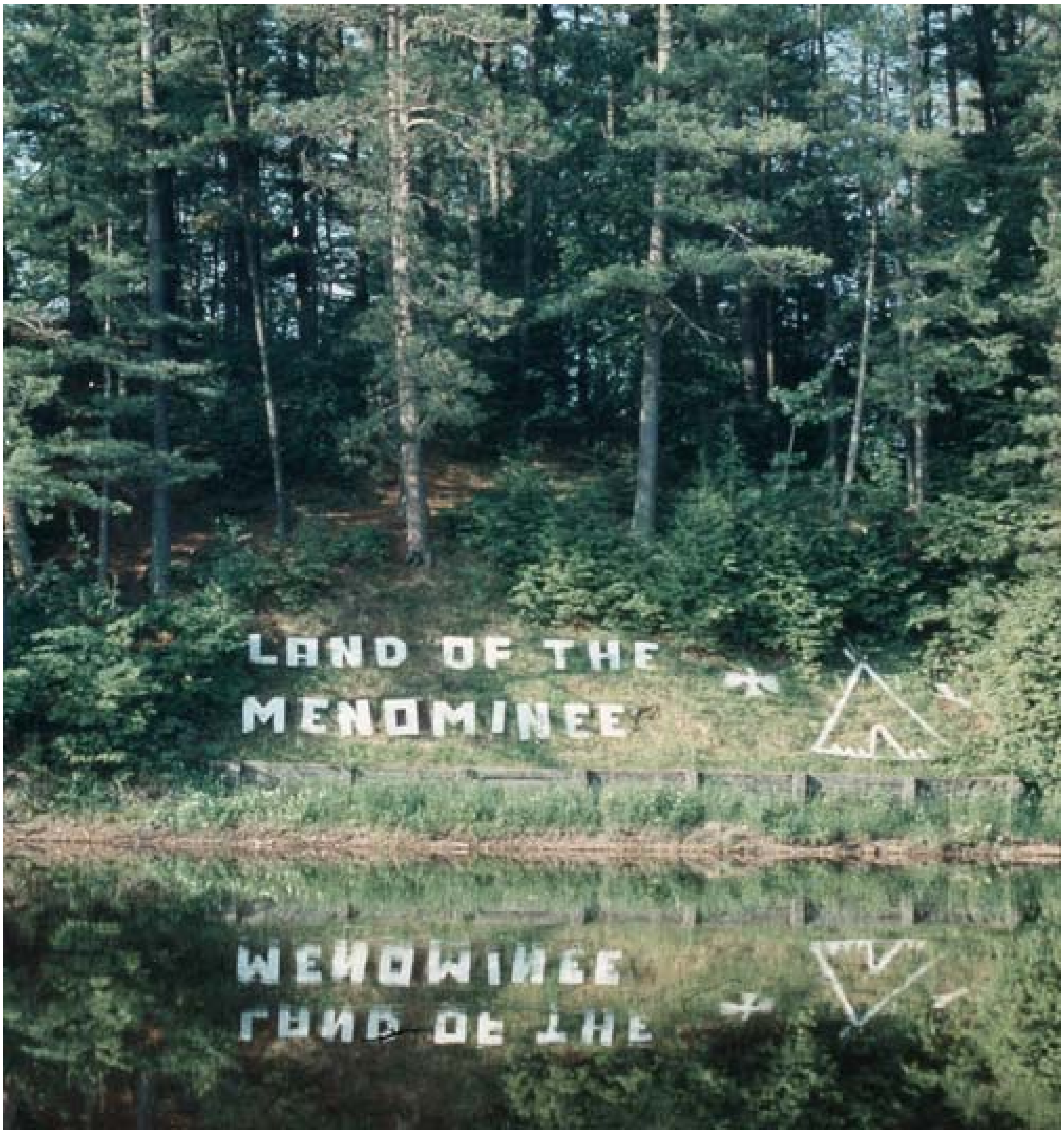
United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with the Research Division of the College of Agricultural and Life Sciences, University of Wisconsin, and the Menominee Indian Tribe of Wisconsin

Soil Survey of Menominee County, Wisconsin



NRCS Accessibility Statement

How To Use This Soil Survey

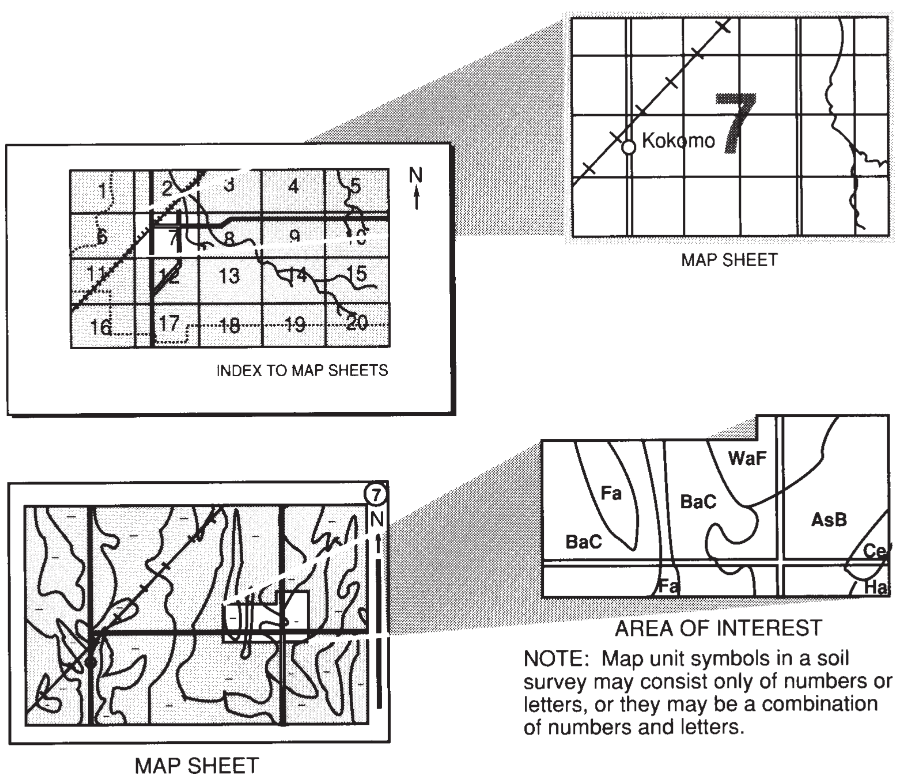
Soil Maps

The 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 soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



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

Major fieldwork for this soil survey was completed in 1998. Soil names and descriptions were approved in 1998. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1998. This survey was made cooperatively by the Natural Resources Conservation Service; the Research Division of the College of Agricultural and Life Sciences, University of Wisconsin; and the Menominee Indian Tribe of Wisconsin. The survey is part of the technical assistance furnished to the Menominee County Soil and Water Conservation District. Financial assistance was provided by the Menominee Indian Tribe of Wisconsin.

Cover: The Wolf River in the village of Keshena. The Wolf River is designated as a national scenic and wild river.

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

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Issued 2004

Foreword

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

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

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

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

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the 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.

Patricia S. Leavenworth
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Soil Survey of Menominee County, Wisconsin

By Michael J. Mitchell and Richard M. Johannes, Natural Resources Conservation Service

Fieldwork by Keith A. Anderson, John E. Campbell, Richard M. Johannes, Howard E. Lorenz, Michael J. Mitchell, and Rebecca A. Otto, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the Research Division of the College of Agricultural and Life Sciences, University of Wisconsin, and the Menominee Indian Tribe of Wisconsin

The survey area is in northeastern Wisconsin (fig. 1). The county has two cities—Neopit and Keshena. Keshena is the county seat. In 1997, the population of Menominee County was 4,293.

The county has a total area of 233,664 acres. Approximately 218,150 acres in the county is used as forest land, and 500 acres is used for crops and pasture.

For the purposes of this soil survey, soil scientists identified about 54 different types of soil in Menominee County. The soils range widely in texture, natural drainage, and other characteristics.

This survey updates an earlier survey of Menominee County published in 1967 (State of Wisconsin, 1967). The updated survey provides more interpretive information and has larger maps, which show the soils in greater detail.

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

General Nature of the Survey Area

This section provides some general information about the survey area. It describes history; transportation facilities and industry; water supply; physiography, relief, and drainage; geology; and climate.

History

The Menominee are Wisconsin's oldest continuous residents, having lived in the area for more than 4,000 years. "Menominee" is derived from the Algonquin word o-maeq-no-min-ni-wuk, meaning "Wild Rice People." Tribal land once stretched across 9,500,000 acres, from Lake Michigan to the Mississippi River and from the Escanaba River to the Milwaukee River.

The Menominee lived by hunting, fishing, and gathering. They gathered forest products to make homes, canoes, wigwam mats, baskets, dishes, buckets, snowshoe frames, and masks. The abundant wild rice was their staple food. The wild rice was augmented by corn, beans, and squash grown in small gardens. Some of the food was dried in the sun for winter use. Boiling and roasting were the common methods of cooking. Maple sugar and maple syrup were used as sweeteners and flavorings.

Non-Native people first contacted the Menominee in the year 1634, when Jean Nicolet encountered them near where the Menominee River enters Green Bay. This event marked the beginning of French influence on the Menominee, which lasted until about 1759, when British influence began. The British influence lasted until 1815, at which time the U.S. Government established a trading post and an Indian agency on the site of the present-day city of Green Bay. The American influence and the expansion of American territories ultimately precipitated five treaties between the Menominee Nation and the U.S. Government.

Through a series of treaties, the Menominee were forced to cede most of their land. The Treaty of Keshena Falls in 1854 established the present boundaries, in which the Menominee were granted 12 townships to be held in trust upon the Wolf River as a reservation. In 1856, the migrating Stockbridge-Munsee tribes received some of the ceded Menominee lands. The Menominee Indian Reservation now covers 234,000 acres. This land includes the finest old stands of hardwood, pine, and hemlock in the Great Lakes area.

In 1871, the Menominee obtained permission from the U.S. Government to conduct their own commercial logging and lumbering operation and to establish the first tribal lumber camp. In 1886, a new sawmill was opened with the capacity to produce 15,000 board feet of lumber per day. A shingle mill, a planer mill, and a lathe mill also supplied jobs and lumber for the Reservation.

In 1890, Congress allowed the Menominee to cut 20 million board feet of green lumber per year in addition to harvesting dead and downed trees. The Menominee provided a hospital, trade school, police department, and judicial system and shared a small per-capita payment from their lumbering profits. This prosperity established the Menominee as one of the more economically progressive tribes in the U.S. at the turn of the century.

In 1909, a sawmill was constructed at Neopit, marking the beginning of sustained yield forestry policy. After the sawmill was established, many small farms were abandoned and the people moved from the rural areas to the villages. Since that time, logging and sawmill operations have been the primary source of employment for residents of the Menominee Reservation.

In 1954, exactly 100 years after the present Reservation was established, the U.S. Government passed the Termination Act. This Act, which became effective on April 30, 1961, abolished the Menominee Reservation and eliminated the Menominee Indian identity. It was an experimental attempt to force tribes to join the mainstream of American society. The Menominee were singled out for termination because the tribe was self-sufficient and progressive in the eyes of the Federal Government. The once-proud Menominee people were reduced to severe poverty. They lost their tribal land and assets. Menominee County was formed as a result of this termination and became Wisconsin’s 72nd and poorest county. A county form of government was adopted, and Menominee Enterprises, Inc., was established to operate the lumber industry in the county.

