods, sandy, dark subsoil--------	0-2	---	60-100	---	---	---
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-8	3.5-4.4	2.0-5.0	---	1.0-3.0	0
	8-12	3.5-4.4	2.0-5.0	---	1.0-3.0	0
	12-28	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	28-49	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	49-104	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	104-180	4.5-5.0	0.5-3.0	---	0.8-2.0	0
241C:						
Typic Haplorthods, sandy, banded substratum-----	0-1	3.5-4.4	---	---	---	---
	1-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-13	4.5-5.0	2.0-5.0	---	2.0-4.0	0
	13-21	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	21-25	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	25-72	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	72-141	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	141-180	5.6-6.0	0.0-0.5	1.0-3.0	---	0
Lamellic Haplorthods, sandy, dark subsoil--------	0-2	---	60-100	---	---	---
	2-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-8	3.5-4.4	2.0-5.0	---	1.0-3.0	0
	8-12	3.5-4.4	2.0-5.0	---	1.0-3.0	0
	12-28	3.5-4.4	0.5-3.0	---	1.0-3.0	0
	28-49	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	49-104	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	104-180	4.5-5.0	0.5-3.0	---	0.8-2.0	0
242B:						
Typic Haplorthods, sandy, very deep water table----------	0-1	3.5-4.4	---	---	---	---
	1-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-5	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	5-7	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	7-13	4.5-5.0	0.5-2.0	---	1.0-3.0	0
	13-25	4.5-5.0	0.5-2.0	---	1.0-3.0	0
	25-99	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	99-106	5.6-6.0	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
243C:						
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum-----	0-1	---	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	3-7	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	7-9	3.5-4.4	2.0-5.0	---	1.0-3.0	0
	9-11	3.5-4.4	2.0-5.0	---	1.0-3.0	0
	11-17	3.5-4.4	0.5-2.0	---	1.0-3.0	0
	17-23	3.5-4.4	0.5-2.0	---	1.0-3.0	0
	23-40	4.5-5.0	0.5-2.0	---	0.8-2.0	0
	40-56	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	56-87	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	87-180	5.1-5.5	0.0-0.5	---	0.8-2.0	0
244B:						
Oxyaquic Haplorthods, sandy, dark subsoil--------	0-1	3.5-4.5	60-100	---	---	---
	1-4	3.5-4.5	2.0-5.0	---	1.0-4.0	0
	4-12	4.5-5.0	0.5-2.0	---	0.8-2.0	0
	12-13	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	13-34	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	34-41	4.5-5.0	0.5-3.0	---	0.8-2.0	0
	41-84	5.6-6.0	0.0-0.5	1.0-3.0	---	0
245C:						
Typic Haplorthods, sandy, loamy substratum-----	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	3-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	9-19	4.5-5.0	0.5-3.0	---	1.0-3.0	0
	19-72	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	72-92	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	92-102	5.6-6.0	0.0-0.5	1.0-10	---	0
Alfic Haplorthods, sandy, dark subsoil--------	0-1	5.6-6.0	60-100	---	---	---
	1-5	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	5-13	5.6-6.0	2.0-5.0	2.0-6.0	---	0
	13-23	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	23-34	6.1-6.5	0.0-0.5	5.0-10	---	0
	34-72	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	72-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
245D:						
Typic Haplorthods, sandy, loamy substratum-----	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	3-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	9-19	4.5-5.0	0.5-3.0	---	1.0-3.0	0
	19-72	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	72-92	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	92-102	5.6-6.0	0.0-0.5	1.0-10	---	0
Alfic Haplorthods, sandy, dark subsoil--------	0-1	5.6-6.0	60-100	---	---	---
	1-5	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	5-13	5.6-6.0	2.0-5.0	2.0-6.0	---	0
	13-23	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	23-34	6.1-6.5	0.0-0.5	5.0-10	---	0
	34-72	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	72-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0
245E:						
Typic Haplorthods, sandy, loamy substratum-----	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	3-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	9-19	4.5-5.0	0.5-3.0	---	1.0-3.0	0
	19-72	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	72-92	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	92-102	5.6-6.0	0.0-0.5	1.0-10	---	0
Alfic Haplorthods, sandy, dark subsoil--------	0-1	5.6-6.0	60-100	---	---	---
	1-5	5.6-6.0	0.5-2.0	1.0-3.0	---	0
	5-13	5.6-6.0	2.0-5.0	2.0-6.0	---	0
	13-23	5.6-6.0	0.5-3.0	2.0-4.0	---	0
	23-34	6.1-6.5	0.0-0.5	5.0-10	---	0
	34-72	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	72-84	6.1-6.5	0.0-0.5	1.0-3.0	---	0
246B:						
Alfic Oxyaquic Haplorthods, sandy----------	0-1	5.1-5.5	---	---	---	---
	1-5	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	5-8	4.5-5.0	0.5-2.0	---	0.8-2.0	0
	8-12	6.1-6.5	2.0-5.0	2.0-6.0	---	0
	12-31	6.1-6.5	0.5-3.0	2.0-4.0	---	0
	31-42	6.1-6.5	0.5-1.0	1.0-10	---	0
	42-44	6.1-6.5	0.5-1.0	1.0-10	---	0
	44-49	5.6-6.0	0.0-0.5	1.0-10	---	0
	49-57	5.6-6.0	0.0-0.5	1.0-2.0	---	0
	57-84	6.1-6.5	0.0-0.5	1.0-2.0	---	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
246B:						
Typic Haplorthods, sandy, loamy substratum-----	0-1	3.5-4.4	---	---	---	---
	1-3	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	3-4	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	4-9	4.5-5.0	2.0-5.0	---	1.0-4.0	0
	9-19	4.5-5.0	0.5-3.0	---	1.0-3.0	0
	19-72	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	72-92	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	92-102	5.6-6.0	0.0-0.5	1.0-10	---	0
250:						
Typic Psammaquents---	0-3	6.6-7.3	50-100	125-200	---	0
	3-6	6.6-7.3	2.0-5.0	2.0-6.0	---	0
	6-9	6.6-7.3	0.0-0.5	1.0-3.0	---	0
	9-18	6.6-7.3	0.0-0.5	1.0-3.0	---	0
	18-60	6.6-7.3	0.0-0.5	1.0-3.0	---	0
Aquic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	3-8	5.1-5.5	0.1-2.0	---	0.8-2.0	0
	8-26	5.1-5.5	0.0-1.0	---	0.8-2.0	0
	26-46	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	46-60	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Haplosaprists, euic----------	0-6	4.5-7.3	70-100	100-180	---	0
	6-84	4.5-7.3	70-100	100-180	---	0
252:						
Typic Endoaquods, sandy, wet-----	0-4	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	4-7	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	7-9	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	9-25	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	25-60	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Haplosaprists, dysic----------	0-4	3.5-4.4	70-100	---	95-150	0
	4-7	3.5-4.4	70-100	---	95-150	0
	7-13	3.5-4.4	70-100	---	95-150	0
	13-60	3.5-4.4	70-100	---	95-150	0
	60-72	3.5-4.4	70-100	---	95-150	0
	72-80	3.5-4.4	0.0-0.5	0.0-2.0	0.0-2.0	0-25
253A:						
Typic Duraquods, sandy, ortstein	0-2	3.5-4.4	2.0-5.0	---	1.0-4.0	0
	2-12	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	12-16	4.5-5.0	2.0-5.0	---	2.0-4.0	0
	16-18	4.5-5.0	0.5-3.0	---	1.0-3.0	0
	18-52	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	52-66	4.5-5.0	0.0-0.5	---	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
253A:						
Aquic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	3-8	5.1-5.5	0.1-2.0	---	0.8-2.0	0
	8-26	5.1-5.5	0.0-1.0	---	0.8-2.0	0
	26-46	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	46-60	5.1-5.5	0.0-0.5	---	0.8-2.0	0
255B:						
Aquic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	3-8	5.1-5.5	0.1-2.0	---	0.8-2.0	0
	8-26	5.1-5.5	0.0-1.0	---	0.8-2.0	0
	26-46	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	46-60	5.1-5.5	0.0-0.5	---	0.8-2.0	0
Oxyaquic Haplorthods, sandy----------	0-2	3.5-4.4	2.0-5.0	---	2.0-4.0	0
	2-4	4.5-5.0	0.5-2.0	---	0.8-2.0	0
	4-7	4.5-5.0	0.5-2.0	---	1.0-3.0	0
	7-17	4.5-5.0	0.5-2.0	---	1.0-3.0	0
	17-23	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	23-30	6.1-6.5	0.0-0.5	1.0-3.0	---	0
	30-54	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	54-70	5.6-6.0	0.0-0.5	1.0-3.0	---	0
	70-84	5.6-6.0	0.0-0.5	1.0-3.0	---	0
257:						
Endoaquolls-----	0-4	6.6-7.3	10-19	4.0-15	---	0
	4-11	6.6-7.3	2.0-5.0	4.0-15	---	0
	11-27	7.4-7.8	0.0-0.5	2.0-20	---	0-30
	27-80	7.4-7.8	0.0-0.5	1.0-3.0	---	0-25
Haplosaprists, euic----------	0-6	4.5-7.3	70-100	100-180	---	0
	6-84	4.5-7.3	70-100	100-180	---	0
Typic Psammaquents---	0-3	6.6-7.3	50-100	125-200	---	0
	3-6	6.6-7.3	2.0-5.0	2.0-6.0	---	0
	6-9	6.6-7.3	0.0-0.5	1.0-3.0	---	0
	9-18	6.6-7.3	0.0-0.5	1.0-3.0	---	0
	18-60	6.6-7.3	0.0-0.5	1.0-3.0	---	0
262A:						
Typic Duraquods, sandy, ortstein	0-2	3.5-4.4	2.0-5.0	---	1.0-4.0	0
	2-12	3.5-4.4	0.5-2.0	---	0.8-2.0	0
	12-16	4.5-5.0	2.0-5.0	---	2.0-4.0	0
	16-18	4.5-5.0	0.5-3.0	---	1.0-3.0	0
	18-52	4.5-5.0	0.0-0.5	---	0.8-2.0	0
	52-66	4.5-5.0	0.0-0.5	---	0.8-2.0	0

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
263B:						
Aquic Udipsamments---	0-1	5.1-5.5	60-100	---	---	---
	1-3	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	3-8	5.1-5.5	0.1-2.0	---	0.8-2.0	0
	8-26	5.1-5.5	0.0-1.0	---	0.8-2.0	0
	26-46	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	46-60	5.1-5.5	0.0-0.5	---	0.8-2.0	0
264A:						
Typic Endoaquods, sandy----------	0-2	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	2-8	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	8-10	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	10-12	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	12-48	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	48-54	5.1-5.5	0.0-0.5	---	0.8-2.0	0
	54-66	5.1-5.5	0.0-0.5	---	0.8-2.0	0
272:						
Typic Endoaquods, sandy, wet-----	0-4	5.1-5.5	2.0-5.0	---	1.0-4.0	0
	4-7	5.1-5.5	0.5-2.0	---	0.8-2.0	0
	7-9	5.1-5.5	2.0-5.0	---	2.0-4.0	0
	9-25	5.1-5.5	0.5-3.0	---	1.0-3.0	0
	25-60	5.1-5.5	0.0-0.5	---	0.8-2.0	0
273:						
Typic Psammaquents---	0-3	6.6-7.3	50-100	125-200	---	0
	3-6	6.6-7.3	2.0-5.0	2.0-6.0	---	0
	6-9	6.6-7.3	0.0-0.5	1.0-3.0	---	0
	9-18	6.6-7.3	0.0-0.5	1.0-3.0	---	0
	18-60	6.6-7.3	0.0-0.5	1.0-3.0	---	0
274:						
Typic Epiaquolls, sandy over loamy----------	0-4	7.4-7.8	60-100	10-25	---	0
	4-14	7.4-7.8	2.0-5.0	2.0-6.0	---	0
	14-19	7.4-7.8	0.5-1.0	1.0-3.0	---	0
	19-29	7.4-7.8	0.0-0.5	1.0-3.0	---	0
	29-44	7.9-8.4	0.0-0.5	5.0-20	---	10-30
	44-60	7.9-8.4	0.0-0.5	5.0-20	---	10-30
280:						
Aquents.						
Histosols-------	0-45	4.5-7.3	50-100	125-200	95-150	0
	45-80	4.5-7.8	0.0-0.5	1.0-3.0	---	0
281:						
Haplosaprists, dysic----------	0-4	3.5-4.4	70-100	---	95-150	0
	4-7	3.5-4.4	70-100	---	95-150	0
	7-13	3.5-4.4	70-100	---	95-150	0
	13-60	3.5-4.4	70-100	---	95-150	0
	60-72	3.5-4.4	70-100	---	95-150	0
	72-80	3.5-4.4	0.0-0.5	0.0-2.0	0.0-2.0	0-25

Table 19.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Soil reaction	Organic matter	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate
	In	pH	Pct	meq/100 g	meq/100 g	Pct
282:						
Haplosaprists, euic----------	0-6	4.5-7.3	70-100	100-180	---	0
	6-84	4.5-7.3	70-100	100-180	---	0

Table 20.--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				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
1. Beaches									
3A: Psamments, moderately wet	---	---	---	---	---	---	Low	---	---
Beaches.									
5F:									
Udorthents	---	---	---	---	---	---	Moderate	High	Low
Udipsamments	---	---	---	---	---	---	Low	Low	Moderate
10B: Perrinton	---	---	---	---	---	---	Moderate	High	Moderate
10C: Perrinton	---	---	---	---	---	---	Moderate	High	Moderate
11A: Ithaca	---	---	---	---	---	---	High	High	Low
13B: Marlette	---	---	---	---	---	---	Moderate	Moderate	Low
13C: Marlette	---	---	---	---	---	---	Moderate	Moderate	Low
14A: Capac	---	---	---	---	---	---	High	High	Low
15: Parkhill	---	---	---	---	---	---	High	High	Low
18B:									
Fern	---	---	---	---	---	---	Low	Low	Moderate
Spinks	---	---	---	---	---	---	Low	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
18C:									
Fern	---	---	---	---	---	---	Low	Low	Moderate
Spinks	---	---	---	---	---	---	Low	Low	Low
21B:									
Coloma	---	---	---	---	---	---	Low	Low	Moderate
Tatches	---	---	---	---	---	---	Low	Low	High
25:									
Gorvan	---	---	---	---	---	---	High	High	Low
Houghton	---	---	---	---	0-18	18-36	High	High	Low
Glendora	---	---	---	---	---	---	Moderate	High	Moderate
29B:									
Fogg	---	---	---	---	---	---	Low	Low	Moderate
Benzonia	---	---	---	---	---	---	Low	Low	High
29C:									
Fogg	---	---	---	---	---	---	Low	Low	Moderate
Benzonia	---	---	---	---	---	---	Low	Low	High
29D:									
Fogg	---	---	---	---	---	---	Low	Low	Moderate
Benzonia	---	---	---	---	---	---	Low	Low	High
29E:									
Fogg	---	---	---	---	---	---	Low	Low	Moderate
Benzonia	---	---	---	---	---	---	Low	Low	High
29F:									
Fogg	---	---	---	---	---	---	Low	Low	Moderate
Benzonia	---	---	---	---	---	---	Low	Low	High
32B:									
Fern	---	---	---	---	---	---	Low	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
32C:									
Fern	---	---	---	---	---	---	Low	Low	Moderate
36B:									
Fern	---	---	---	---	---	---	Low	Low	Moderate
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
36C:									
Fern	---	---	---	---	---	---	Low	Low	Moderate
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
38B:									
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
Spinks	---	---	---	---	---	---	Low	Low	Low
38C:									
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
Spinks	---	---	---	---	---	---	Low	Low	Low
38D:									
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
Spinks	---	---	---	---	---	---	Low	Low	Low
38E:									
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
Spinks	---	---	---	---	---	---	Low	Low	Low
43B:									
Thompsonville	---	---	---	---	---	---	Low	Low	Moderate
44A:									
Milnichol	---	---	---	---	---	---	Moderate	Low	Moderate
47B:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Coloma	---	---	---	---	---	---	Low	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
47C:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Coloma	---	---	---	---	---	---	Low	Low	Moderate
47D:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Coloma	---	---	---	---	---	---	Low	Low	Moderate
47E:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Coloma	---	---	---	---	---	---	Low	Low	Moderate
47F:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Coloma	---	---	---	---	---	---	Low	Low	Moderate
52C:									
Copemish	Ortstein	11-16	25-30	Moderately cemented	---	---	Low	Low	High
52E:									
Copemish	Ortstein	11-16	25-30	Moderately cemented	---	---	Low	Low	High
53A:									
Saugatuck	Ortstein	8-11	7	Moderately cemented	---	---	Moderate	Low	Moderate
Jebavy	Ortstein	17-26	14	Moderately cemented	---	---	Moderate	High	High
54B:									
Kaleva	---	---	---	---	---	---	Low	Low	High
54C:									
Kaleva	---	---	---	---	---	---	Low	Low	High
54D:									
Kaleva	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
54E:									
Kaleva	---	---	---	---	---	---	Low	Low	High
54F:									
Kaleva	---	---	---	---	---	---	Low	Low	High
55B:									
Brethren	---	---	---	---	---	---	Low	Low	High
57B:									
Grattan	---	---	---	---	---	---	Low	Low	High
57C:									
Grattan	---	---	---	---	---	---	Low	Low	High
57D:									
Grattan	---	---	---	---	---	---	Low	Low	High
57E:									
Grattan	---	---	---	---	---	---	Low	Low	High
57F:									
Grattan	---	---	---	---	---	---	Low	Low	High
58B:									
Covert	---	---	---	---	---	---	Low	Low	Moderate
59B:									
Pipestone	---	---	---	---	---	---	Moderate	Low	Moderate
60:									
Dair	---	---	---	---	0-4	0-4	Moderate	Low	Moderate
63B:									
Coloma	---	---	---	---	---	---	Low	Low	Moderate
63C:									
Coloma	---	---	---	---	---	---	Low	Low	Moderate
63D:									
Coloma	---	---	---	---	---	---	Low	Low	Moderate
63E:									
Coloma	---	---	---	---	---	---	Low	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
63F:									
Coloma	---	---	---	---	---	---	Low	Low	Moderate
64B:									
Benona	---	---	---	---	---	---	Low	Low	High
64C:									
Benona	---	---	---	---	---	---	Low	Low	High
64D:									
Benona	---	---	---	---	---	---	Low	Low	High
64E:									
Benona	---	---	---	---	---	---	Low	Low	High
64F:									
Benona	---	---	---	---	---	---	Low	Low	High
67B:									
Plainfield	---	---	---	---	---	---	Low	Low	High
67C:									
Plainfield	---	---	---	---	---	---	Low	Low	High
67E:									
Plainfield	---	---	---	---	---	---	Low	Low	High
67F:									
Plainfield	---	---	---	---	---	---	Low	Low	High
73:									
Houghton	---	---	---	---	0-18	18-36	High	High	Low
Adrian	---	---	---	---	6-18	29-35	High	High	Moderate
81:									
Lumley	---	---	---	---	0-18	18-36	High	High	High
Makinen	---	---	---	---	0-18	18-31	High	High	High
83:									
Histosols	---	---	---	---	0-18	18-36	High	High	Moderate
Aquents	---	---	---	---	---	---	High	---	---