In 1968, a joint venture for developing land for recreation was established. This project, called The Lakes of the Menominee, was intended to relieve excessive tax burdens resulting from the county form of government. Legend Lake was created as part of this project, but land sales were soon stopped and the project terminated.

The Menominee people’s ambition to seek reversal of Termination was eventually realized when Congress passed the Restoration Act on December 23, 1973. The Menominee people are again a sovereign Indian Nation, to which the Federal Government is obligated by treaties, agreements, and statutes.

Today, the Menominee are once again on their way to economic progress. New business ventures include a gaming casino, a motel, and a restaurant (Wisconsin Conservation Department, 1963; Menominee County, 1963).

Transportation Facilities and Industry

A network of Federal, State, county, and local logging roads services the majority of the county. The major routes in Menominee County are U.S. Highways 47 and 55. U.S. Highway 55 connects Keshena with Shawano to the south. Keshena is connected to Antigo by U.S. Highway 47 to the northwest and is connected to Crandon by U.S. Highway 55 to the north. These highways, along with a few paved county roads, connect a large number of gravel-surfaced roads and provide some access to most parts of the county. A major railway bisects the county.

Logs are stored for a time near the lumber mill in Neopit. Some high-grade logs are shipped all over the

United States. Some of the timber harvested in the county is trucked to other local sawmills, and some is sold as high-quality veneer logs. Some pulpwood is trucked to local chipping mills. Most pulpwood is trucked directly to pulp and paper mills on the Wisconsin River or to the mills of the Fox River Valley.

The Menominee have recently established a gaming casino and oversee its operation. This venture also includes a motel, a restaurant, and a few gift shops. These businesses employ many of the local people and have greatly benefited the local economy.

Water Supply

The many lakes, streams, and rivers in the county supply abundant surface water. The supply of ground water is adequate for present and anticipated domestic, agricultural, municipal, and industrial needs. The availability of the ground water varies from place to place, however, and onsite investigation is needed when water developments are planned.

Ground water is stored in porous strata called aquifers. It is available at various depths, depending upon the general topography, the distance above the permanent stream level, and the character of the underlying rock formation.

The main aquifer in the county is glacial drift, particularly glacial outwash and ice-contact sand and gravel. Generally, the fractured crystalline bedrock does not supply much water, although locally it provides a small amount for domestic uses. The bedrock or the thin deposits of glacial drift overlying the bedrock in the southwestern part of the county, west of Neopit and continuing through the central part and northeast to the Wolf River, generally yield only a few gallons of water per minute. Wells in Neopit are in glacial outwash and yield 125 to 325 gallons per minute.

The ground water in the county generally is of good quality. The main components in the water are calcium, magnesium, and iron. In some areas, particularly within moraines, the ground water is hard. A large concentration of iron is in the ground water throughout the county, but the iron is not considered to be a health hazard.

Most lakes in the county are small. The largest natural lake is Moshawquit Lake, which is 296 acres. The Legend Lake complex is a developed impoundment from the early 1970s. It has 1,350 surface acres of water and is 74 feet deep. The 128 lakes in the survey area have a total surface area of 3,730 acres of water.

Streams in the county have a total length of 394 miles, 380 miles of which is classed as trout waters. The Wolf River is the largest stream in the county and is also designated by public law, the Wild and Scenic Rivers Act (amended in 1980), as a wild river.

Generally, the quality of the surface water in the county is good. Most of the lakes and streams are clear, but those that receive deposits of organic material from wetland vegetation are brownish. The streams that drain wetlands and the lakes they empty into commonly are discolored. The smaller lakes commonly are more discolored, and the larger ones are clearer. Pollution of the surface water generally is minimal because the county is forested and relatively undeveloped (fig. 2). There is little municipal or industrial waste.

The county has three types of lakes—spring lakes, seepage lakes, and drainage lakes. Spring lakes seldom have an inlet, but they have an outlet with substantial flow. These lakes are fed by ground water rather than by surface drainage. Seepage lakes generally do not have an inlet or an outlet, but some have an intermittent outlet. The water level of these lakes is maintained by the water table or by a well sealed lake bottom. Drainage lakes have an outlet and at least one inlet. Their main water source is drainage from streams.

The spring lakes in the county have the highest mineral content because they received the greatest amount of ground water. The drainage lakes have a lower mineral content than the spring lakes, and the seepage lakes have a very low mineral content. Drainage lakes have the greatest range in reaction. Water in the spring lakes has reaction similar to that of the ground water. The seepage lakes commonly are acid, and most of the drainage lakes are alkaline (Wisconsin Conservation Department, 1963; Menominee County, 1963; Howlett, 1996).

Physiography, Relief, and Drainage

The physiography, relief, and drainage of the county are primarily the result of glaciation. The elevation ranges from about 1,433 feet above sea level in the northwest corner of the county to about 841 feet above sea level in the southeast corner.

The primary drainage pattern in the county is irregular, and the secondary drainage pattern is poorly defined, as is typical in a glaciated region. Lakes, bogs, and marshes characterize the landscape. Two major river systems, the Wolf and Oconto Rivers, drain the county. The Wolf River and its tributaries drain nearly 75 percent of the county. The Oconto River and its tributaries, in the eastern part of the county, drain the rest.

Many of the lakes were formed from ice blocks that

Figure 2.—A forested area of Mequithy-Rock outcrop complex, 0 to 6 percent slopes, along the Wolf River. The quality of the surface water is good because a wooded watershed has little runoff.

were buried in outwash deposits as the glaciers melted and receded. Some lakes formed in depressions in the glacial till areas. Generally, the lakes in the county are relatively shallow.

Geology

Menominee County is in the southern part of the Northern Highlands physiographic region of Wisconsin. The underlying crystalline bedrock formation is known as the Wolf River batholith granites. In most parts of the county, thick glacial deposits overlie the crystalline bedrock. The western and southwestern parts of the county have a number of parallel, streamlined ridges that appear to be an extension of a drumlin field located in adjacent Langlade and Shawano Counties. The northwestern and north-central parts of the county consist of a gravelly, pitted outwash plain. The southeastern part of the county is an outwash plain of sandy deposits that are very low in gravel content. The south-central part of the county and the rest of the eastern part include moraines with till and ice-contact deposits. Scattered throughout the county, in areas parallel to drainageways, are eskers, which typically have a very high content of gravel.

The glacial geology history of Menominee County is complex, extends over a long period of time, and begins and focuses on the Peavy Falls project area. Peavy Falls is in the south-central part of the county. The glacial deposits in the Peavy Falls project area are derived from a glacier that advanced across the Reservation in a northwesterly direction. During meltdown, the glacier retreated sporadically to the southeast, building a staircase of outwash plains that descend to the southeast. About 15,000 years ago, the melting ice still covered the entire county, except for a small area in the northwest corner. The Elderon Moraine marks this position of the ice front. By 14,500 years ago, the ice front had retreated back to the Bowler Moraine, which passes through the county between Zoar and Neopit, trending northeast. This moraine generally follows the 1,200-foot contour elevation through the county. At the time of the ice front's retreat, the Neopit site was under ice and the Zoar site was awash in glacial meltwater. The ice front likely retreated southeast to the Peavy Falls site, which is about 5 miles southeast of the Bowler Moraine, by about 14,200 years ago. The glacier continued its retreat down the pre-Cambrian bedrock slope to the southeast until a re-advance of the ice sheet built the Mountain Moraine system in the eastern part of the county about 13,500 years ago. This moraine system actually consists of several broad, northeast-trending ridges separated by sandy outwash valleys. About 12,000 years ago, another advance of glacial ice pushed lobes into the east-central and south-central parts of the county and built the Athelstane Moraine. Legend Lake is in a sandy outwash valley that fronts these lobes (Thwaites, 1943).

The Athelstane Moraine is made up of a reddish loam Kirby Lake till that is covered by windblown sand in many places. The sandy deposits fronting this moraine and in the valley between the Mountain Moraines is thought to derive from meltwater coming from the Langlade Lobe ice much farther to the north.

The Mountain Moraines are made up of a reddish brown sandy loam Silver Cliff till that is quite gravelly in places.

Numerous drumlins protrude above the level of the stepped-outwash plains to the west of the Mountain Moraines. The drumlins are made up of brownish loamy sand to sandy loam Maple View till that is quite bouldery. Outwash capped by sandy loam predominates between the Mountain Moraines and the Bowler Moraine, and white pine is very prevalent in this area. Outwash capped by loam to silt loam predominates west of the Bowler Moraine, where northern hardwoods are quite prevalent.

The Peavy Falls project area consists mostly of a relatively flat outwash plain. The southwest side of the area abuts several higher hills of bouldery glacial till that are remnants of a truncated drumlin. The West Branch of the Wolf River borders the northeast side of the project area. Several erosional valleys that carry runoff to the river segment the outwash plain. The floor of the river channel is mainly hard bedrock, and rock outcrops are common in the river valley.

Generally, the outwash plain consists of 24 to 40 inches of loamy glaciofluvial deposits underlain by sandy outwash. Padus soils are in the upper, flatter areas of the plain. The sandy Vilas soils occur on the sides of the erosional valleys, and the wetter Padwet and Worcester soils occur on these valley floors where loamy deposits have accumulated. The lower bedrock bench that abuts the river is partially covered by loamy deposits, but many exposures of bedrock outcrop also occur. These bedrock soils have not been fully studied and classified at this time. Several very wet organic and mineral soils, such as Cathro and Minocqua soils, are in low areas adjacent to the river. The loamy Kennan soils are on the bouldery hills of glacial till on the southwest side of the project area.

The landscape of the Peavy Falls area is fairly typical of the western side of the Menominee Reservation, where benches of glacial outwash are intermingled with higher hills of bouldery glacial drumlins. Northern hardwoods are common in areas where the finer textured surface deposits, such as windblown silt, have blanketed this kind of terrain. Generally, this condition occurs on the western side of the Reservation, where elevations are about 1,200 feet or higher.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Breed in the period 1961 to 1990. 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 16.7 degrees F and the average daily minimum temperature is 5.6 degrees. The lowest temperature on record, which occurred at Breed on January 17, 1982, is -41 degrees. In summer, the average temperature is 66.2 degrees and the average daily maximum temperature is 80.5 degrees. The highest temperature, which occurred on July 31, 1975, is 101 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (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 total annual precipitation is 32.19 inches. Of this total, 21.36 inches, or 66 percent, usually falls in April through September. The growing season for most crops falls within this period. The heaviest 1-day rainfall on record was 3.68 inches at Breed on May 17, 1992. Thunderstorms occur on about 34 days each year, and most occur in June.

The average seasonal snowfall is 53.7 inches. The greatest snow depth at any one time during the period of record was 34 inches recorded on January 2, 1976. On an average, 91 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 12 inches, recorded on December 4, 1990.

The average relative humidity in midafternoon is about 63 percent. Humidity is higher at night, and the average at dawn is about 82 percent. The sun shines 65 percent of the time possible in summer and 48 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 11.3 miles per hour, in April.

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

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientists to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

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

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

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

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

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

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

Soil Map Unit Descriptions

The map units delineated on the soil maps in this survey represent the soils or miscellaneous areas in the survey area. 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 (see Contents).