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
86D:									
Dune land	---	---	---	---	---	---	Low	---	---
Quartzipsamments	---	---	---	---	---	---	Low	---	---
86F:									
Dune land	---	---	---	---	---	---	Low	---	---
Quartzipsamments	---	---	---	---	---	---	Low	---	---
88B:									
Udipsamments	---	---	---	---	---	---	Low	Low	Moderate
91.									
Pits, sand and gravel									
96C:									
Goodharbor	---	---	---	---	---	---	Low	Low	Low
100A:									
Dair	---	---	---	---	0-4	0-4	Moderate	Low	Moderate
Pipestone	---	---	---	---	---	---	Moderate	Low	Moderate
102A:									
Thompsonville	---	---	---	---	---	---	Low	Low	Moderate
Milnichol	---	---	---	---	---	---	Moderate	Low	Moderate
104B:									
Covert	---	---	---	---	---	---	Low	Low	Moderate
Pipestone	---	---	---	---	---	---	Moderate	Low	Moderate
106B:									
Covert	---	---	---	---	---	---	Low	Low	Moderate
Dair	---	---	---	---	0-4	0-4	Moderate	Low	Moderate
107B:									
Benzonia	---	---	---	---	---	---	Low	Low	High
107C:									
Benzonia	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
107D:									
Benzonia----------	---	---	---	---	---	---	Low	Low	High
107E:									
Benzonia----------	---	---	---	---	---	---	Low	Low	High
107F:									
Benzonia----------	---	---	---	---	---	---	Low	Low	High
108A:									
Saugatuck----------	Ortstein	8-13	7-12	Moderately cemented	---	---	Moderate	Low	Moderate
109B:									
Shavenaugh----------	---	---	---	---	---	---	Low	Low	Low
109C:									
Shavenaugh----------	---	---	---	---	---	---	Low	Low	Low
109D:									
Shavenaugh----------	---	---	---	---	---	---	Low	Low	Low
109E:									
Shavenaugh----------	---	---	---	---	---	---	Low	Low	Low
109F:									
Shavenaugh----------	---	---	---	---	---	---	Low	Low	Low
110B:									
Healylake----------	Ortstein	9-14	17-22	Moderately cemented	---	---	Low	Low	High
111D:									
Onekama----------	---	---	---	---	---	---	Moderate	High	Low
111E:									
Onekama----------	---	---	---	---	---	---	Moderate	High	Moderate
111F:									
Onekama----------	---	---	---	---	---	---	Moderate	High	Moderate
114B:									
Nordhouse----------	---	---	---	---	---	---	Low	Low	Moderate
Platteriver----------	---	---	---	---	---	---	Low	Low	Moderate
Dair----------	---	---	---	---	0-4	0-4	Moderate	Low	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
115B:									
Nordhouse	---	---	---	---	---	---	Low	Low	Moderate
115D:									
Nordhouse	---	---	---	---	---	---	Low	Low	Moderate
115F:									
Nordhouse	---	---	---	---	---	---	Low	Low	Moderate
118B:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
118C:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
118D:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
118E:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
118F:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
119:									
Madaus	---	---	---	---	0-6	6-12	High	High	Low
120B:									
Boyer	---	---	---	---	---	---	Moderate	Low	Moderate
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
120C:									
Boyer	---	---	---	---	---	---	Moderate	Low	Moderate
Shavenaugh	---	---	---	---	---	---	Low	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
120D:									
Boyer	---	---	---	---	---	---	Moderate	Low	Moderate
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
120E:									
Boyer	---	---	---	---	---	---	Moderate	Low	Moderate
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
120F:									
Boyer	---	---	---	---	---	---	Moderate	Low	Moderate
Shavenaugh	---	---	---	---	---	---	Low	Low	Low
122:									
Dair	---	---	---	---	0-4	0-4	Moderate	Low	Moderate
Adrian	---	---	---	---	6-18	29-35	High	High	Moderate
123B:									
Platteriver	---	---	---	---	---	---	Low	Low	Moderate
Pipestone	---	---	---	---	---	---	Moderate	Low	Moderate
125B:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Tekenink, sandy substratum	---	---	---	---	---	---	Moderate	Low	Moderate
125C:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Tekenink, sandy substratum	---	---	---	---	---	---	Moderate	Low	Moderate
125D:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Tekenink, sandy substratum	---	---	---	---	---	---	Moderate	Low	Moderate
125E:									
Spinks	---	---	---	---	---	---	Low	Low	Low

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
125E:									
Tekenink, sandy substratum	---	---	---	---	---	---	Moderate	Low	Moderate
125F:									
Spinks	---	---	---	---	---	---	Low	Low	Low
Tekenink, sandy substratum	---	---	---	---	---	---	Moderate	Low	Moderate
126D:									
Filer	---	---	---	---	---	---	Moderate	High	Moderate
126E:									
Filer	---	---	---	---	---	---	Moderate	High	Moderate
127B:									
Kaleva, deep water table	---	---	---	---	---	---	Low	Low	High
130A:									
Glendora	---	---	---	---	---	---	Moderate	High	Moderate
Algansee	---	---	---	---	---	---	Moderate	Low	Low
Abscota	---	---	---	---	---	---	---	Low	Moderate
131A:									
Milarch	---	---	---	---	---	---	Moderate	Moderate	Low
132A:									
Milnichol	---	---	---	---	---	---	Moderate	Low	Moderate
Dair	---	---	---	---	0-4	0-4	Moderate	Low	Moderate
135B:									
Nessen	---	---	---	---	---	---	Low	Low	Moderate
135C:									
Nessen	---	---	---	---	---	---	Low	Low	Moderate
136B:									
Nessen	---	---	---	---	---	---	Low	Low	Moderate
Kaleva	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
136C:									
Nessen	---	---	---	---	---	---	Low	Low	Moderate
Kaleva	---	---	---	---	---	---	Low	Low	High
136D:									
Nessen	---	---	---	---	---	---	Low	Low	Moderate
Kaleva	---	---	---	---	---	---	Low	Low	High
136E:									
Nessen	---	---	---	---	---	---	Low	Low	Moderate
Kaleva	---	---	---	---	---	---	Low	Low	High
138D:									
Mollineaux	---	---	---	---	---	---	Low	Low	Moderate
Spinks	---	---	---	---	---	---	Low	Low	Low
138E:									
Mollineaux	---	---	---	---	---	---	Low	Low	Moderate
Spinks	---	---	---	---	---	---	Low	Low	Low
139D:									
Mollineaux	---	---	---	---	---	---	Low	Low	Moderate
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
139E:									
Mollineaux	---	---	---	---	---	---	Low	Low	Moderate
Remus	---	---	---	---	---	---	Moderate	Moderate	Low
210B:									
Plainfield	---	---	---	---	---	---	Low	Low	High
210C:									
Plainfield	---	---	---	---	---	---	Low	Low	High
210D:									
Plainfield	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
211B:									
Plainfield, banded substratum	---	---	---	---	---	---	Low	Low	High
212B:									
Plainfield, very deep water table	---	---	---	---	---	---	Low	Low	High
215B:									
Plainfield, loamy substratum	---	---	---	---	---	---	Low	Low	High
220B:									
Typic Udipsamments	---	---	---	---	---	---	Low	Low	High
220C:									
Typic Udipsamments	---	---	---	---	---	---	Low	Low	High
220D:									
Typic Udipsamments	---	---	---	---	---	---	Low	Low	High
220E:									
Typic Udipsamments	---	---	---	---	---	---	Low	Low	High
220F:									
Typic Udipsamments	---	---	---	---	---	---	Low	Low	High
221B:									
Typic Udipsamments, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Udipsamments	---	---	---	---	---	---	Low	Low	High
221C:									
Typic Udipsamments, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Udipsamments	---	---	---	---	---	---	Low	Low	High
221D:									
Typic Udipsamments, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Udipsamments	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
221E:									
Typic Udipsamments, banded substratum-----	---	---	---	---	---	---	Low	Low	High
Lamellic Udipsamments--	---	---	---	---	---	---	Low	Low	High
221F:									
Typic Udipsamments, banded substratum-----	---	---	---	---	---	---	Low	Low	High
Lamellic Udipsamments--	---	---	---	---	---	---	Low	Low	High
222B:									
Typic Udipsamments, very deep water table	---	---	---	---	---	---	Low	Low	High
222C:									
Typic Udipsamments, very deep water table	---	---	---	---	---	---	Low	Low	High
223B:									
Lamellic Udipsamments--	---	---	---	---	---	---	Low	Low	High
Typic Udipsamments, banded substratum-----	---	---	---	---	---	---	Low	Low	High
223C:									
Lamellic Udipsamments--	---	---	---	---	---	---	Low	Low	High
Typic Udipsamments, banded substratum-----	---	---	---	---	---	---	Low	Low	High
224B:									
Oxyaquic Udipsamments--	---	---	---	---	---	---	Low	Low	Moderate
225B:									
Typic Udipsamments, loamy substratum------	---	---	---	---	---	---	Low	Low	High
225C:									
Typic Udipsamments, loamy substratum------	---	---	---	---	---	---	Low	Low	High
225D:									
Typic Udipsamments, loamy substratum------	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
230B:									
Entic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
230C:									
Entic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
230D:									
Entic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
230E:									
Entic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
230F:									
Entic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
231B:									
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
231C:									
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
231D:									
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
231E:									
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
232B:									
Entic Haplorthods, sandy, very deep water table	---	---	---	---	---	---	Low	Low	High
Lamellic Haplorthods, sandy, very deep water table	---	---	---	---	---	---	Low	Low	High
233B:									
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
233C:									
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
233D:									
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
233E:									
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
233E:									
Entic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
234B:									
Oxyaquic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	Moderate
235B:									
Alfic Haplorthods, sandy	---	---	---	---	---	---	Low	Moderate	Moderate
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
235C:									
Alfic Haplorthods, sandy	---	---	---	---	---	---	Low	Moderate	Moderate
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
235D:									
Alfic Haplorthods, sandy	---	---	---	---	---	---	Low	Moderate	Moderate
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
235E:									
Alfic Haplorthods, sandy	---	---	---	---	---	---	Low	Moderate	Moderate
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
235F:									
Alfic Haplorthods, sandy	---	---	---	---	---	---	Low	Moderate	Moderate
Lamellic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
237B:									
Glossudalfs, fine-loamy	---	---	---	---	---	---	Moderate	Low	Moderate
237C:									
Glossudalfs, fine-loamy	---	---	---	---	---	---	Moderate	Low	Moderate
237D:									
Glossudalfs, fine-loamy	---	---	---	---	---	---	Moderate	Low	Moderate
240B:									
Typic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
240C:									
Typic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
240D:									
Typic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
240E:									
Typic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
240F:									
Typic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
241B:									
Typic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Haplorthods, sandy, dark subsoil	---	---	---	---	---	---	Low	Low	High
241C:									
Typic Haplorthods, sandy, banded substratum	---	---	---	---	---	---	Low	Low	High
Lamellic Haplorthods, sandy, dark subsoil	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
242B:									
Typic Haplorthods, sandy, very deep water table	---	---	---	---	---	---	Low	Low	High
243C:									
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum	---	---	---	---	---	---	Low	Low	High
244B:									
Oxyaquic Haplorthods, sandy, dark subsoil	---	---	---	---	---	---	Low	Low	Moderate
245C:									
Typic Haplorthods, sandy, loamy substratum	---	---	---	---	---	---	Low	Low	High
Alfic Haplorthods, sandy, dark subsoil	---	---	---	---	---	---	Low	Moderate	Moderate
245D:									
Typic Haplorthods, sandy, loamy substratum	---	---	---	---	---	---	Low	Low	High
Alfic Haplorthods, sandy, dark subsoil	---	---	---	---	---	---	Low	Moderate	Moderate
245E:									
Typic Haplorthods, sandy, loamy substratum	---	---	---	---	---	---	Low	Low	High
Alfic Haplorthods, sandy, dark subsoil	---	---	---	---	---	---	Low	Moderate	Moderate
246B:									
Alfic Oxyaquic Haplorthods, sandy	---	---	---	---	---	---	Low	Low	High
Typic Haplorthods, sandy, loamy substratum	---	---	---	---	---	---	Low	Low	High

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
250:									
Typic Psammaquents-----	---	---	---	---	---	---	Moderate	High	High
Aquic Udipsamments-----	---	---	---	---	---	---	Low	Moderate	High
Haplosaprists, euic----	---	---	---	---	0-18	18-36	High	High	Moderate
252:									
Typic Endoaquods, sandy, wet----------	---	---	---	---	---	---	Moderate	Moderate	High
Haplosaprists, dysic---	---	---	---	---	0-18	18-36	High	High	High
253A:									
Typic Duraquods, sandy, ortstein----------	Ortstein	12-17	6-11	Moderately cemented	---	---	Moderate	High	High
Aquic Udipsamments-----	---	---	---	---	---	---	Low	Moderate	High
255B:									
Aquic Udipsamments-----	---	---	---	---	---	---	Low	Moderate	High
Oxyaquic Haplorthods, sandy----------	---	---	---	---	---	---	Low	Low	Moderate
257:									
Endoaquolls----------	---	---	---	---	---	---	High	High	Low
Haplosaprists, euic----	---	---	---	---	0-18	18-36	High	High	Moderate
Typic Psammaquents-----	---	---	---	---	---	---	Moderate	High	High
262A:									
Typic Duraquods, sandy, ortstein----------	Ortstein	12-17	6-11	Moderately cemented	---	---	Moderate	High	High
263B:									
Aquic Udipsamments-----	---	---	---	---	---	---	Low	Moderate	High
264A:									
Typic Endoaquods, sandy	---	---	---	---	---	---	Moderate	High	Moderate

Table 20.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	In		In	In			
272:									
Typic Endoaquods, sandy, wet	---	---	---	---	---	---	Moderate	Moderate	High
273:									
Typic Psammaquents	---	---	---	---	---	---	Moderate	High	High
274:									
Typic Epiaquolls, sandy over loamy	---	---	---	---	---	---	High	Moderate	Low
280:									
Aquents	---	---	---	---	---	---	High	---	---
Histosols	---	---	---	---	0-18	18-36	High	High	Moderate
281:									
Haplosaprists, dysic	---	---	---	---	0-18	18-36	High	High	High
282:									
Haplosaprists, euic	---	---	---	---	0-18	18-36	High	High	Moderate

Table 21.--Soil Moisture Status by Depth

(Depths of layers are in feet)

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
1. Beaches												
3A: Psamments, moderately wet	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.5: Moist 3.5-6.5: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.5: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-6.5: Wet	0.0-4.5: Moist 4.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---
Beaches.												
5F:												
Udorthents------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Udipsamments----	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
10B:												
Perrinton-------	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-6.5: Moist --- ---	0.0-1.0: Dry 1.0-6.5: Moist ---	0.0-1.5: Dry 1.5-6.5: Moist ---	0.0-6.5: Moist --- ---	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist
10C:												
Perrinton-------	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-6.5: Moist --- ---	0.0-1.0: Dry 1.0-6.5: Moist ---	0.0-1.5: Dry 1.5-6.5: Moist ---	0.0-6.5: Moist --- ---	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist	0.0-2.5: Moist 2.5-5.0: Wet 5.0-6.5: Moist

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
11A:												
Ithaca----------	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist	0.0-6.5: Moist --- ---	0.0-6.5: Moist --- ---	0.0-6.5: Moist --- ---	0.0-6.5: Moist --- ---	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist	0.0-0.5: Moist 0.5-2.0: Wet 2.0-6.5: Moist
13B:												
Marlette--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
13C:												
Marlette--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
14A:												
Capac----------	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet
15:												
Parkhill--------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
18B:												
Fern----------	0.0-6.5: Moist ---	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-2.0: Dry 2.0-6.5: Moist	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
18C:												
Fern----------	0.0-6.5: Moist ---	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-2.0: Dry 2.0-6.5: Moist	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
21B:												
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Tatches---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
25:												
Gorvan----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Houghton--------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Glendora--------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
29B:												
Fogg----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
29C:												
Fogg----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
29D:												
Fogg----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
29E:												
Fogg----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
29F:												
Fogg----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
32B:												
Fern----------	0.0-6.5: Moist ---	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-2.0: Dry 2.0-6.5: Moist	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
32C:												
Fern----------	0.0-6.5: Moist ---	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-2.0: Dry 2.0-6.5: Moist	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
36B:												
Fern----------	0.0-6.5: Moist ---	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-2.0: Dry 2.0-6.5: Moist	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
36C:												
Fern----------	0.0-6.5: Moist ---	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-2.0: Dry 2.0-6.5: Moist	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-6.5: Moist ---
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
38B:												
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
38C:												
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
38D:												
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
38E:												
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
43B:												
Thompsonville---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-1.5: Moist 1.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-4.0: Moist 4.0-6.5: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.5: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---
44A:												
Milnichol-------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
47B:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
47C:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
47D:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
47E:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
47F:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
52C:												
Copemish--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
52E:												
Copemish--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
53A:												
Saugatuck-------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
Jebavy----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
54B:												
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
54C:												
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
54D:												
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
54E:												
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
54F:												
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
55B:												
Brethren--------	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-4.0: Moist 4.0-6.5: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.5: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-6.5: Wet	0.0-3.5: Moist 3.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---
57B:												
Grattan---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
57C:												
Grattan---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
57D:												
Grattan---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
57E:												
Grattan---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
57F:												
Grattan---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
58B:												
Covert----------	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-4.0: Moist 4.0-6.5: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.5: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---
59B:												
Pipestone-------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet
60:												
Dair----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
63B:												
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
63C:												
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
63D:												
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
63E:												
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
63F:												
Coloma----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
64B:												
Benona----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
64C:												
Benona----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
64D:												
Benona----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
64E:												
Benona----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
64F:												
Benona----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
67B:												
Plainfield------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
67C:												
Plainfield------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
67E:												
Plainfield------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
67F:												
Plainfield------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
73:												
Houghton--------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Adrian----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
81:												
Lumley----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Makinen---------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
83:												
Histosols-------	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet
Aquents---------	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet
86D:												
Dune land.												
Quartzipsamments	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
86F:												
Dune land.												
Quartzipsamments	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
88B:												
Udipsamments----	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
91.												
Pits, sand and gravel												
96C:												
Goodharbor------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
100A:												
Dair----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
100A:												
Pipestone-------	0.0-1.5: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-0.5: Moist	0.0-1.0: Moist	0.0-2.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-2.5: Moist	0.0-1.0: Moist	0.0-1.0: Moist
	1.5-6.5: Wet	1.5-6.5: Wet	1.0-6.5: Wet	0.5-6.5: Wet	0.5-6.5: Wet	1.0-6.5: Wet	2.0-6.5: Wet	3.0-6.5: Wet	3.0-6.5: Wet	2.5-6.5: Wet	1.0-6.5: Wet	1.0-6.5: Wet
102A:												
Thompsonville---	0.0-3.0: Moist	0.0-2.5: Moist	0.0-2.0: Moist	0.0-1.5: Moist	0.0-3.0: Moist	0.0-4.0: Moist	0.0-1.0: Dry	0.0-2.0: Dry	0.0-4.0: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-3.0: Moist
	3.0-6.5: Wet	2.5-6.5: Wet	2.0-6.5: Wet	1.5-6.5: Wet	3.0-6.5: Wet	4.0-6.5: Wet	1.0-4.5: Moist	2.0-5.0: Moist	4.0-6.5: Wet	2.5-6.5: Wet	2.5-6.5: Wet	3.0-6.5: Wet
	---	---	---	---	---	---	4.5-6.5: Wet	5.0-6.5: Wet	---	---	---	---
Milnichol-------	0.0-1.5: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-1.0: Moist	0.0-2.0: Moist	0.0-3.0: Moist	0.0-2.5: Moist	0.0-2.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist
	1.5-6.5: Wet	1.5-6.5: Wet	1.0-6.5: Wet	1.0-6.5: Wet	0.5-6.5: Wet	1.0-6.5: Wet	2.0-6.5: Wet	3.0-6.5: Wet	2.5-6.5: Wet	2.0-6.5: Wet	1.0-6.5: Wet	1.0-6.5: Wet
104B:												
Covert----------	0.0-3.0: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-2.0: Moist	0.0-4.0: Moist	0.0-1.0: Dry	0.0-2.0: Dry	0.0-4.0: Moist	0.0-3.0: Moist	0.0-2.5: Moist	0.0-3.0: Moist
	3.0-6.5: Wet	2.5-6.5: Wet	2.5-6.5: Wet	2.5-6.5: Wet	2.0-6.5: Wet	4.0-6.5: Wet	1.0-4.5: Moist	2.0-5.0: Moist	4.0-6.5: Wet	3.0-6.5: Wet	2.5-6.5: Wet	3.0-6.5: Wet
	---	---	---	---	---	---	4.5-6.5: Wet	5.0-6.5: Wet	---	---	---	---
Pipestone-------	0.0-1.5: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-0.5: Moist	0.0-1.0: Moist	0.0-2.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-2.5: Moist	0.0-1.0: Moist	0.0-1.0: Moist
	1.5-6.5: Wet	1.5-6.5: Wet	1.0-6.5: Wet	0.5-6.5: Wet	0.5-6.5: Wet	1.0-6.5: Wet	2.0-6.5: Wet	3.0-6.5: Wet	3.0-6.5: Wet	2.5-6.5: Wet	1.0-6.5: Wet	1.0-6.5: Wet
106B:												
Covert----------	0.0-3.0: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-2.0: Moist	0.0-4.0: Moist	0.0-1.0: Dry	0.0-2.0: Dry	0.0-4.0: Moist	0.0-3.0: Moist	0.0-2.5: Moist	0.0-3.0: Moist
	3.0-6.5: Wet	2.5-6.5: Wet	2.5-6.5: Wet	2.5-6.5: Wet	2.0-6.5: Wet	4.0-6.5: Wet	1.0-4.5: Moist	2.0-5.0: Moist	4.0-6.5: Wet	3.0-6.5: Wet	2.5-6.5: Wet	3.0-6.5: Wet
	---	---	---	---	---	---	4.5-6.5: Wet	5.0-6.5: Wet	---	---	---	---
Dair----------	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-0.5: Moist	0.0-1.0: Moist	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet
	---	---	---	---	---	---	0.5-6.5: Wet	1.0-6.5: Wet	---	---	---	---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
107B:												
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
107C:												
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
107D:												
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
107E:												
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
107F:												
Benzonia--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
108A:												
Saugatuck-------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
109B:												
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
109C:												
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
109D:												
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
109E:												
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
109F:												
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
110B:												
Healylake-------	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.5: Moist 3.5-6.5: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.5: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---
111D:												
Onekama---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
111E:												
Onekama---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
111F:												
Onekama---------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
114B:												
Nordhouse-------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Platteriver-----	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-1.5: Moist 1.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.5: Moist 3.5-6.5: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.5: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-6.5: Wet	0.0-4.5: Moist 4.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---
Dair----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
115B:												
Nordhouse-------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
115D:												
Nordhouse-------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
115F:												
Nordhouse-------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
118B:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
118C:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
118D:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
118E:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
118F:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
119:												
Madaus----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
120B:												
Boyer----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
120C:												
Boyer----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
120D:												
Boyer----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
120E:												
Boyer----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
120E:												
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
120F:												
Boyer----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Shavenaugh------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
122:												
Dair----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Adrian----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
123B:												
Platteriver-----	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-1.5: Moist 1.5-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.5: Moist 3.5-6.5: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-6.5: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-6.5: Wet	0.0-4.5: Moist 4.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---	0.0-2.5: Moist 2.5-6.5: Wet ---	0.0-3.0: Moist 3.0-6.5: Wet ---
Pipestone-------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet
125B:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
125B:												
Tekenink--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
125C:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Tekenink--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
125D:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Tekenink--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
125E:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Tekenink--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
125F:												
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
125F:												
Tekenink--------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
126D:												
Filer----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
126E:												
Filer----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
127B:												
Kaleva----------	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.5: Moist 5.5-6.5: Wet ---	0.0-2.0: Dry 2.0-5.5: Moist 5.5-6.5: Wet	0.0-3.0: Dry 3.0-5.5: Moist 5.5-6.5: Wet	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.0: Moist 5.0-6.5: Wet ---	0.0-5.0: Moist 5.0-6.5: Wet ---
130A:												
Glendora--------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Algansee--------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
Abscota---------	0.0-3.5: Moist 3.5-6.5: Wet	0.0-3.5: Moist 3.5-6.5: Wet	0.0-3.5: Moist 3.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-5.0: Moist 5.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-3.5: Moist 3.5-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-3.5: Moist 3.5-6.5: Wet	0.0-3.5: Moist 3.5-6.5: Wet
131A:												
Milarch---------	0.0-4.5: Moist 4.5-6.5: Wet	0.0-4.5: Moist 4.5-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.0: Dry 1.0-6.5: Moist	0.0-4.0: Moist 4.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-3.5: Moist 3.5-6.5: Wet	0.0-4.0: Moist 4.0-6.5: Wet