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 description. 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 description. 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. The map unit descriptions include representative values in feet and the months in which wet soil moisture status is highest and lowest in the soil profile. The descriptions also include the classes of flooding and the months in which flooding is least and most likely to occur. Tables 21 and 22 provide a complete display of this data for every month of the year. The available water capacity given in each map unit description is calculated for all horizons in the soil profile. The organic matter content displayed in each map unit description is calculated for all horizons in the soil profile, except those that represent the surface duff layer on forested soils. Table 19 provides a complete display of available water capacity and organic matter content by horizon.

The principal hazards and limitations to be considered in planning for specific uses are described in other sections of this survey.

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, Frechette sandy loam, 2 to 6 percent slopes, is a phase of the Frechette series.

A map unit is named for the component or components that make up a dominant percentage of the map unit. Many map units consist of one dominant component. These map units are consociations. Vilas loamy sand, 0 to 6 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. Mequithy-Rock outcrop complex, 6 to 15 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. Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes, 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. The map unit Pits, gravel, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see Contents) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

AfB—Aftad loam, 0 to 6 percent slopes

Component Description

Aftad and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Lake plains and stream terraces
Slope range: 0 to 6 percent
Texture of the surface layer: Loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Loamy lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February, June, July, August)
Ponding: None
Available water capacity to a depth of 60 inches: 8.5 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
A—0 to 4 inches; loam
Bw1,Bw2—4 to 12 inches; sandy loam
E..B/E—12 to 28 inches; sandy loam
BC,C—28 to 60 inches; stratified sandy loam to silt loam

Dissimilar Components

Robago soils

Extent: 5 percent of the unit

AnB—Annalake fine sandy loam, 0 to 6 percent slopes

Component Description

Annalake and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Lake plains and stream terraces
Slope range: 0 to 6 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Loamy lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February, June, July, August)
Ponding: None
Available water capacity to a depth of 60 inches: 8.8 inches
Content of organic matter in the upper 10 inches: 1 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; fine sandy loam
Bs1..Bs3—3 to 12 inches; fine sandy loam
E/B—12 to 25 inches; fine sandy loam
2B/E1,2B/E2—25 to 40 inches; very fine sandy loam
2C1,2C2—40 to 62 inches; stratified loamy very fine sand to silt loam

Dissimilar Components

Robago soils

Extent: 5 percent of the unit

AtB—Antigo silt loam, 0 to 6 percent slopes

Component Description

Antigo and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Outwash plains
Slope range: 0 to 6 percent

Texture of the surface layer: Silt loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Silty and loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 6.5 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
A—0 to 4 inches; silt loam
Bw1,Bw2—4 to 12 inches; silt loam
E/B..2Bt1—12 to 24 inches; silt loam
3Bt2—24 to 27 inches; loamy sand
3C—27 to 60 inches; stratified sand to gravelly sand

Dissimilar Components

Padus soils

Extent: 3 percent of the unit

Scott Lake soils

Extent: 2 percent of the unit

AuA—Au Gres loamy sand, 0 to 3 percent slopes

Component Description

Au Gres and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 0.5 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 5.6 inches
Content of organic matter in the upper 10 inches: 1 percent
Typical profile:
Oe—0 to 1 inch; moderately decomposed plant material
Oa—1 to 3 inches; highly decomposed plant material
E—3 to 7 inches; loamy sand
Bhs..Bs2—7 to 21 inches; loamy sand
BC,C—21 to 63 inches; sand

Dissimilar Components

Croswell soils

Extent: 3 percent of the unit

Wainola soils

Extent: 3 percent of the unit

Markey soils

Extent: 2 percent of the unit

Roscommon soils

Extent: 2 percent of the unit

CeB—Cress sandy loam, 0 to 6 percent slopes

Component Description

Cress and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 0 to 6 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.3 inches
Content of organic matter in the upper 10 inches: 0.9 percent
Typical profile:
A—0 to 3 inches; sandy loam
Bw1,Bw2—3 to 14 inches; gravelly sandy loam

2Bw3—14 to 26 inches; gravelly loamy coarse sand
2C—26 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Cromwell soils

Extent: 5 percent of the unit

Soils that have stones on the surface

Extent: 2 percent of the unit

Sunia soils

Extent: 2 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 1 percent of the unit

CeC—Cress sandy loam, 6 to 15 percent slopes

Component Description

Cress and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 6 to 15 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.3 inches
Content of organic matter in the upper 10 inches: 0.9 percent
Typical profile:
A—0 to 3 inches; sandy loam
Bw1,Bw2—3 to 14 inches; gravelly sandy loam
2Bw3—14 to 26 inches; gravelly loamy coarse sand
2C—26 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Cromwell soils

Extent: 5 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Soils that have stones on the surface

Extent: 2 percent of the unit

CeD—Cress sandy loam, 15 to 35 percent slopes

Component Description

Cress and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 15 to 35 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.3 inches
Content of organic matter in the upper 10 inches: 0.9 percent
Typical profile:
A—0 to 3 inches; sandy loam
Bw1,Bw2—3 to 14 inches; gravelly sandy loam
2Bw3—14 to 26 inches; gravelly loamy coarse sand
2C—26 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Cromwell soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Soils that have stones on the surface

Extent: 3 percent of the unit

CmA—Crex fine sand, 0 to 3 percent slopes

Component Description

Crex and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, lake plains, stream terraces, and outwash plains
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 4.8 inches
Content of organic matter in the upper 10 inches: 1.5 percent
Typical profile:
A—0 to 3 inches; fine sand
AB..BC—3 to 37 inches; fine sand
C1..C3—37 to 60 inches; fine sand

Dissimilar Components

Wurtsmith soils

Extent: 4 percent of the unit

Shawano soils

Extent: 3 percent of the unit

Wainola soils

Extent: 3 percent of the unit

CrB—Cromwell sandy loam, 0 to 6 percent slopes

Component Description

Cromwell and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash plains, stream terraces, and outwash fans
Slope range: 0 to 6 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.9 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
A..Bw2—0 to 21 inches; sandy loam
2Bw3..2C—21 to 60 inches; sand

Dissimilar Components

Cress soils

Extent: 3 percent of the unit

Rosholt soils

Extent: 3 percent of the unit

Sunia soils

Extent: 3 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 1 percent of the unit

CrC—Cromwell sandy loam, 6 to 15 percent slopes

Component Description

Cromwell and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.9 inches

Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
A..Bw2—0 to 21 inches; sandy loam
2Bw3..2C—21 to 60 inches; sand

Dissimilar Components

Cress soils

Extent: 5 percent of the unit

Rosholt soils

Extent: 3 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 2 percent of the unit

CrD—Cromwell sandy loam, 15 to 35 percent slopes

Component Description

Cromwell and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.9 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
A..Bw2—0 to 21 inches; sandy loam
2Bw3..2C—21 to 60 inches; sand

Dissimilar Components

Cress soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Rosholt soils

Extent: 3 percent of the unit

CsA—Croswell loamy sand, 0 to 3 percent slopes

Component Description

Croswell and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 5.2 inches
Content of organic matter in the upper 10 inches: 0.9 percent
Typical profile:
Oe,Oa—0 to 2 inches; highly decomposed plant material
A—2 to 4 inches; loamy sand
E..Bs3—4 to 26 inches; sand
BC,C—26 to 62 inches; sand

Dissimilar Components

Au Gres soils

Extent: 4 percent of the unit

Neconish soils

Extent: 3 percent of the unit

Vilas soils

Extent: 3 percent of the unit

FeB—Frechette fine sandy loam, 2 to 6 percent slopes

Component Description

Frechette and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 2 to 6 percent
Texture of the surface layer: Fine sandy loam

Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 1.6 percent
Typical profile:
A—0 to 4 inches; fine sandy loam
Bw—4 to 12 inches; fine sandy loam
E/B,B/E—12 to 45 inches; sandy loam
Bt—45 to 63 inches; fine sandy loam
C—63 to 80 inches; sandy loam

Dissimilar Components

Moderately well drained soils

Extent: 3 percent of the unit

Soils that have strata of sand in the substratum

Extent: 3 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

Perote soils

Extent: 2 percent of the unit

FeC—Frechette fine sandy loam, 6 to 15 percent slopes

Component Description

Frechette and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 1.6 percent
Typical profile:
A—0 to 4 inches; fine sandy loam
Bw—4 to 12 inches; fine sandy loam
E/B,B/E—12 to 45 inches; sandy loam
Bt—45 to 63 inches; fine sandy loam
C—63 to 80 inches; sandy loam

Dissimilar Components

Soils that have strata of sand in the substratum

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Perote soils

Extent: 3 percent of the unit

FeD—Frechette fine sandy loam, 15 to 35 percent slopes

Component Description

Frechette and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 1.6 percent
Typical profile:
A—0 to 4 inches; fine sandy loam
Bw—4 to 12 inches; fine sandy loam
E/B,B/E—12 to 45 inches; sandy loam
Bt—45 to 63 inches; fine sandy loam
C—63 to 80 inches; sandy loam

Dissimilar Components

Soils that have strata of sand in the substratum

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Perote soils

Extent: 3 percent of the unit

FrB—Frechette sandy loam, 2 to 6 percent slopes

Component Description

Frechette and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 2 to 6 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 1.6 percent
Typical profile:
A—0 to 4 inches; sandy loam
Bw—4 to 12 inches; fine sandy loam
E/B,B/E—12 to 45 inches; sandy loam
Bt—45 to 63 inches; fine sandy loam
C—63 to 80 inches; sandy loam

Dissimilar Components

Moderately well drained soils

Extent: 3 percent of the unit

Soils that have strata of sand in the substratum

Extent: 3 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

Perote soils

Extent: 2 percent of the unit

FrC—Frechette sandy loam, 6 to 15 percent slopes

Component Description

Frechette and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 1.6 percent
Typical profile:
A—0 to 4 inches; sandy loam
Bw—4 to 12 inches; fine sandy loam
E/B,B/E—12 to 45 inches; sandy loam
Bt—45 to 63 inches; fine sandy loam
C—63 to 80 inches; sandy loam

Dissimilar Components

Soils that have strata of sand in the substratum

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Perote soils

Extent: 3 percent of the unit

FrD—Frechette sandy loam, 15 to 35 percent slopes

Component Description

Frechette and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Sandy loam

Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 1.6 percent
Typical profile:
A—0 to 4 inches; sandy loam
Bw—4 to 12 inches; fine sandy loam
E/B,B/E—12 to 45 inches; sandy loam
Bt—45 to 63 inches; fine sandy loam
C—63 to 80 inches; sandy loam

Dissimilar Components

Soils that have strata of sand in the substratum

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Perote soils

Extent: 3 percent of the unit

GaB—Grayling loamy sand, 0 to 6 percent slopes

Component Description

Grayling and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 0 to 6 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 5 inches; loamy sand
Bw1..Bw3—5 to 26 inches; sand
BC,C—26 to 62 inches; sand

Dissimilar Components

Wurtsmith soils

Extent: 5 percent of the unit

Mahtomedi soils

Extent: 4 percent of the unit

Shawano soils

Extent: 4 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

GaC—Grayling loamy sand, 6 to 15 percent slopes

Component Description

Grayling and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 5 inches; loamy sand
Bw1..Bw3—5 to 26 inches; sand
BC,C—26 to 62 inches; sand

Dissimilar Components

Mahtomedi soils

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Shawano soils

Extent: 3 percent of the unit

GaD—Grayling loamy sand, 15 to 35 percent slopes

Component Description

Grayling and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 5 inches; loamy sand
Bw1..Bw3—5 to 26 inches; sand
BC,C—26 to 62 inches; sand

Dissimilar Components

Mahtomedi soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Shawano soils

Extent: 3 percent of the unit

GyB—Grayling sand, 0 to 6 percent slopes

Component Description

Grayling and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 0 to 6 percent
Texture of the surface layer: Sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.6 inches (fig. 3)
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 5 inches; sand
Bw1..Bw3—5 to 26 inches; sand
BC,C—26 to 62 inches; sand

Dissimilar Components

Wurtsmith soils

Extent: 5 percent of the unit

Mahtomedi soils

Extent: 4 percent of the unit

Shawano soils

Extent: 4 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

GyC—Grayling sand, 6 to 15 percent slopes

Component Description

Grayling and similar soils

Extent: 90 percent of the unit

Figure 3.—A mature plantation of red pine in an area of Grayling sand, 0 to 6 percent slopes. Pine plantations have commonly replaced cropland in areas of this soil because of droughtiness.

Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.6 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 5 inches; sand
Bw1..Bw3—5 to 26 inches; sand
BC,C—26 to 62 inches; sand

Dissimilar Components

Mahtomedi soils

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Shawano soils

Extent: 3 percent of the unit

GyD—Grayling sand, 15 to 35 percent slopes

Component Description

Grayling and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Stream terraces, outwash fans, and outwash plains
Slope range: 15 to 35 percent
Texture of the surface layer: Sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.6 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 5 inches; sand
Bw1..Bw3—5 to 26 inches; sand
BC,C—26 to 62 inches; sand

Dissimilar Components

Mahtomedi soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Shawano soils

Extent: 3 percent of the unit

IgA—Ingalls loamy sand, 0 to 3 percent slopes

Component Description

Ingalls and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Lake plains and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Sandy outwash over silty, loamy, and sandy lacustrine sediment
Flooding: None
Wet soil moisture status is highest (depth, months): 0.5 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 7.9 inches
Content of organic matter in the upper 10 inches: 0.6 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; loamy sand
Bhs..Bs2—5 to 26 inches; sand
C1—26 to 33 inches; sand
2C2..2C4—33 to 60 inches; stratified very fine sandy loam to loamy very fine sand to silt

Dissimilar Components

Tourtillotte soils

Extent: 4 percent of the unit

Markey soils

Extent: 3 percent of the unit

Roscommon soils

Extent: 3 percent of the unit

IsB—Iosco loamy sand, 0 to 4 percent slopes

Component Description

Iosco and similar soils

Extent: 90 percent of the unit

Geomorphic setting: Moraines
Slope range: 0 to 4 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Sandy outwash over loamy or silty glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 0.8 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 8.8 inches
Content of organic matter in the upper 10 inches: 0.7 percent
Typical profile:
Oe,Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; loamy sand
Bs1..E´—4 to 35 inches; loamy sand
2E/B—35 to 42 inches; sandy loam
2Bt,2C—42 to 62 inches; sandy clay loam

Dissimilar Components

Markey soils

Extent: 4 percent of the unit

Roscommon soils

Extent: 4 percent of the unit

Morganlake soils

Extent: 2 percent of the unit

IxB—Ishpeming-Rock outcrop complex, 0 to 6 percent slopes

Component Description

Ishpeming and similar soils

Extent: 60 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 1 to 6 percent
Texture of the surface layer: Sand
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Parent material: Sandy outwash over bedrock
Flooding: None
Depth to wet soil moisture status: More than 3.5 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.2 inches
Content of organic matter in the upper 10 inches: 0.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 7 inches; sand
Bs..BC—7 to 27 inches; sand
2R—27 to 47 inches; bedrock

Rock outcrop

Extent: 30 percent of the unit
Slope range: 0 to 6 percent

Dissimilar Components

Vilas soils

Extent: 10 percent of the unit

IxC—Ishpeming-Rock outcrop complex, 6 to 15 percent slopes

Component Description

Ishpeming and similar soils

Extent: 60 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Sand
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Somewhat excessively drained
Parent material: Sandy outwash over bedrock
Flooding: None
Depth to wet soil moisture status: More than 3.5 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.2 inches
Content of organic matter in the upper 10 inches: 0.4 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 7 inches; sand
Bs..BC—7 to 27 inches; sand
2R—27 to 47 inches; bedrock

Rock outcrop

Extent: 30 percent of the unit
Slope range: 6 to 15 percent

Dissimilar Components

Vilas soils

Extent: 6 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 4 percent of the unit

KaB—Karlin sandy loam, 0 to 6 percent slopes

Component Description

Karlin and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Outwash fans, stream terraces, and outwash plains
Slope range: 0 to 6 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; sandy loam
Bhs,Bs1—3 to 15 inches; sandy loam
2Bs2,2BC—15 to 33 inches; sand
2C—33 to 60 inches; sand

Dissimilar Components

Padus soils

Extent: 4 percent of the unit

Vilas soils

Extent: 4 percent of the unit

Pence soils

Extent: 3 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

Noseum soils

Extent: 2 percent of the unit

KaC—Karlin sandy loam, 6 to 15 percent slopes

Component Description

Karlin and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; sandy loam
Bhs,Bs1—3 to 15 inches; sandy loam
2Bs2,2BC—15 to 33 inches; sand
2C—33 to 60 inches; sand

Dissimilar Components

Vilas soils

Extent: 5 percent of the unit

Padus soils

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Pence soils

Extent: 3 percent of the unit

KaD—Karlin sandy loam, 15 to 35 percent slopes

Component Description

Karlin and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; sandy loam
Bhs,Bs1—3 to 15 inches; sandy loam
2Bs2,2BC—15 to 33 inches; sand
2C—33 to 60 inches; sand

Dissimilar Components

Vilas soils

Extent: 6 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Padus soils

Extent: 3 percent of the unit

Pence soils

Extent: 3 percent of the unit

KeC—Kennan fine sandy loam, 6 to 15 percent slopes, very bouldery

Component Description

Kennan and similar soils

Extent: 94 percent of the unit
Geomorphic setting: Drumlins and moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Silt loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 8.3 inches
Content of organic matter in the upper 10 inches: 0.2 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; silt loam
Bw,E´—4 to 15 inches; silt loam
E/B—15 to 21 inches; fine sandy loam
B/E1..B/E3—21 to 66 inches; gravelly sandy loam
C—66 to 80 inches; gravelly loamy sand

Dissimilar Components

Soils that have slopes of more than 15 percent

Extent: 2 percent of the unit

Neopit soils

Extent: 2 percent of the unit

Rosholt soils

Extent: 2 percent of the unit

KeD—Kennan fine sandy loam, 15 to 35 percent slopes, very bouldery

Component Description

Kennan and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Drumlins and moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Silt loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 8.3 inches

Content of organic matter in the upper 10 inches: 0.2 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; silt loam
Bw,E´—4 to 15 inches; silt loam
E/B—15 to 21 inches; fine sandy loam
B/E1..B/E3—21 to 66 inches; gravelly sandy loam
C—66 to 80 inches; gravelly loamy sand

Dissimilar Components

Rosholt soils

Extent: 3 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 2 percent of the unit

KoC—Kennan silt loam, 6 to 15 percent slopes, very bouldery

Component Description

Kennan and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Drumlins and moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Silt loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 8.3 inches
Content of organic matter in the upper 10 inches: 0.2 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; silt loam
Bw,E´—4 to 15 inches; silt loam
E/B—15 to 21 inches; fine sandy loam
B/E1..B/E3—21 to 66 inches; gravelly sandy loam
C—66 to 80 inches; gravelly loamy sand

Dissimilar Components

Rosholt soils

Extent: 3 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 2 percent of the unit

KoD—Kennan silt loam, 15 to 35 percent slopes, very bouldery

Component Description

Kennan and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Drumlins and moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Silt loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 8.3 inches
Content of organic matter in the upper 10 inches: 0.2 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; silt loam
Bw,E´—4 to 15 inches; silt loam
E/B—15 to 21 inches; fine sandy loam
B/E1..B/E3—21 to 66 inches; gravelly sandy loam
C—66 to 80 inches; gravelly loamy sand

Dissimilar Components

Rosholt soils

Extent: 3 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 2 percent of the unit

KxB—Keshena fine sandy loam, 2 to 6 percent slopes

Component Description

Keshena and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 2 to 6 percent
Texture of the surface layer: Fine sandy loam

Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Calcareous, loamy or silty glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February, July, August, September)
Ponding: None
Available water capacity to a depth of 60 inches: 9.6 inches
Content of organic matter in the upper 10 inches: 1.5 percent
Typical profile:
A—0 to 3 inches; fine sandy loam
Bw1..E/B—3 to 19 inches; fine sandy loam
B/E1,B/E2—19 to 49 inches; loam
Bt1,Bt2—49 to 75 inches; loam
C—75 to 80 inches; silt loam

Dissimilar Components

Morganlake soils

Extent: 3 percent of the unit

Pecore soils

Extent: 3 percent of the unit

Tilleda soils

Extent: 3 percent of the unit

Peshtigo soils

Extent: 1 percent of the unit

LaB—Lablatz sandy loam, 0 to 4 percent slopes

Component Description

Lablatz and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 0 to 4 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Calcareous, loamy glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 0.8 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February, August)
Ponding: None
Available water capacity to a depth of 60 inches: 10.9 inches
Content of organic matter in the upper 10 inches: 1.5 percent
Typical profile:
Oa—0 to 4 inches; highly decomposed plant material
E—4 to 7 inches; sandy loam
Bhs,Bs—7 to 16 inches; sandy loam
E/B,B/E—16 to 30 inches; sandy loam
Bt—30 to 41 inches; fine sandy loam
C—41 to 64 inches; fine sandy loam

Dissimilar Components

Minocqua soils

Extent: 4 percent of the unit

Cathro soils

Extent: 3 percent of the unit

Wormet soils

Extent: 3 percent of the unit

LDF—Landfill

General Description

• This map unit consists of areas in which solid wastes have been deposited.

LoA—Loxley peat, 0 to 1 percent slopes

Component Description

Loxley and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Moraines, lake plains, and outwash plains
Slope range: 0 to 1 percent
Texture of the surface layer: Peat
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Very poorly drained
Parent material: Organic material
Flooding: None
Wet soil moisture status is highest (depth, months): At the surface (March, April, May, June, October, November)

Wet soil moisture status is lowest (depth, months): 1.5 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 24.9 inches
Content of organic matter in the upper 10 inches: 80 percent
Typical profile:
Oi1,Oi2—0 to 10 inches; peat
Oa1,Oa2—10 to 60 inches; muck

Dissimilar Components

Lupton soils

Extent: 4 percent of the unit

Soils that have a mineral substratum

Extent: 1 percent of the unit

LuA—Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes

Component Description

Lupton and similar soils

Extent: 40 percent of the unit
Geomorphic setting: Moraines, lake plains, and outwash plains
Slope range: 0 to 1 percent
Texture of the surface layer: Muck
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Very poorly drained (fig. 4)
Parent material: Organic material
Flooding is least likely (frequency, months): Rare (January, February, August, September, October, November, December)
Flooding is most likely (frequency, months): Frequent (March, April, May, June, July)
Wet soil moisture status is highest (depth, months): At the surface (March, April, May, June, October, November)
Wet soil moisture status is lowest (depth, months): 1.5 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 23.9 inches
Content of organic matter in the upper 10 inches: 80 percent
Typical profile:
Oa1—0 to 7 inches; muck
Oa2..Oa4—7 to 60 inches; muck

Markey and similar soils

Extent: 35 percent of the unit
Geomorphic setting: Outwash plains
Slope range: 0 to 1 percent
Texture of the surface layer: Muck
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Very poorly drained (fig. 4)
Parent material: Organic material over sandy outwash
Flooding is least likely (frequency, months): Rare (January, February, August, September, October, November, December)
Flooding is most likely (frequency, months): Frequent (March, April, May, June, July)
Wet soil moisture status is highest (depth, months): At the surface (March, April, May, June, October, November)
Wet soil moisture status is lowest (depth, months): 1.5 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 13.1 inches
Content of organic matter in the upper 10 inches: 70 percent
Typical profile:
Oa1,Oa2—0 to 28 inches; muck
C—28 to 60 inches; sand

Cathro and similar soils

Extent: 15 percent of the unit
Geomorphic setting: Lake plains, moraines, and outwash plains
Slope range: 0 to 1 percent
Texture of the surface layer: Muck
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Very poorly drained (fig. 4)
Parent material: Organic material over loamy or silty deposits
Flooding is least likely (frequency, months): Rare (January, February, August, September, October, November, December)
Flooding is most likely (frequency, months): Frequent (March, April, May, June, July)
Wet soil moisture status is highest (depth, months): At the surface (March, April, May, June, October, November)
Wet soil moisture status is lowest (depth, months): 1.5 feet (December, January, February)
Ponding: None

Figure 4.—A stream in an area of Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes. These very poorly drained soils are best suited to use as wildlife habitat.

Available water capacity to a depth of 60 inches: 18.7 inches
Content of organic matter in the upper 10 inches: 72.5 percent
Typical profile:
Oa1—0 to 8 inches; muck
Oa2,Oa3—8 to 37 inches; muck
Cg1,Cg2—37 to 60 inches; silt loam, fine sandy loam

Dissimilar Components

Loxley soils

Extent: 3 percent of the unit

Minocqua soils

Extent: 2 percent of the unit

Roscommon soils

Extent: 2 percent of the unit

Au Gres soils

Extent: 1 percent of the unit

Wainola soils

Extent: 1 percent of the unit

Worcester soils

Extent: 1 percent of the unit

M-W—Miscellaneous water

General Description

• This map unit occurs as small manmade areas of water and spoil consisting of excavated soil material. Typically, these areas contain water most of the year. The spoil is partially revegetated with grasses and weeds.

MaB—Mahtomedi loamy sand, 0 to 6 percent slopes

Component Description

Mahtomedi and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 0 to 6 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.6 inches
Content of organic matter in the upper 10 inches: 0.4 percent
Typical profile:
A—0 to 4 inches; loamy sand
Bw1..Bw3—4 to 20 inches; sand
BC1,BC2—20 to 38 inches; gravelly sand
C—38 to 60 inches; stratified sand to gravelly sand

Dissimilar Components

Grayling soils

Extent: 5 percent of the unit

Wurtsmith soils

Extent: 3 percent of the unit

Cress soils

Extent: 1 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 1 percent of the unit

MaC—Mahtomedi loamy sand, 6 to 15 percent slopes

Component Description

Mahtomedi and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 6 to 15 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.6 inches
Content of organic matter in the upper 10 inches: 0.4 percent
Typical profile:
A—0 to 4 inches; loamy sand
Bw1..Bw3—4 to 20 inches; sand
BC1,BC2—20 to 38 inches; gravelly sand
C—38 to 60 inches; stratified sand to gravelly sand

Dissimilar Components

Grayling soils

Extent: 5 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Cress soils

Extent: 2 percent of the unit

MaD—Mahtomedi loamy sand, 15 to 35 percent slopes

Component Description

Mahtomedi and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 15 to 35 percent
Texture of the surface layer: Loamy sand

Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 3.6 inches
Content of organic matter in the upper 10 inches: 0.4 percent
Typical profile:
A—0 to 4 inches; loamy sand
Bw1..Bw3—4 to 20 inches; sand
BC1,BC2—20 to 38 inches; gravelly sand
C—38 to 60 inches; stratified sand to gravelly sand

Dissimilar Components

Grayling soils

Extent: 5 percent of the unit

Cress soils

Extent: 3 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 2 percent of the unit

MoC—Menominee loamy fine sand, 6 to 15 percent slopes

Component Description

Menominee and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Loamy fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash over loamy or silty glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 8.3 inches
Content of organic matter in the upper 10 inches: 0.3 percent
Typical profile:
Oe,Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; loamy fine sand
Bs1..Bs3—4 to 27 inches; loamy fine sand
2E/B,2B/E—27 to 60 inches; loam
2Bt,2C—60 to 80 inches; loam

Dissimilar Components

Moshawquit soils

Extent: 5 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Morganlake soils

Extent: 2 percent of the unit

MoD—Menominee loamy fine sand, 15 to 35 percent slopes

Component Description

Menominee and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Loamy fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash over loamy or silty glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 8.3 inches
Content of organic matter in the upper 10 inches: 0.3 percent
Typical profile:
Oe,Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; loamy fine sand
Bs1..Bs3—4 to 27 inches; loamy fine sand
2E/B,2B/E—27 to 60 inches; loam
2Bt,2C—60 to 80 inches; loam

Dissimilar Components

Moshawquit soils

Extent: 7 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

MqB—Mequithy-Rock outcrop complex, 0 to 6 percent slopes

Component Description

Mequithy and similar soils

Extent: 60 percent of the unit
Geomorphic setting: Stream terraces and outwash plains
Slope range: 2 to 6 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Parent material: Loamy deposits over bedrock
Flooding: None
Depth to wet soil moisture status: More than 3.5 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.3 inches
Content of organic matter in the upper 10 inches: 1.9 percent
Typical profile:
A—0 to 3 inches; fine sandy loam
E—3 to 4 inches; fine sandy loam
Bs—4 to 13 inches; fine sandy loam
2E/B—13 to 21 inches; sandy loam
2B/E—21 to 27 inches; sandy loam
2R—27 to 48 inches; bedrock

Rock outcrop

Extent: 30 percent of the unit
Slope range: 0 to 6 percent

Dissimilar Components

Wayka soils

Extent: 7 percent of the unit

Padus soils

Extent: 3 percent of the unit

MqC—Mequithy-Rock outcrop complex, 6 to 15 percent slopes

Component Description

Mequithy and similar soils

Extent: 60 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Well drained
Parent material: Loamy deposits over bedrock
Flooding: None
Depth to wet soil moisture status: More than 3.5 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.3 inches
Content of organic matter in the upper 10 inches: 1.9 percent
Typical profile:
A—0 to 3 inches; fine sandy loam
E—3 to 4 inches; fine sandy loam
Bs—4 to 13 inches; fine sandy loam
2E/B—13 to 21 inches; sandy loam
2B/E—21 to 27 inches; sandy loam
2R—27 to 48 inches; bedrock

Rock outcrop

Extent: 30 percent of the unit
Slope range: 6 to 15 percent

Dissimilar Components

Wayka soils

Extent: 5 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Padus soils

Extent: 2 percent of the unit

MuA—Minocqua muck, 0 to 2 percent slopes

Component Description

Minocqua and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Stream terraces and outwash plains
Slope range: 0 to 2 percent
Texture of the surface layer: Muck
Depth to restrictive feature: More than 60 inches
Drainage class: Very poorly drained
Parent material: Loamy alluvium over sandy outwash

Flooding is least likely (frequency, months): Rare (January, February, August, September, October, November, December)
Flooding is most likely (frequency, months): Frequent (March, April, May, June, July)
Wet soil moisture status is highest (depth, months): At the surface (March, April, May, June, October, November)
Wet soil moisture status is lowest (depth, months): 1.5 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 7.4 inches
Content of organic matter in the upper 10 inches: 27.5 percent
Typical profile:
Oa—0 to 6 inches; muck
A..Bg3—6 to 30 inches; silt loam
2Bg4,2Bw—30 to 38 inches; loam
3C—38 to 66 inches; stratified sand to coarse sand to very gravelly sand

Dissimilar Components

Cathro soils

Extent: 4 percent of the unit

Worcester soils

Extent: 3 percent of the unit

Wormet soils

Extent: 3 percent of the unit

MwB—Moodig fine sandy loam, 0 to 4 percent slopes, very bouldery

Component Description

Moodig and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Drumlins and moraines
Slope range: 0 to 4 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Sandy or loamy glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 0.8 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, August, December)
Ponding: None
Available water capacity to a depth of 60 inches: 9 inches
Content of organic matter in the upper 10 inches: 1 percent
Typical profile:
Oe,Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; fine sandy loam
Bhs,Bs—5 to 14 inches; fine sandy loam
E/B,B/E—14 to 25 inches; sandy loam
Btg1..Bt—25 to 49 inches; sandy loam
C—49 to 62 inches; sandy loam

Dissimilar Components

Minocqua soils

Extent: 2 percent of the unit

Worcester soils

Extent: 2 percent of the unit

Cathro soils

Extent: 1 percent of the unit

MxB—Morganlake loamy fine sand, 0 to 6 percent slopes

Component Description

Morganlake and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 0 to 6 percent
Texture of the surface layer: Loamy fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Sandy outwash over loamy or silty glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May, October, November)
Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, June, July, August, September, December)
Ponding: None
Available water capacity to a depth of 60 inches: 8.4 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oe,Oa—0 to 2 inches; highly decomposed plant material
E—2 to 4 inches; loamy fine sand

Bs1..Bs3—4 to 26 inches; fine sand
2E/B—26 to 36 inches; fine sandy loam
2Bt1,2Bt2—36 to 65 inches; loam
2C—65 to 80 inches; silt loam

Dissimilar Components

Keshena soils

Extent: 3 percent of the unit

Moshawquit soils

Extent: 3 percent of the unit

Iosco soils

Extent: 2 percent of the unit

Menominee soils

Extent: 2 percent of the unit

MzB—Moshawquit loamy sand, 2 to 6 percent slopes

Component Description

Moshawquit and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines and outwash fans
Slope range: 2 to 6 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash over loamy glacial till over calcareous sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 6.2 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; loamy sand
Bw1..Bw3—3 to 26 inches; sand
2E/B,2B/E—26 to 48 inches; sandy loam
3C—48 to 60 inches; sand

Dissimilar Components

Soils that have a substratum of stratified sand and till

Extent: 6 percent of the unit

Rabe soils

Extent: 3 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 1 percent of the unit

MzC—Moshawquit loamy sand, 6 to 15 percent slopes

Component Description

Moshawquit and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines and outwash fans
Slope range: 6 to 15 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash over loamy glacial till over calcareous sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 6.2 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; loamy sand
Bw1..Bw3—3 to 26 inches; sand
2E/B,2B/E—26 to 48 inches; sandy loam
3C—48 to 60 inches; sand

Dissimilar Components

Soils that have a substratum of stratified sand and till

Extent: 5 percent of the unit

Rabe soils

Extent: 3 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 2 percent of the unit

NeA—Neconish fine sand, 0 to 3 percent slopes

Component Description

Neconish and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Lake plains, outwash fans, outwash plains, and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 4.9 inches
Content of organic matter in the upper 10 inches: 0.4 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sand
Bs1..BC—4 to 36 inches; fine sand
C1,C2—36 to 60 inches; fine sand