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
132A:												
Milnichol-------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.5: Moist 2.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet
Dair----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
135B:												
Nessen----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
135C:												
Nessen----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
136B:												
Nessen----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
136C:												
Nessen----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
136D:												
Nessen----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
136E:												
Nessen----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Kaleva----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
138D:												
Mollineaux------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
138E:												
Mollineaux------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Spinks----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-2.0: Dry 2.0-6.5: Moist	0.0-3.0: Dry 3.0-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
139D:												
Mollineaux------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
139E:												
Mollineaux------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
Remus----------	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-1.0: Dry 1.0-6.5: Moist	0.0-1.5: Dry 1.5-6.5: Moist	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---	0.0-6.5: Moist ---
210B:												
Plainfield------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
210C:												
Plainfield------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
210D:												
Plainfield------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
211B:												
Plainfield------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
212B: Plainfield, very deep water table----------	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-2.0: Dry 2.0-6.0: Moist 6.0-11.0: Wet	0.0-3.0: Dry 3.0-6.0: Moist 6.0-11.0: Wet	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---	0.0-6.0: Moist 6.0-11.0: Wet ---
215B: Plainfield------	0.0-11.5: Moist ---	0.0-11.5: Moist ---	0.0-11.5: Moist ---	0.0-11.5: Moist ---	0.0-11.5: Moist ---	0.0-11.5: Moist ---	0.0-2.0: Dry 2.0-11.5: Moist	0.0-3.0: Dry 3.0-11.5: Moist	0.0-11.5: Moist ---	0.0-11.5: Moist ---	0.0-11.5: Moist ---	0.0-11.5: Moist ---
220B: Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
220C: Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
220D: Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
220E: Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
220F:												
Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
221B:												
Typic Udipsamments---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-2.0: Dry 2.0-11.0: Moist	0.0-3.0: Dry 3.0-11.0: Moist	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---
Lamellic Udipsamments---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-2.0: Dry 2.0-8.0: Moist	0.0-3.0: Dry 3.0-8.0: Moist	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---
221C:												
Typic Udipsamments---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-2.0: Dry 2.0-11.0: Moist	0.0-3.0: Dry 3.0-11.0: Moist	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---
Lamellic Udipsamments---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-2.0: Dry 2.0-8.0: Moist	0.0-3.0: Dry 3.0-8.0: Moist	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---
221D:												
Typic Udipsamments---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-2.0: Dry 2.0-11.0: Moist	0.0-3.0: Dry 3.0-11.0: Moist	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---
Lamellic Udipsamments---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-2.0: Dry 2.0-8.0: Moist	0.0-3.0: Dry 3.0-8.0: Moist	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
221E:												
Typic Udipsamments---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-2.0: Dry 2.0-11.0: Moist	0.0-3.0: Dry 3.0-11.0: Moist	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---
Lamellic Udipsamments---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-2.0: Dry 2.0-8.0: Moist	0.0-3.0: Dry 3.0-8.0: Moist	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---
221F:												
Typic Udipsamments---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-2.0: Dry 2.0-11.0: Moist	0.0-3.0: Dry 3.0-11.0: Moist	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---
Lamellic Udipsamments---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-2.0: Dry 2.0-8.0: Moist	0.0-3.0: Dry 3.0-8.0: Moist	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---
222B:												
Typic Udipsamments, very deep water table----------	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-2.0: Dry 2.0-6.0: Moist 6.0-7.0: Wet	0.0-3.0: Dry 3.0-6.0: Moist 6.0-7.0: Wet	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---
222C:												
Typic Udipsamments, very deep water table----------	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-2.0: Dry 2.0-6.0: Moist 6.0-7.0: Wet	0.0-3.0: Dry 3.0-6.0: Moist 6.0-7.0: Wet	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---	0.0-6.0: Moist 6.0-7.0: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
223B:												
Lamellic Udipsamments---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-2.0: Dry 2.0-8.0: Moist	0.0-3.0: Dry 3.0-8.0: Moist	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---
Typic Udipsamments---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-2.0: Dry 2.0-11.0: Moist	0.0-3.0: Dry 3.0-11.0: Moist	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---
223C:												
Lamellic Udipsamments---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-2.0: Dry 2.0-8.0: Moist	0.0-3.0: Dry 3.0-8.0: Moist	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---	0.0-8.0: Moist ---
Typic Udipsamments---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-2.0: Dry 2.0-11.0: Moist	0.0-3.0: Dry 3.0-11.0: Moist	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---	0.0-11.0: Moist ---
224B:												
Oxyaquic Udipsamments---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-4.0: Moist 4.0-7.0: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-7.0: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-7.0: Wet	0.0-3.5: Moist 3.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---
225B:												
Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
225C: Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
225D: Typic Udipsamments---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
230B: Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
230C: Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
230D: Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
230E: Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
230F:												
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
231B:												
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
231C:												
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
231D:												
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
231D:												
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
231E:												
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
232B:												
Entic Haplorthods, sandy, very deep water table----------	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-1.0: Dry 1.0-6.0: Moist 6.0-15.0: Wet	0.0-2.0: Dry 2.0-6.0: Moist 6.0-15.0: Wet	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---	0.0-6.0: Moist 6.0-15.0: Wet ---
Lamellic Haplorthods, sandy, very deep water table----------	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-2.0: Dry 2.0-6.0: Moist 6.0-9.5: Wet	0.0-3.0: Dry 3.0-6.0: Moist 6.0-9.5: Wet	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---	0.0-6.0: Moist 6.0-9.5: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
233B:												
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
233C:												
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
233D:												
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
233E:												
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Entic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
234B:												
Oxyaquic Haplorthods, sandy----------	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-4.0: Moist 4.0-7.0: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-7.0: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-7.0: Wet	0.0-3.5: Moist 3.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---
235B:												
Alfic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
235C:												
Alfic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
235C:												
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
235D:												
Alfic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
235E:												
Alfic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
235F:												
Alfic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
235F: Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
237B: Glossudalfs, fine-loamy-----	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-1.0: Dry 1.0-5.0: Moist	0.0-1.5: Dry 1.5-5.0: Moist	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---
237C: Glossudalfs, fine-loamy-----	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-1.0: Dry 1.0-5.0: Moist	0.0-1.5: Dry 1.5-5.0: Moist	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---
237D: Glossudalfs, fine-loamy-----	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-1.0: Dry 1.0-5.0: Moist	0.0-1.5: Dry 1.5-5.0: Moist	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---	0.0-5.0: Moist ---
240B: Typic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
240C: Typic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
240D:												
Typic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
240E:												
Typic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
240F:												
Typic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
241B:												
Typic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
241C:												
Typic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
241C: Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
242B: Typic Haplorthods, sandy----------	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-2.0: Dry 2.0-6.0: Moist 6.0-9.0: Wet	0.0-3.0: Dry 3.0-6.0: Moist 6.0-9.0: Wet	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---	0.0-6.0: Moist 6.0-9.0: Wet ---
243C: Lamellic Haplorthods, sandy----------	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-2.0: Dry 2.0-15.0: Moist	0.0-3.0: Dry 3.0-15.0: Moist	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---	0.0-15.0: Moist ---
244B: Oxyaquic Haplorthods, sandy----------	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-4.0: Moist 4.0-7.0: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-7.0: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-7.0: Wet	0.0-3.5: Moist 3.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---
245C: Typic Haplorthods, sandy----------	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-2.0: Dry 2.0-8.5: Moist	0.0-3.0: Dry 3.0-8.5: Moist	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
245C:												
Alfic Haplorthods, sandy----------	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-2.0: Dry 2.0-7.0: Moist	0.0-3.0: Dry 3.0-7.0: Moist	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---
245D:												
Typic Haplorthods, sandy----------	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-2.0: Dry 2.0-8.5: Moist	0.0-3.0: Dry 3.0-8.5: Moist	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---
Alfic Haplorthods, sandy----------	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-2.0: Dry 2.0-7.0: Moist	0.0-3.0: Dry 3.0-7.0: Moist	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---
245E:												
Typic Haplorthods, sandy----------	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-2.0: Dry 2.0-8.5: Moist	0.0-3.0: Dry 3.0-8.5: Moist	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---
Alfic Haplorthods, sandy----------	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-2.0: Dry 2.0-7.0: Moist	0.0-3.0: Dry 3.0-7.0: Moist	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---	0.0-7.0: Moist ---
246B:												
Alfic Oxyaquic Haplorthods, sandy----------	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.5: Moist 3.5-7.0: Wet ---	0.0-0.5: Dry 0.5-5.0: Moist 5.0-7.0: Wet	0.0-1.0: Dry 1.0-5.0: Moist 5.0-7.0: Wet	0.0-3.5: Moist 3.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
246B:												
Typic Haplorthods, sandy----------	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-2.0: Dry 2.0-8.5: Moist	0.0-3.0: Dry 3.0-8.5: Moist	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---	0.0-8.5: Moist ---
250:												
Typic Psammaquents---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Aquic Udipsamments---	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
Haplosaprists, euic----------	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-0.5: Moist 0.5-7.0: Wet	0.0-0.5: Moist 0.5-7.0: Wet	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---
252:												
Typic Endoaquods, sandy, wet-----	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Haplosaprists, dysic----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
253A:												
Typic Duraquods, sandy, ortstein	0.0-1.5: Moist 1.5-6.5: Wet ---	0.0-1.5: Moist 1.5-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-1.5: Moist 1.5-6.5: Wet ---
Aquic Udipsamments---	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
255B:												
Aquic Udipsamments---	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
Oxyaquic Haplorthods, sandy----------	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---	0.0-4.0: Moist 4.0-7.0: Wet ---	0.0-1.0: Dry 1.0-4.5: Moist 4.5-7.0: Wet	0.0-2.0: Dry 2.0-5.0: Moist 5.0-7.0: Wet	0.0-3.5: Moist 3.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-2.5: Moist 2.5-7.0: Wet ---	0.0-3.0: Moist 3.0-7.0: Wet ---
257:												
Endoaquolls-----	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
Haplosaprists, euic----------	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-0.5: Moist 0.5-7.0: Wet	0.0-0.5: Moist 0.5-7.0: Wet	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
257: Typic Psammaquents---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
262A: Typic Duraquods, sandy, ortstein	0.0-1.5: Moist 1.5-6.5: Wet ---	0.0-1.5: Moist 1.5-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-0.5: Dry 0.5-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-1.0: Moist 1.0-6.5: Wet ---	0.0-1.5: Moist 1.5-6.5: Wet ---
263B: Aquic Udipsamments---	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
264A: Typic Endoaquods, sandy----------	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-3.0: Moist 3.0-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet
272: Typic Endoaquods, sandy, wet-----	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.0: Moist 1.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
273: Typic Psammaquents---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-1.5: Moist 1.5-6.5: Wet	0.0-2.0: Moist 2.0-6.5: Wet	0.0-1.0: Moist 1.0-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and soil name	January	February	March	April	May	June	July	August	September	October	November	December
274:												
Typic Epiaquolls, sandy over loamy----------	0.0-5.0: Wet ---	0.0-5.0: Wet ---	0.0-5.0: Wet ---	0.0-5.0: Wet ---	0.0-5.0: Wet ---	0.0-1.0: Moist 1.0-5.0: Wet	0.0-1.5: Moist 1.5-5.0: Wet	0.0-2.0: Moist 2.0-5.0: Wet	0.0-1.0: Moist 1.0-5.0: Wet	0.0-5.0: Wet ---	0.0-5.0: Wet ---	0.0-5.0: Wet ---
280:												
Aquents---------	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet
Histosols-------	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet	0.0-6.5: Wet
281:												
Haplosaprists, dysic----------	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-0.5: Moist 0.5-6.5: Wet	0.0-0.5: Moist 0.5-6.5: Wet	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---	0.0-6.5: Wet ---
282:												
Haplosaprists, euic----------	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-0.5: Moist 0.5-7.0: Wet	0.0-0.5: Moist 0.5-7.0: Wet	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---	0.0-7.0: Wet ---