Dissimilar Components

Croswell soils

Extent: 5 percent of the unit

Rousseau soils

Extent: 3 percent of the unit

Wainola soils

Extent: 2 percent of the unit

NoB—Neopit fine sandy loam, 2 to 6 percent slopes, very bouldery

Component Description

Neopit and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Drumlins and moraines
Slope range: 2 to 6 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, July, August, September, December)
Ponding: None
Available water capacity to a depth of 60 inches: 8.5 inches
Content of organic matter in the upper 10 inches: 0.9 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sandy loam
Bw—4 to 12 inches; silt loam
E´,E/B—12 to 20 inches; fine sandy loam
B/E1..B/E3—20 to 67 inches; gravelly sandy loam
C—67 to 80 inches; loamy sand

Dissimilar Components

Scott Lake soils

Extent: 4 percent of the unit

Kennan soils

Extent: 1 percent of the unit

NpB—Neopit silt loam, 2 to 6 percent slopes, very bouldery

Component Description

Neopit and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Drumlins and moraines
Slope range: 2 to 6 percent
Texture of the surface layer: Silt loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)

Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, July, August, September, December)
Ponding: None
Available water capacity to a depth of 60 inches: 8.8 inches
Content of organic matter in the upper 10 inches: 0.9 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; silt loam
Bw—4 to 12 inches; silt loam
E´,E/B—12 to 20 inches; fine sandy loam
B/E1..B/E3—20 to 67 inches; gravelly sandy loam
C—67 to 80 inches; loamy sand

Dissimilar Components

Scott Lake soils

Extent: 4 percent of the unit

Kennan soils

Extent: 1 percent of the unit

NsA—Noseum fine sandy loam, 0 to 3 percent slopes

Component Description

Noseum and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 5.7 inches
Content of organic matter in the upper 10 inches: 1.1 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; fine sandy loam
Bs1,Bs2—3 to 14 inches; fine sandy loam
2Bs3..2BC3—14 to 32 inches; fine sand
2C1,2C2—32 to 60 inches; fine sand

Dissimilar Components

Soils that have loamy strata in the substratum

Extent: 4 percent of the unit

Karlin soils

Extent: 3 percent of the unit

Wormet soils

Extent: 3 percent of the unit

PaB—Padus fine sandy loam, 0 to 6 percent slopes

Component Description

Padus and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Kames, eskers, stream terraces, and outwash plains
Slope range: 0 to 6 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.6 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sandy loam
Bs—4 to 13 inches; fine sandy loam
E/B—13 to 22 inches; fine sandy loam
Bt—22 to 27 inches; sandy loam
2Bt—27 to 31 inches; loamy sand
2C—31 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Pence soils

Extent: 4 percent of the unit

Karlin soils

Extent: 3 percent of the unit

Rosholt soils

Extent: 3 percent of the unit

Soils that have stones on the surface

Extent: 3 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

PaC—Padus fine sandy loam, 6 to 15 percent slopes

Component Description

Padus and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Eskers, kames, outwash plains, and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.6 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sandy loam
Bs—4 to 13 inches; fine sandy loam
E/B—13 to 22 inches; fine sandy loam
Bt—22 to 27 inches; sandy loam
2Bt—27 to 31 inches; loamy sand
2C—31 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Pence soils

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Karlin soils

Extent: 3 percent of the unit

Soils that have stones on the surface

Extent: 3 percent of the unit

Rosholt soils

Extent: 2 percent of the unit

PaD—Padus fine sandy loam, 15 to 35 percent slopes

Component Description

Padus and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Eskers, kames, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.6 inches
Content of organic matter in the upper 10 inches: 1.4 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sandy loam
Bs—4 to 13 inches; fine sandy loam
E/B—13 to 22 inches; fine sandy loam
Bt—22 to 27 inches; sandy loam
2Bt—27 to 31 inches; loamy sand
2C—31 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Pence soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Karlin soils

Extent: 3 percent of the unit

Soils that have stones on the surface

Extent: 3 percent of the unit

Rosholt soils

Extent: 2 percent of the unit

PbB—Padwet fine sandy loam, 0 to 6 percent slopes

Component Description

Padwet and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash plains
Slope range: 0 to 6 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, June, July, August, December)
Ponding: None
Available water capacity to a depth of 60 inches: 6 inches
Content of organic matter in the upper 10 inches: 1.7 percent
Typical profile:
A—0 to 3 inches; fine sandy loam
E—3 to 5 inches; fine sandy loam
Bs1..E/B—5 to 22 inches; sandy loam
B/E,Bt—22 to 38 inches; sandy loam
2C—38 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Worcester soils

Extent: 5 percent of the unit

Scott Lake soils

Extent: 4 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 1 percent of the unit

PeB—Pecore loam, 2 to 6 percent slopes

Component Description

Pecore and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 2 to 6 percent
Texture of the surface layer: Loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy glacial till over calcareous, sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.3 inches
Content of organic matter in the upper 10 inches: 1.1 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
Bw1—2 to 4 inches; loam
Bw2—4 to 10 inches; loam
E/B,B/E—10 to 27 inches; clay loam
Bt1,Bt2—27 to 47 inches; clay loam
2C—47 to 62 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Soils that have loamy strata in the substratum

Extent: 6 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

Tilleda soils

Extent: 2 percent of the unit

PeC—Pecore loam, 6 to 15 percent slopes

Component Description

Pecore and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy glacial till over calcareous, sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year

Ponding: None
Available water capacity to a depth of 60 inches: 9.3 inches
Content of organic matter in the upper 10 inches: 1.1 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
Bw1—2 to 4 inches; loam
Bw2—4 to 10 inches; loam
E/B,B/E—10 to 27 inches; clay loam
Bt1,Bt2—27 to 47 inches; clay loam
2C—47 to 62 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Soils that have loamy strata in the substratum

Extent: 5 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Tilleda soils

Extent: 2 percent of the unit

PeD—Pecore loam, 15 to 35 percent slopes

Component Description

Pecore and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy glacial till over calcareous, sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.3 inches
Content of organic matter in the upper 10 inches: 1.1 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
Bw1—2 to 4 inches; loam
Bw2—4 to 10 inches; loam
E/B,B/E—10 to 27 inches; clay loam
Bt1,Bt2—27 to 47 inches; clay loam
2C—47 to 62 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Soils that have loamy strata in the substratum

Extent: 5 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Tilleda soils

Extent: 2 percent of the unit

PnB—Pence sandy loam, 0 to 6 percent slopes

Component Description

Pence and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Kames, eskers, outwash fans, and outwash plains
Slope range: 0 to 6 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.7 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; sandy loam
Bs1,Bs2—5 to 14 inches; gravelly sandy loam
2Bs3—14 to 18 inches; gravelly loamy sand
2C—18 to 62 inches; stratified coarse sand to gravelly coarse sand

Dissimilar Components

Padus soils

Extent: 4 percent of the unit

Karlin soils

Extent: 3 percent of the unit

Noseum soils

Extent: 3 percent of the unit

PnC—Pence sandy loam, 6 to 15 percent slopes

Component Description

Pence and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 6 to 15 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.7 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; sandy loam
Bs1,Bs2—5 to 14 inches; gravelly sandy loam
2Bs3—14 to 18 inches; gravelly loamy sand
2C—18 to 62 inches; stratified coarse sand to gravelly coarse sand

Dissimilar Components

Padus soils

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Karlin soils

Extent: 3 percent of the unit

PnD—Pence sandy loam, 15 to 35 percent slopes

Component Description

Pence and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, and outwash plains
Slope range: 15 to 35 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat excessively drained
Parent material: Loamy alluvium over sandy and gravelly outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.7 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
E—2 to 5 inches; sandy loam
Bs1,Bs2—5 to 14 inches; gravelly sandy loam
2Bs3—14 to 18 inches; gravelly loamy sand
2C—18 to 62 inches; stratified coarse sand to gravelly coarse sand

Dissimilar Components

Padus soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Karlin soils

Extent: 3 percent of the unit

PrB—Perote fine sandy loam, 2 to 6 percent slopes

Component Description

Perote and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines

Slope range: 2 to 6 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy glacial till over calcareous, sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.2 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
Bw1—2 to 4 inches; fine sandy loam
Bw2—4 to 11 inches; fine sandy loam
E/B,B/E—11 to 29 inches; loam
Bt—29 to 51 inches; fine sandy loam
2C—51 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Soils that have loamy strata in the substratum

Extent: 5 percent of the unit

Frechette soils

Extent: 3 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 2 percent of the unit

PrC—Perote fine sandy loam, 6 to 15 percent slopes

Component Description

Perote and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy glacial till over calcareous, sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.2 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
Bw1—2 to 4 inches; fine sandy loam
Bw2—4 to 11 inches; fine sandy loam
E/B,B/E—11 to 29 inches; loam
Bt—29 to 51 inches; fine sandy loam
2C—51 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Soils that have loamy strata in the substratum

Extent: 4 percent of the unit

Frechette soils

Extent: 3 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

PrD—Perote fine sandy loam, 15 to 35 percent slopes

Component Description

Perote and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy glacial till over calcareous, sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.2 inches
Content of organic matter in the upper 10 inches: 1.2 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
Bw1—2 to 4 inches; fine sandy loam
Bw2—4 to 11 inches; fine sandy loam

E/B,B/E—11 to 29 inches; loam
Bt—29 to 51 inches; fine sandy loam
2C—51 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Soils that have loamy strata in the substratum

Extent: 4 percent of the unit

Frechette soils

Extent: 3 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

PsB—Peshtigo loam, 0 to 4 percent slopes

Component Description

Peshtigo and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 0 to 4 percent
Texture of the surface layer: Loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Calcareous, loamy or silty glacial till
Flooding: None
Wet soil moisture status is highest (depth, months): 1 foot (March, April, May, June, October)
Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, August, December)
Ponding: None
Available water capacity to a depth of 60 inches: 9.5 inches
Content of organic matter in the upper 10 inches: 2.2 percent
Typical profile:
A—0 to 5 inches; loam
E—5 to 11 inches; loam
E/B,B/E—11 to 29 inches; loam
Bt—29 to 62 inches; clay loam
C—62 to 80 inches; clay loam

Dissimilar Components

Minocqua soils

Extent: 4 percent of the unit

Cathro soils

Extent: 3 percent of the unit

Keshena soils

Extent: 3 percent of the unit

Pt—Pits, gravel

Component Description

Pits, gravel

Extent: 100 percent of the unit
Texture of the surface layer: Stratified extremely gravelly coarse sand to gravelly sand
Flooding: None
Content of organic matter in the upper 10 inches: 0.1 percent
Typical profile:
0 to 10 inches; stratified extremely gravelly coarse sand to gravelly sand

RaB—Rabe loamy sand, 2 to 6 percent slopes

Component Description

Rabe and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 2 to 6 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash over loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 7.8 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; loamy sand
Bw1..Bw3—2 to 25 inches; sand
2E/B—25 to 35 inches; sand
2B/E,2Bt—35 to 58 inches; sandy loam
2C—58 to 80 inches; sandy loam

Dissimilar Components

Soils that have a thicker sandy mantle

Extent: 4 percent of the unit

Moshawquit soils

Extent: 3 percent of the unit

Moderately well drained areas

Extent: 2 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 1 percent of the unit

RaC—Rabe loamy sand, 6 to 15 percent slopes

Component Description

Rabe and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash over loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 7.8 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; loamy sand
Bw1..Bw3—2 to 25 inches; sand
2E/B—25 to 35 inches; sand
2B/E,2Bt—35 to 58 inches; sandy loam
2C—58 to 80 inches; sandy loam