Table 22.--Water Features

(See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. 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	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
1.										
Beaches										
3A:										
Psamments, moderately wet	---	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Mar	2.5	>6.5	Apparent	---	---	None	---	None
		Apr	2.0	>6.5	Apparent	---	---	None	---	None
		May	2.5	>6.5	Apparent	---	---	None	---	None
		Jun	3.5	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.5	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
Beaches.										
5F:										
Udorthents	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
10B:										
Perrinton	C	Jan-May	2.5	5.0	Perched	---	---	None	---	None
		Jun-Sep	>6.5	>6.5	---	---	---	None	---	None
		Oct-Dec	2.5	5.0	Perched	---	---	None	---	None
10C:										
Perrinton	C	Jan-May	2.5	5.0	Perched	---	---	None	---	None
		Jun-Sep	>6.5	>6.5	---	---	---	None	---	None
		Oct-Dec	2.5	5.0	Perched	---	---	None	---	None
11A:										
Ithaca	C	Jan-May	0.5	2.0	Perched	---	---	None	---	None
		Jun-Sep	>6.5	>6.5	---	---	---	None	---	None
		Oct-Dec	0.5	2.0	Perched	---	---	None	---	None
13B:										
Marlette	B	Jan-Feb	>6.5	>6.5	---	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun-Sep	>6.5	>6.5	---	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None
13C:										
Marlette	B	Jan-Feb	>6.5	>6.5	---	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun-Sep	>6.5	>6.5	---	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
14A:										
Capac----------	C	Jan-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	2.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	1.5	>6.5	Apparent	---	---	None	---	None
		Oct-Dec	0.5	>6.5	Apparent	---	---	None	---	None
15:										
Parkhill----------	B/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	1.5	>6.5	Apparent	---	---	None	---	None
		Aug	2.0	>6.5	Apparent	---	---	None	---	None
		Sep	1.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
18B:										
Fern----------	B	Jan	>6.5	>6.5	---	---	---	None	---	None
		Feb	3.0	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
18C:										
Fern----------	B	Jan	>6.5	>6.5	---	---	---	None	---	None
		Feb	3.0	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
21B:										
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Tatches----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
25:										
Gorvan----------	B/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	Brief	Occasional
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Occasional
		Dec	0.0	>6.5	Apparent	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
25:										
Houghton	B/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	Brief	Occasional
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Occasional
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
Glendora	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	Brief	Occasional
		Mar-May	0.0	>6.5	Apparent	0.0-0.5	Long	Frequent	Long	Frequent
		Jun	0.0	>6.5	Apparent	0.0-0.5	Long	Frequent	---	None
		Jul-Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-0.5	Long	Frequent	Brief	Occasional
		Dec	0.0	>6.5	Apparent	---	---	None	Brief	Occasional
29B:										
Fogg	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Benzonia	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
29C:										
Fogg	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Benzonia	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
29D:										
Fogg	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Benzonia	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
29E:										
Fogg	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Benzonia	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
29F:										
Fogg	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Benzonia	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
32B:										
Fern	B	Jan	>6.5	>6.5	---	---	---	None	---	None
		Feb	3.0	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
32C:										
Fern	B	Jan	>6.5	>6.5	---	---	---	None	---	None
		Feb	3.0	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None
36B:										
Fern	B	Jan	>6.5	>6.5	---	---	---	None	---	None
		Feb	3.0	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None
Remus	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
36C:										
Fern	B	Jan	>6.5	>6.5	---	---	---	None	---	None
		Feb	3.0	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	>6.5	>6.5	---	---	---	None	---	None
Remus	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
38B:										
Remus	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
38C:										
Remus	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
38D:										
Remus	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
38E:										
Remus	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
43B:										
Thompsonville---------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb	2.5	>6.5	Apparent	---	---	None	---	None
		Mar	2.0	>6.5	Apparent	---	---	None	---	None
		Apr	1.5	>6.5	Apparent	---	---	None	---	None
		May	3.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
44A:										
Milnichol----------	B	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	1.0	>6.5	Apparent	---	---	None	---	None
		May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.5	>6.5	Apparent	---	---	None	---	None
		Oct	2.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.5	Apparent	---	---	None	---	None
47B:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
47C:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
47D:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
47E:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
47F:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
52C:										
Copemish----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
52E:										
Copemish----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
53A:										
Saugatuck----------	C	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.5	>6.5	Apparent	---	---	None	---	None
		Aug-Sep	3.0	>6.5	Apparent	---	---	None	---	None
		Oct	2.5	>6.5	Apparent	---	---	None	---	None
		Nov	1.0	>6.5	Apparent	---	---	None	---	None
		Dec	1.5	>6.5	Apparent	---	---	None	---	None
Jebavy----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.5	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
54B:										
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
54C:										
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
54D:										
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
54E:										
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
54F:										
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
55B:										
Brethren----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	3.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	3.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
57B:										
Grattan----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
57C:										
Grattan----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
57D:										
Grattan----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
57E:										
Grattan----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
57F:										
Grattan----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
58B:										
Covert----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
59B:										
Pipestone----------	B	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug-Sep	3.0	>6.5	Apparent	---	---	None	---	None
		Oct	2.5	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.5	Apparent	---	---	None	---	None
60:										
Dair----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
63B:										
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
63C:										
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
63D:										
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
63E:										
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
63F:										
Coloma----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
64B:										
Benona----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
64C:										
Benona----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
64D:										
Benona----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
64E:										
Benona----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
64F:										
Benona----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
67B:										
Plainfield----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
67C:										
Plainfield----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
67E:										
Plainfield----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
67F:										
Plainfield----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
73:										
Houghton----------	B/D	Jan-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
Adrian----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
81:										
Lumley----------	A/D	Jan-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul-Aug	0.5	>6.5	Apparent	---	---	None	---	None
		Sep-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
Makinen----------	A/D	Jan-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul-Aug	0.5	>6.5	Apparent	---	---	None	---	None
		Sep-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
83:										
Histosols----------	D	Jan-Dec	0.0	>6.5	Apparent	0.0-1.0	Very long	Frequent	---	None
Aquents----------	D	Jan-Dec	0.0	>6.5	Apparent	0.0-1.0	Very long	Frequent	---	None
86D:										
Dune land.										
Quartzipsamments------	---	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
86F:										
Dune land.										
Quartzipsamments------	---	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
88B:										
Udipsamments----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
91.										
Pits, sand and gravel										
96C:										
Goodharbor----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
100A:										
Dair----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
Pipestone----------	B	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug-Sep	3.0	>6.5	Apparent	---	---	None	---	None
		Oct	2.5	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.5	Apparent	---	---	None	---	None
102A:										
Thompsonville---------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb	2.5	>6.5	Apparent	---	---	None	---	None
		Mar	2.0	>6.5	Apparent	---	---	None	---	None
		Apr	1.5	>6.5	Apparent	---	---	None	---	None
		May	3.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
Milnichol----------	B	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	1.0	>6.5	Apparent	---	---	None	---	None
		May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.5	>6.5	Apparent	---	---	None	---	None
		Oct	2.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.5	Apparent	---	---	None	---	None
104B:										
Covert----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
Pipestone----------	B	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug-Sep	3.0	>6.5	Apparent	---	---	None	---	None
		Oct	2.5	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.5	Apparent	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
106B:										
Covert----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
Dair----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
107B:										
Benzonia----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
107C:										
Benzonia----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
107D:										
Benzonia----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
107E:										
Benzonia----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
107F:										
Benzonia----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
108A:										
Saugatuck----------	C	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.5	>6.5	Apparent	---	---	None	---	None
		Aug-Sep	3.0	>6.5	Apparent	---	---	None	---	None
		Oct	2.5	>6.5	Apparent	---	---	None	---	None
		Nov	1.0	>6.5	Apparent	---	---	None	---	None
		Dec	1.5	>6.5	Apparent	---	---	None	---	None
109B:										
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
109C:										
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
109D:										
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
109E:										
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
109F:										
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
110B:										
Healylake----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Mar	2.5	>6.5	Apparent	---	---	None	---	None
		Apr	2.0	>6.5	Apparent	---	---	None	---	None
		May	2.5	>6.5	Apparent	---	---	None	---	None
		Jun	3.5	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
111D:										
Onekama----------	C	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
111E:										
Onekama----------	C	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
111F:										
Onekama----------	C	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
114B:										
Nordhouse----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Platteriver----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb	2.5	>6.5	Apparent	---	---	None	---	None
		Mar	2.0	>6.5	Apparent	---	---	None	---	None
		Apr	1.5	>6.5	Apparent	---	---	None	---	None
		May	2.5	>6.5	Apparent	---	---	None	---	None
		Jun	3.5	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.5	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
Dair----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
115B:										
Nordhouse----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
115D:										
Nordhouse----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
115F:										
Nordhouse----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
118B:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
118C:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
118D:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
118E:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
118F:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
119:										
Madaus----------	B/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
120B:										
Boyer----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
120C:										
Boyer----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
120D:										
Boyer----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
120E:										
Boyer----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
120F:										
Boyer----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Shavenaugh----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
122:										
Dair	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
Adrian	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
123B:										
Platteriver	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb	2.5	>6.5	Apparent	---	---	None	---	None
		Mar	2.0	>6.5	Apparent	---	---	None	---	None
		Apr	1.5	>6.5	Apparent	---	---	None	---	None
		May	2.5	>6.5	Apparent	---	---	None	---	None
		Jun	3.5	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	4.5	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