Dissimilar Components

Soils that have a thicker sandy mantle

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Moshawquit soils

Extent: 3 percent of the unit

RaD—Rabe loamy sand, 15 to 35 percent slopes

Component Description

Rabe and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash over loamy glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 7.8 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; loamy sand
Bw1..Bw3—2 to 25 inches; sand
2E/B—25 to 35 inches; sand
2B/E,2Bt—35 to 58 inches; sandy loam
2C—58 to 80 inches; sandy loam

Dissimilar Components

Soils that have a thicker sandy mantle

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Moshawquit soils

Extent: 3 percent of the unit

RbA—Robago fine sandy loam, 0 to 3 percent slopes

Component Description

Robago and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Lake plains and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sandy loam

Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Loamy lacustrine deposits
Flooding: None
Wet soil moisture status is highest (depth, months): 0.5 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 9.2 inches
Content of organic matter in the upper 10 inches: 1 percent
Typical profile:
Oe,Oa—0 to 3 inches; highly decomposed plant material
E—3 to 4 inches; fine sandy loam
Bs1,Bs2—4 to 12 inches; fine sandy loam
E´—12 to 18 inches; sandy loam
E/B—18 to 26 inches; sandy loam
Bt—26 to 35 inches; sandy loam
C—35 to 80 inches; stratified very fine sandy loam to silt loam

Dissimilar Components

Worcester soils

Extent: 4 percent of the unit

Cathro soils

Extent: 3 percent of the unit

Minocqua soils

Extent: 3 percent of the unit

RcA—Roscommon muck, 0 to 2 percent slopes

Component Description

Roscommon and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Lake plains, stream terraces, and outwash plains
Slope range: 0 to 2 percent
Texture of the surface layer: Muck
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Poorly drained
Parent material: Sandy outwash
Flooding is least likely (frequency, months): Rare (January, February, August, September, October, November, December)
Flooding is most likely (frequency, months): Frequent (March, April, May, June, July)
Wet soil moisture status is highest (depth, months): At the surface (March, April, May, June, October, November)
Wet soil moisture status is lowest (depth, months): 1.5 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 6.1 inches
Content of organic matter in the upper 10 inches: 30 percent
Typical profile:
Oe,Oa—0 to 6 inches; muck
Cg1..C—6 to 60 inches; sand

Dissimilar Components

Markey soils

Extent: 4 percent of the unit

Au Gres soils

Extent: 3 percent of the unit

Wainola soils

Extent: 3 percent of the unit

RoB—Rosholt fine sandy loam, 0 to 6 percent slopes

Component Description

Rosholt and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Stream terraces, outwash fans, outwash plains, eskers, and kames
Slope range: 0 to 6 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.9 inches
Content of organic matter in the upper 10 inches: 1.1 percent
Typical profile:
A—0 to 4 inches; fine sandy loam
Bw—4 to 10 inches; fine sandy loam
E/B,B/E—10 to 22 inches; sandy loam

2Bt1,2Bt2—22 to 30 inches; loamy sand
2C—30 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Cromwell soils

Extent: 3 percent of the unit

Scott Lake soils

Extent: 3 percent of the unit

Padus soils

Extent: 2 percent of the unit

Soils that have a calcareous substratum

Extent: 1 percent of the unit

Soils that have slopes of more than 6 percent

Extent: 1 percent of the unit

RoC—Rosholt fine sandy loam, 6 to 15 percent slopes

Component Description

Rosholt and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Kames, outwash fans, outwash plains, stream terraces, and eskers
Slope range: 6 to 15 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.9 inches
Content of organic matter in the upper 10 inches: 1.1 percent
Typical profile:
A—0 to 4 inches; fine sandy loam
Bw—4 to 10 inches; fine sandy loam
E/B,B/E—10 to 22 inches; sandy loam
2Bt1,2Bt2—22 to 30 inches; loamy sand
2C—30 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Cromwell soils

Extent: 5 percent of the unit

Padus soils

Extent: 3 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 2 percent of the unit

RoD—Rosholt fine sandy loam, 15 to 35 percent slopes

Component Description

Rosholt and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Eskers, kames, outwash fans, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.9 inches
Content of organic matter in the upper 10 inches: 1.1 percent
Typical profile:
A—0 to 4 inches; fine sandy loam
Bw—4 to 10 inches; fine sandy loam
E/B,B/E—10 to 22 inches; sandy loam
2Bt1,2Bt2—22 to 30 inches; loamy sand
2C—30 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Cromwell soils

Extent: 5 percent of the unit

Padus soils

Extent: 3 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 2 percent of the unit

RsB—Rousseau fine sand, 0 to 6 percent slopes

Component Description

Rousseau and similar soils

Extent: 94 percent of the unit
Geomorphic setting: Outwash fans, lake plains, stream terraces, and outwash plains
Slope range: 0 to 6 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.6 inches
Content of organic matter in the upper 10 inches: 0.7 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sand
Bs1..BC—4 to 34 inches; fine sand
C—34 to 60 inches; fine sand

Dissimilar Components

Neconish soils

Extent: 4 percent of the unit

Vilas soils

Extent: 2 percent of the unit

RsC—Rousseau fine sand, 6 to 15 percent slopes

Component Description

Rousseau and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Outwash plains, stream terraces, lake plains, and outwash fans
Slope range: 6 to 15 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.6 inches
Content of organic matter in the upper 10 inches: 0.7 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sand
Bs1..BC—4 to 34 inches; fine sand
C—34 to 60 inches; fine sand

Dissimilar Components

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Vilas soils

Extent: 2 percent of the unit

RsD—Rousseau fine sand, 15 to 35 percent slopes

Component Description

Rousseau and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Lake plains, outwash fans, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.6 inches
Content of organic matter in the upper 10 inches: 0.7 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; fine sand
Bs1..BC—4 to 34 inches; fine sand
C—34 to 60 inches; fine sand

Dissimilar Components

Soils that have slopes of less than 15 percent or more than 35 percent

Extent: 3 percent of the unit

Vilas soils

Extent: 2 percent of the unit

ScA—Scott Lake fine sandy loam, 0 to 3 percent slopes

Component Description

Scott Lake and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 5.3 inches
Content of organic matter in the upper 10 inches: 1 percent
Typical profile:
A—0 to 3 inches; fine sandy loam
Bw1,Bw2—3 to 13 inches; fine sandy loam
E/B,B/E—13 to 23 inches; sandy loam
2Bt—23 to 34 inches; loamy sand
2C1,2C2—34 to 60 inches; stratified gravelly coarse sand to sand

Dissimilar Components

Sunia soils

Extent: 4 percent of the unit

Rosholt soils

Extent: 3 percent of the unit

Worcester soils

Extent: 3 percent of the unit

SfB—Shawano fine sand, 0 to 6 percent slopes

Component Description

Shawano and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Lake plains, outwash fans, outwash plains, and stream terraces
Slope range: 0 to 6 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.6 inches
Content of organic matter in the upper 10 inches: 0.1 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; fine sand
AB,Bw—2 to 26 inches; fine sand
BC,C—26 to 61 inches; fine sand

Dissimilar Components

Grayling soils

Extent: 3 percent of the unit

Crex soils

Extent: 2 percent of the unit

SfC—Shawano fine sand, 6 to 15 percent slopes

Component Description

Shawano and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Lake plains, outwash fans, outwash plains, and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.6 inches
Content of organic matter in the upper 10 inches: 0.1 percent

Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; fine sand
AB,Bw—2 to 26 inches; fine sand
BC,C—26 to 61 inches; fine sand

Dissimilar Components

Grayling soils

Extent: 3 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 2 percent of the unit

SfD—Shawano fine sand, 15 to 35 percent slopes

Component Description

Shawano and similar soils

Extent: 95 percent of the unit
Geomorphic setting: Lake plains, outwash fans, outwash plains, stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 5.6 inches
Content of organic matter in the upper 10 inches: 0.1 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 2 inches; fine sand
AB,Bw—2 to 26 inches; fine sand
BC,C—26 to 61 inches; fine sand

Dissimilar Components

Grayling soils

Extent: 3 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 2 percent of the unit

SuA—Sunia sandy loam, 0 to 3 percent slopes

Component Description

Sunia and similar soils

Extent: 91 percent of the unit
Geomorphic setting: Outwash fans, stream terraces, and outwash plains
Slope range: 0 to 3 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 1 percent
Typical profile:
A—0 to 5 inches; sandy loam
Bw1—5 to 9 inches; sandy loam
Bw2—9 to 19 inches; loamy sand
2BC—19 to 30 inches; sand
2C—30 to 60 inches; stratified sand to coarse sand

Dissimilar Components

Wormet soils

Extent: 4 percent of the unit

Cress soils

Extent: 2 percent of the unit

Cromwell soils

Extent: 2 percent of the unit

Soils that have stones on the surface

Extent: 1 percent of the unit

TlC—Tilleda sandy loam, 6 to 15 percent slopes

Component Description

Tilleda and similar soils

Extent: 90 percent of the unit

Geomorphic setting: Moraines
Slope range: 6 to 15 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy or silty glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.4 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
A—0 to 4 inches; sandy loam
Bw,E/B—4 to 17 inches; fine sandy loam
B/E..Bt2—17 to 53 inches; loam
C—53 to 60 inches; loam

Dissimilar Components

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Menominee soils

Extent: 3 percent of the unit

Keshena soils

Extent: 2 percent of the unit

Pecore soils

Extent: 2 percent of the unit

TlD—Tilleda sandy loam, 15 to 35 percent slopes

Component Description

Tilleda and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Moraines
Slope range: 15 to 35 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Well drained
Parent material: Calcareous, loamy or silty glacial till
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 9.4 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
A—0 to 4 inches; sandy loam
Bw,E/B—4 to 17 inches; fine sandy loam
B/E..Bt2—17 to 53 inches; loam
C—53 to 60 inches; loam

Dissimilar Components

Menominee soils

Extent: 4 percent of the unit

Pecore soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 2 percent of the unit

TmA—Tipler fine sandy loam, 0 to 3 percent slopes

Component Description

Tipler and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 6.1 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; fine sandy loam
Bs1..E/B—3 to 23 inches; fine sandy loam
B/E,Bt—23 to 33 inches; sandy loam
2C1,2C2—33 to 60 inches; stratified sand to gravelly coarse sand

Dissimilar Components

Scott Lake soils

Extent: 4 percent of the unit

Noseum soils

Extent: 3 percent of the unit

Worcester soils

Extent: 3 percent of the unit

ToB—Tourtillotte loamy sand, 0 to 6 percent slopes

Component Description

Tourtillotte and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Lake plains and stream terraces
Slope range: 0 to 6 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Sandy outwash over silty, loamy, and sandy lacustrine sediment
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May, October)
Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, June, July, August, December)
Ponding: None
Available water capacity to a depth of 60 inches: 5.2 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; loamy sand
Bw1..Bw3—3 to 25 inches; loamy sand
BC—25 to 33 inches; sand
C1,C2—33 to 56 inches; sand
2C3—56 to 80 inches; stratified silt loam to very fine sand

Dissimilar Components

Crex soils

Extent: 3 percent of the unit

Soils that have a till substratum

Extent: 3 percent of the unit

Ingalls soils

Extent: 2 percent of the unit

Wurtsmith soils

Extent: 2 percent of the unit

ToC—Tourtillotte loamy sand, 6 to 15 percent slopes

Component Description

Tourtillotte and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Lake plains and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Sandy outwash over silty, loamy, and sandy lacustrine sediment
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (January, February, June, July, August, December)
Ponding: None
Available water capacity to a depth of 60 inches: 5.2 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; loamy sand
Bw1..Bw3—3 to 25 inches; loamy sand
BC—25 to 33 inches; sand
C1,C2—33 to 56 inches; sand
2C3—56 to 80 inches; stratified silt loam to very fine sand