Pipestone	B	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug-Sep	3.0	>6.5	Apparent	---	---	None	---	None
		Oct	2.5	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.5	Apparent	---	---	None	---	None
125B:										
Spinks	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Tekenink, sandy substratum	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
125C:										
Spinks	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Tekenink, sandy substratum	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
125D:										
Spinks	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Tekenink, sandy substratum	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
125E:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Tekenink, sandy substratum----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
125F:										
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Tekenink, sandy substratum----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
126D:										
Filer----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
126E:										
Filer----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
127B:										
Kaleva, deep water table----------	A	Jan-May	5.0	>6.5	Apparent	---	---	None	---	None
		Jun-Aug	5.5	>6.5	Apparent	---	---	None	---	None
		Sep-Dec	5.0	>6.5	Apparent	---	---	None	---	None
130A:										
Glendora----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	Brief	Occasional
		Mar-May	0.0	>6.5	Apparent	0.0-0.5	Long	Frequent	Long	Frequent
		Jun	0.0	>6.5	Apparent	0.0-0.5	Long	Frequent	---	None
		Jul-Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-0.5	Long	Frequent	Brief	Occasional
		Dec	0.0	>6.5	Apparent	---	---	None	Brief	Occasional
Algansee----------	C	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	Long	Occasional
		Apr-May	0.5	>6.5	Apparent	---	---	None	Long	Occasional
		Jun	2.5	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.5	Apparent	---	---	None	---	None
		Dec	1.5	>6.5	Apparent	---	---	None	---	None
Abscota----------	B	Jan-Feb	3.5	>6.5	Apparent	---	---	None	---	None
		Mar	3.5	>6.5	Apparent	---	---	None	Brief	Occasional
		Apr-May	2.5	>6.5	Apparent	---	---	None	Brief	Occasional
		Jun	4.0	>6.5	Apparent	---	---	None	Brief	Rare
		Jul	5.0	>6.5	Apparent	---	---	None	---	None
		Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	3.5	>6.5	Apparent	---	---	None	---	None
		Oct	2.5	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	3.5	>6.5	Apparent	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
131A:										
Milarch----------	B	Jan-Feb	4.5	>6.5	Apparent	---	---	None	---	None
		Mar	4.0	>6.5	Apparent	---	---	None	---	None
		Apr	3.0	>6.5	Apparent	---	---	None	---	None
		May	2.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	>6.5	>6.5	---	---	---	None	---	None
		Sep	4.0	>6.5	Apparent	---	---	None	---	None
		Oct	3.0	>6.5	Apparent	---	---	None	---	None
		Nov	3.5	>6.5	Apparent	---	---	None	---	None
		Dec	4.0	>6.5	Apparent	---	---	None	---	None
132A:										
Milnichol----------	B	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar-Apr	1.0	>6.5	Apparent	---	---	None	---	None
		May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.5	>6.5	Apparent	---	---	None	---	None
		Oct	2.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.0	>6.5	Apparent	---	---	None	---	None
Dair----------	A/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Dec	0.0	>6.5	Apparent	---	---	None	---	None
135B:										
Nessen----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
135C:										
Nessen----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
136B:										
Nessen----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
136C:										
Nessen----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
136D:										
Nessen----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
136E:										
Nessen----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Kaleva----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
138D:										
Mollineaux----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
138E:										
Mollineaux----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Spinks----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
139D:										
Mollineaux----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Remus----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
139E:										
Mollineaux----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Remus----------	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
210B:										
Plainfield----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
210C:										
Plainfield----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
210D:										
Plainfield----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
211B:										
Plainfield, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
212B:										
Plainfield, very deep water table----------	A	Jan-Dec	6.0	>6.5	Apparent	---	---	None	---	None
215B:										
Plainfield, loamy substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
220B:										
Typic Udipsamments----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
220C:										
Typic Udipsamments----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
220D:										
Typic Udipsamments----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
220E:										
Typic Udipsamments----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
220F:										
Typic Udipsamments----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
221B:										
Typic Udipsamments, banded substratum----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
221C:										
Typic Udipsamments, banded substratum----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
221D:										
Typic Udipsamments, banded substratum----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
221E:										
Typic Udipsamments, banded substratum----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
221F:										
Typic Udipsamments, banded substratum----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
222B:										
Typic Udipsamments, very deep water table	A	Jan-Dec	6.0	>6.5	Apparent	---	---	None	---	None
222C:										
Typic Udipsamments, very deep water table	A	Jan-Dec	6.0	>6.5	Apparent	---	---	None	---	None
223B:										
Lamellic Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Typic Udipsamments, banded substratum----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
223C:										
Lamellic Udipsamments	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Typic Udipsamments, banded substratum----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
224B:										
Oxyaquic Udipsamments	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	3.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	3.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
225B:										
Typic Udipsamments, loamy substratum-----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
225C:										
Typic Udipsamments, loamy substratum-----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
225D:										
Typic Udipsamments, loamy substratum-----	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
230B:										
Entic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
230C:										
Entic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
230D:										
Entic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
230E:										
Entic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
230F:										
Entic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
231B:										
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
231C:										
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
231D:										
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
231E:										
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
232B:										
Entic Haplorthods, sandy, very deep water table----------	A	Jan-Dec	6.5	>6.5	Apparent	---	---	None	---	None
Lamellic Haplorthods, sandy, very deep water table----------	A	Jan-Dec	6.5	>6.5	Apparent	---	---	None	---	None
233B:										
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
233C:										
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
233D:										
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
233E:										
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Entic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
234B:										
Oxyaquic Haplorthods, sandy----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	3.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	3.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
235B:										
Alfic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
235C:										
Alfic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
235D:										
Alfic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
235E:										
Alfic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
235F:										
Alfic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
237B:										
Glossudalfs, fine-loamy	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
237C:										
Glossudalfs, fine-loamy	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
237D:										
Glossudalfs, fine-loamy	B	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
240B:										
Typic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
240C:										
Typic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
240D:										
Typic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
240E:										
Typic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
240F:										
Typic Haplorthods, sandy	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
241B:										
Typic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy, dark subsoil--	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
241C:										
Typic Haplorthods, sandy, banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Lamellic Haplorthods, sandy, dark subsoil--	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
242B:										
Typic Haplorthods, sandy, very deep water table----------	A	Jan-Dec	6.5	>6.5	Apparent	---	---	None	---	None
243C:										
Lamellic Haplorthods, sandy, dark subsoil, fine-loamy banded substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
244B:										
Oxyaquic Haplorthods, sandy, dark subsoil--	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	3.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	3.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
245C:										
Typic Haplorthods, sandy, loamy substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Alfic Haplorthods, sandy, dark subsoil--	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
245D:										
Typic Haplorthods, sandy, loamy substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Alfic Haplorthods, sandy, dark subsoil--	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
245E:										
Typic Haplorthods, sandy, loamy substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
Alfic Haplorthods, sandy, dark subsoil--	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
246B:										
Alfic Oxyaquic Haplorthods, sandy---	A	Jan-Mar	3.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	2.5	>6.5	Apparent	---	---	None	---	None
		Jun	3.5	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	3.5	>6.5	Apparent	---	---	None	---	None
		Oct-Dec	3.0	>6.5	Apparent	---	---	None	---	None
Typic Haplorthods, sandy, loamy substratum----------	A	Jan-Dec	>6.5	>6.5	---	---	---	None	---	None
250:										
Typic Psammaquents----	D	Jan-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jun	0.5	>6.5	Apparent	---	---	None	---	None
		Jul	1.5	>6.5	Apparent	---	---	None	---	None
		Aug	2.0	>6.5	Apparent	---	---	None	---	None
		Sep	1.0	>6.5	Apparent	---	---	None	---	None
		Oct-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
Aquic Udipsamments----	A	Jan-Feb	1.5	>6.5	Apparent	---	---	None	Brief	Frequent
		Mar	1.0	>6.5	Apparent	---	---	None	Brief	Frequent
		Apr-May	0.5	>6.5	Apparent	---	---	None	Brief	Frequent
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.5	Apparent	---	---	None	Brief	Frequent
		Dec	1.5	>6.5	Apparent	---	---	None	Brief	Frequent
Haplosaprists, euic---	D	Jan-Feb	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul-Aug	0.5	>6.5	Apparent	---	---	---	---	None
		Sep-Oct	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Nov-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
252:										
Typic Endoaquods, sandy, wet----------	D	Jan-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.5	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	1.5	>6.5	Apparent	---	---	None	---	None
		Sep	1.0	>6.5	Apparent	---	---	None	---	None
		Oct	0.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
Haplosaprists, dysic--	D	Jan-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul-Aug	0.5	>6.5	Apparent	---	---	---	---	None
		Sep-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
253A:										
Typic Duraquods, sandy, ortstein------	C	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.5	Apparent	---	---	None	---	None
		Dec	1.5	>6.5	Apparent	---	---	None	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
253A:										
Aquic Udipsamments----	A	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct	1.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.5	>6.5	Apparent	---	---	None	---	None
255B:										
Aquic Udipsamments----	A	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct	1.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.5	>6.5	Apparent	---	---	None	---	None
Oxyaquic Haplorthods, sandy----------	A	Jan	3.0	>6.5	Apparent	---	---	None	---	None
		Feb-Apr	2.5	>6.5	Apparent	---	---	None	---	None
		May	3.0	>6.5	Apparent	---	---	None	---	None
		Jun	4.0	>6.5	Apparent	---	---	None	---	None
		Jul	4.5	>6.5	Apparent	---	---	None	---	None
		Aug	5.0	>6.5	Apparent	---	---	None	---	None
		Sep	3.5	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	2.5	>6.5	Apparent	---	---	None	---	None
		Dec	3.0	>6.5	Apparent	---	---	None	---	None
257:										
Endoaquolls----------	B/D	Jan-Feb	0.0	>6.5	Apparent	---	---	None	Brief	Occasional
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jun	0.0	>6.5	Apparent	---	---	None	---	None
		Jul	0.5	>6.5	Apparent	---	---	None	---	None
		Aug	1.0	>6.5	Apparent	---	---	None	---	None
		Sep	0.0	>6.5	Apparent	---	---	None	---	None
		Oct	0.0	>6.5	Apparent	0.0-1.0	Brief	Frequent	---	None
		Nov-Dec	0.0	>6.5	Apparent	0.0-1.0	Brief	Frequent	Brief	Occasional
Haplosaprists, euic---	D	Jan-Feb	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Mar-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul-Aug	0.5	>6.5	Apparent	---	---	---	---	None
		Sep-Oct	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Nov-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
Typic Psammaquents----	D	Jan-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent
		Jun	0.5	>6.5	Apparent	---	---	None	---	None
		Jul	1.5	>6.5	Apparent	---	---	None	---	None
		Aug	2.0	>6.5	Apparent	---	---	None	---	None
		Sep	1.0	>6.5	Apparent	---	---	None	---	None
		Oct-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	Long	Frequent

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
262A:										
Typic Duraquods,										
sandy, ortstein------	C	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.5	Apparent	---	---	None	---	None
		Dec	1.5	>6.5	Apparent	---	---	None	---	None
263B:										
Aquic Udipsamments----	A	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct	1.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	1.5	>6.5	Apparent	---	---	None	---	None
264A:										
Typic Endoaquods,										
sandy----------	C	Jan-Feb	1.5	>6.5	Apparent	---	---	None	---	None
		Mar	1.0	>6.5	Apparent	---	---	None	---	None
		Apr-May	0.5	>6.5	Apparent	---	---	None	---	None
		Jun	1.0	>6.5	Apparent	---	---	None	---	None
		Jul	2.0	>6.5	Apparent	---	---	None	---	None
		Aug	3.0	>6.5	Apparent	---	---	None	---	None
		Sep	2.0	>6.5	Apparent	---	---	None	---	None
		Oct-Nov	1.0	>6.5	Apparent	---	---	None	---	None
		Dec	1.5	>6.5	Apparent	---	---	None	---	None
272:										
Typic Endoaquods,										
sandy, wet----------	D	Jan-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.5	>6.5	Apparent	---	---	None	---	None
		Jul-Aug	1.5	>6.5	Apparent	---	---	None	---	None
		Sep	1.0	>6.5	Apparent	---	---	None	---	None
		Oct	0.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
273:										
Typic Psammaquents----	D	Jan-May	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jun	0.5	>6.5	Apparent	---	---	None	---	None
		Jul	1.5	>6.5	Apparent	---	---	None	---	None
		Aug	2.0	>6.5	Apparent	---	---	None	---	None
		Sep	1.0	>6.5	Apparent	---	---	None	---	None
		Oct	0.0	>6.5	Apparent	---	---	None	---	None
		Nov-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
274:										
Typic Epiaquolls,										
sandy over loamy-----	D	Jan-May	0.0	5.0	Perched	0.0-1.0	Long	Frequent	---	None
		Jun	1.0	5.0	Perched	---	---	None	---	None
		Jul	1.5	5.0	Perched	---	---	None	---	None
		Aug	2.0	5.0	Perched	---	---	None	---	None
		Sep	1.0	5.0	Perched	---	---	None	---	None
		Oct-Dec	0.0	5.0	Perched	0.0-1.0	Long	Frequent	---	None

Table 22.--Water Features--Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Lower limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
280:										
Aquents----------	D	Jan-Dec	0.0	>6.5	Apparent	0.0-1.0	Very long	Frequent	---	None
Histosols----------	D	Jan-Dec	0.0	>6.5	Apparent	0.0-1.0	Very long	Frequent	---	None
281:										
Haplosaprists, dysic--	D	Jan-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul-Aug	0.5	>6.5	Apparent	---	---	---	---	None
		Sep-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
282:										
Haplosaprists, euic---	D	Jan-Jun	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None
		Jul-Aug	0.5	>6.5	Apparent	---	---	---	---	None
		Sep-Dec	0.0	>6.5	Apparent	0.0-1.0	Long	Frequent	---	None

Table 23.--Classification of the Soils

Soil name	Family or higher taxonomic class
Abscota	Mixed, mesic Oxyaquic Udipsamments
Adrian	Sandy or sandy-skeletal, mixed, euic, mesic Terric Haplosaprists
Alfic Haplorthods	Sandy, mixed, mesic Alfic Haplorthods
Alfic Oxyaquic Haplorthods	Sandy, mixed, mesic Alfic Oxyaquic Haplorthods
Algansee	Mixed, mesic Aquic Udipsamments
Aquents	Aquents
Aquic Udipsamments	Mixed, mesic Aquic Udipsamments
Benona	Sandy, mixed, mesic Lamellic Haplorthods
Benzonia	Sandy, mixed, mesic Lamellic Haplorthods
Boyer	Coarse-loamy, mixed, semiactive, mesic Typic Hapludalfs
Brethren	Sandy, mixed, mesic Oxyaquic Haplorthods
Capac	Fine-loamy, mixed, active, mesic Aquic Glossudalfs
Coloma	Mixed, mesic Lamellic Udipsamments
Copemish	Sandy, mixed, mesic, ortstein Entic Haplorthods
Covert	Sandy, mixed, mesic Oxyaquic Haplorthods
Dair	Mixed, mesic Typic Psammaquents
Endoaquolls	Mixed, mesic Endoaquolls
Entic Haplorthods	Sandy, mixed, mesic Entic Haplorthods
Fern	Sandy over loamy, mixed, active, mesic Oxyaquic Glossudalfs
Filer	Fine-loamy, mixed, semiactive, mesic Haplic Glossudalfs
Fogg	Sandy, mixed, mesic Alfic Haplorthods
Glendora	Mixed, mesic Mollic Psammaquents
Glossudalfs	Fine-loamy, mixed, mesic Glossudalfs
Goodharbor	Mesic, uncoated Typic Quartzipsamments
Gorvan	Fine-loamy over sandy or sandy-skeletal, mixed, semiactive, mesic Fluvaquentic Endoaquolls
Grattan	Sandy, mixed, mesic Entic Haplorthods
Haplosaprists, dysic	Dysic, mesic Haplosaprists
Haplosaprists, euic	Euic, mesic Haplosaprists
Healylake	Sandy, mixed, mesic, ortstein Oxyaquic Haplorthods
Histosols	Histosols
Houghton	Euic, mesic Typic Haplosaprists
Ithaca	Fine, mixed, semiactive, mesic Aquic Glossudalfs
Jebavy	Sandy, mixed, mesic, shallow, ortstein Typic Duraquods
Kaleva	Sandy, mixed, mesic Typic Haplorthods
Lamellic Haplorthods	Sandy, mixed, mesic Lamellic Haplorthods
Lamellic Udipsamments	Mixed, mesic Lamellic Udipsamments
Lumley	Dysic, mesic Typic Haplosaprists
Madaus	Coarse-silty over sandy or sandy-skeletal, carbonatic over mixed, mesic Histic Humaquepts
Makinen	Sandy or sandy-skeletal, mixed, dysic, mesic Terric Haplosaprists
Marlette	Fine-loamy, mixed, semiactive, mesic Oxyaquic Glossudalfs
Milarch	Fine-loamy over sandy or sandy-skeletal, mixed, active, mesic Oxyaquic Glossudalfs
Milnichol	Sandy, mixed, mesic Typic Epiaquods
Mollineaux	Sandy over loamy, mixed, active, mesic Lamellic Haplorthods
Nessen	Sandy, mixed, mesic Typic Haplorthods
Nordhouse	Mesic, uncoated Spodic Quartzipsamments
Onekama	Fine, mixed, active, mesic Haplic Glossudalfs
Oxyaquic Haplorthods	Sandy, mixed, mesic Oxyaquic Haplorthods
Oxyaquic Udipsamments	Mixed, mesic Oxyaquic Udipsamments
Parkhill	Fine-loamy, mixed, semiactive, nonacid, mesic Mollic Endoaquepts
Perrinton	Fine, mixed, active, mesic Oxyaquic Glossudalfs
Pipestone	Sandy, mixed, mesic Typic Endoaquods
Plainfield	Mixed, mesic Typic Udipsamments
Platteriver	Mixed, mesic Oxyaquic Udipsamments
Psamments	Psamments
Quartzipsamments	Quartzipsamments
Remus	Fine-loamy, mixed, semiactive, mesic Haplic Glossudalfs
Saugatuck	Sandy, mixed, mesic, shallow, ortstein Typic Duraquods
Shavenaugh	Mixed, mesic Psammentic Hapludalfs
Spinks	Sandy, mixed, mesic Lamellic Hapludalfs
Tatches	Sandy, isotic, mesic Lamellic Dystrudepts
Tekenink	Coarse-loamy, mixed, semiactive, mesic Typic Glossudalfs

Table 23.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Thompsonville	Sandy, mixed, mesic Alfic Oxyaquic Haplorthods
Typic Duraquods	Sandy, mixed, mesic, ortstein Typic Duraquods
Typic Endoaquods	Sandy, mixed, mesic Typic Endoaquods
Typic Epiaquolls	Sandy over loamy, mixed, mesic Typic Epiaquolls
Typic Haplorthods	Sandy, mixed, mesic Typic Haplorthods
Typic Psammaquents	Mixed, mesic Typic Psammaquents
Typic Udipsamments	Mixed, mesic Typic Udipsamments
Udipsamments	Udipsamments
Udorthents	Udorthents

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