Dissimilar Components

Crex soils

Extent: 3 percent of the unit

Soils that have a till substratum

Extent: 3 percent of the unit

Wurtsmith soils

Extent: 3 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 1 percent of the unit

UdD—Udipsamments, moderately steep or steep (earthen dam)

Component Description

Udipsamments (earthen dam)

Extent: 100 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Ponding: None
Available water capacity to a depth of 60 inches: 3 inches
Content of organic matter in the upper 10 inches: 0.2 percent
Typical profile:
C—0 to 62 inches; sand

VsB—Vilas loamy sand, 0 to 6 percent slopes

Component Description

Vilas and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 0 to 6 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.9 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; loamy sand
Bs—4 to 16 inches; loamy sand
BC,C—16 to 61 inches; sand

Dissimilar Components

Karlin soils

Extent: 4 percent of the unit

Croswell soils

Extent: 3 percent of the unit

Rousseau soils

Extent: 3 percent of the unit

VsC—Vilas loamy sand, 6 to 15 percent slopes

Component Description

Vilas and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 6 to 15 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.9 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; loamy sand
Bs—4 to 16 inches; loamy sand
BC,C—16 to 61 inches; sand

Dissimilar Components

Karlin soils

Extent: 4 percent of the unit

Soils that have slopes of more than 15 percent

Extent: 3 percent of the unit

Rousseau soils

Extent: 3 percent of the unit

VsD—Vilas loamy sand, 15 to 35 percent slopes

Component Description

Vilas and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash fans, outwash plains, and stream terraces
Slope range: 15 to 35 percent
Texture of the surface layer: Loamy sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Excessively drained
Parent material: Sandy outwash
Flooding: None
Depth to wet soil moisture status: More than 6 feet all year
Ponding: None
Available water capacity to a depth of 60 inches: 4.9 inches
Content of organic matter in the upper 10 inches: 1.3 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 4 inches; loamy sand
Bs—4 to 16 inches; loamy sand
BC,C—16 to 61 inches; sand

Dissimilar Components

Karlin soils

Extent: 4 percent of the unit

Soils that have slopes of more than 35 percent

Extent: 3 percent of the unit

Rousseau soils

Extent: 3 percent of the unit

W—Water

General Description

• This map unit consists of naturally occurring basins of surface water.

WaA—Wainola loamy fine sand, 0 to 3 percent slopes

Component Description

Wainola and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Lake plains, stream terraces, and outwash plains
Slope range: 0 to 3 percent
Texture of the surface layer: Loamy fine sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 0.5 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 5.3 inches
Content of organic matter in the upper 10 inches: 1 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
A—1 to 3 inches; loamy fine sand
E—3 to 7 inches; loamy fine sand
Bhs..BC—7 to 37 inches; loamy fine sand, fine sand
C—37 to 61 inches; fine sand

Dissimilar Components

Au Gres soils

Extent: 3 percent of the unit

Neconish soils

Extent: 3 percent of the unit

Markey soils

Extent: 2 percent of the unit

Roscommon soils

Extent: 2 percent of the unit

WkB—Wayka-Rock outcrop complex, 0 to 4 percent slopes

Component Description

Wayka and similar soils

Extent: 70 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 0 to 4 percent
Texture of the surface layer: Sandy loam
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)
Drainage class: Somewhat poorly drained

Parent material: Loamy deposits over bedrock
Flooding: None
Wet soil moisture status is highest (depth, months): 0.5 foot (April, May)
Wet soil moisture status is lowest (depth, months): More than 2.2 feet (January, February, August, December)
Ponding: None
Available water capacity to a depth of 60 inches: 4.6 inches
Content of organic matter in the upper 10 inches: 0.8 percent
Typical profile:
Oa—0 to 1 inch; highly decomposed plant material
E—1 to 3 inches; sandy loam
Bs—3 to 17 inches; sandy loam
E/B—17 to 21 inches; fine sandy loam
2BC—21 to 27 inches; very gravelly loamy coarse sand
2R—27 to 60 inches; bedrock

Rock outcrop

Extent: 20 percent of the unit
Slope range: 0 to 4 percent

Dissimilar Components

Mequithy soils

Extent: 5 percent of the unit

Cathro soils

Extent: 4 percent of the unit

Minocqua soils

Extent: 1 percent of the unit

WrA—Worcester fine sandy loam, 0 to 3 percent slopes

Component Description

Worcester and similar soils

Extent: 85 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Loamy alluvium over sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 1 foot (March, April, May, October)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 6.7 inches
Content of organic matter in the upper 10 inches: 1.6 percent
Typical profile:
Oe,Oa—0 to 3 inches; highly decomposed plant material
E—3 to 6 inches; fine sandy loam
Bhs..Bs2—6 to 17 inches; fine sandy loam
B/E,Bt—17 to 29 inches; sandy loam
2C1—29 to 35 inches; sand
2C2—35 to 63 inches; stratified sand to gravelly sand

Dissimilar Components

Wormet soils

Extent: 4 percent of the unit

Minocqua soils

Extent: 3 percent of the unit

Cathro soils

Extent: 2 percent of the unit

Padwet soils

Extent: 2 percent of the unit

Scott Lake soils

Extent: 2 percent of the unit

Tipler soils

Extent: 2 percent of the unit

WtA—Wormet fine sandy loam, 0 to 3 percent slopes

Component Description

Wormet and similar soils

Extent: 90 percent of the unit
Geomorphic setting: Outwash plains and stream terraces
Slope range: 0 to 3 percent
Texture of the surface layer: Fine sandy loam
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Parent material: Loamy alluvium over sandy or gravelly outwash
Flooding: None

Wet soil moisture status is highest (depth, months): 1 foot (March, April, May, October)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 6.3 inches
Content of organic matter in the upper 10 inches: 2.1 percent
Typical profile:
Oe,Oa—0 to 3 inches; highly decomposed plant material
E—3 to 7 inches; fine sandy loam
Bhs,Bs1—7 to 16 inches; fine sandy loam
2Bs2,2BC—16 to 28 inches; loamy fine sand
2C1,2C2—28 to 63 inches; fine sand

Dissimilar Components

Worcester soils

Extent: 4 percent of the unit

Cathro soils

Extent: 3 percent of the unit

Minocqua soils

Extent: 3 percent of the unit

WuA—Wurtsmith sand, 0 to 3 percent slopes

Component Description

Wurtsmith and similar soils

Extent: 90 percent of the unit

Geomorphic setting: Outwash fans, stream terraces, and outwash plains
Slope range: 0 to 3 percent
Texture of the surface layer: Sand
Depth to restrictive feature: Very deep (more than 60 inches)
Drainage class: Moderately well drained
Parent material: Sandy outwash
Flooding: None
Wet soil moisture status is highest (depth, months): 2.5 feet (April, May)
Wet soil moisture status is lowest (depth, months): More than 6 feet (December, January, February)
Ponding: None
Available water capacity to a depth of 60 inches: 5.1 inches
Content of organic matter in the upper 10 inches: 0.6 percent
Typical profile:
Oa—0 to 2 inches; highly decomposed plant material
A—2 to 5 inches; sand
Bw1..BC2—5 to 44 inches; sand
C—44 to 62 inches; sand

Dissimilar Components

Grayling soils

Extent: 4 percent of the unit

Au Gres soils

Extent: 3 percent of the unit

Crex soils

Extent: 3 percent of the unit

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 as forest land; for crops and pasture; 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 sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair, poor,* and *very poor.*

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Forest Land

Forest land is the dominant land use in Menominee County; the county has approximately 218,153 acres of forested land. Nearly 94 percent of the county is in a sustained yield forestry program. Land is held by the United States in trust for the Menominee Nation and is managed by Menominee Tribal Enterprises. Hardwood forest types make up 65 percent of the productive forest land, and softwood forest types make up the remaining 35 percent. Sugar maple is the dominant forest cover type. It makes up nearly 51 percent of the total productive forested acreage. About 56 percent of the species are upland species, such as red pine, jack pine, eastern white pine, and eastern hemlock. The other 44 percent are lowland species, such as northern whitecedar, tamarack, balsam fir, black spruce, and white spruce. Menominee County has 25,315 acres of aspen and white paper birch; 7,445 acres of northern pin oak; 5,460 acres of red pine; 16,629 acres of eastern white pine; 744 acres of jack pine; 5,957 acres of red oak; 3,971 acres of hemlock; 43,679 acres of sugar maple and beech; 4,963 acres of hemlock and sugar maple; 11,644 acres of hemlock and yellow birch; 21,344 acres of whitecedar, tamarack, black spruce, and white spruce; 1,985 acres of black ash, red maple, balsam poplar, and slippery elm; and 61,800 acres of basswood, ash, hickory, butternut, and yellow birch (Menominee Tribal Enterprises, 1988).

In the 1999–2000 harvest year, approximately 24,418,000 board feet of sawtimber was harvested along with 67,883 cords for pulpwood and bolts (Menominee Tribal Enterprises, 2000). Menominee County will continue to provide needed timber to the forest products industry—sawtimber for lumber, veneer, and furniture; pulpwood for paper production; and bolts for pallet and crating materials.

Forest Land Management and Productivity

Management of the different soils for forest crops varies, but it should be governed by the species in the stand, the suitability of the soils for the species, and the objectives of the landowner. Specific management guidelines are available in the 1996–2005 Menominee Tribal Enterprises Forest Management Plan.

Management includes controlling erosion, overcoming soil-related equipment limitations, improving the seedling survival rate, minimizing the windthrow of trees on the wetter sites, controlling the growth of competing vegetation, planting trees where natural regeneration is unreliable, harvesting in a timely manner, controlling damage by insects and diseases, removing cull trees and undesirable species, maintaining the most productive basal area, preventing wild fires, and excluding livestock from the forest land. The paragraphs that follow describe the main concerns in managing the forest land in the county. These concerns are erosion, low soil strength, wetness, soil productivity, slope, stoniness, rock outcrops, and droughtiness.

Erosion can occur as a result of site preparation and cutting if the soil is exposed along logging roads and skid trails and on landings. Erosion generally is a hazard on forest land if the slope is 15 percent or more. Excessive soil loss can be prevented by logging, planting trees, and establishing roads and trails on the contour; yarding uphill by cable; and removing water with water bars, outsloping road surfaces, and culverts. Drop structures may be needed to stabilize highly erodible areas. Seeding areas exposed by logging activities helps to establish a protective vegetative cover.

Low soil strength can restrict the use of equipment on upland soils during the spring thaw and other excessively wet periods. Upland soils that have a moderate or high content of silt, including Antigo soils and some areas of Kennan and Neopit soils, have low strength during wet periods. Ruts form if wheeled vehicles are used when these soils are wet. Deep ruts tend to restrict lateral drainage and result in damage to tree roots. Equipment should be used only when the soils are not too wet or when the ground is frozen. On the very silty soils, such as Antigo soils, all-weather roads need a gravel base because unsurfaced roads are slippery and easily rutted during wet periods. On these soils, landings that are stabilized with gravel can better withstand the repeated use of heavy equipment.

Wetness is the result of flooding, ponding, or a zone of saturation high in the profile. It can be a problem in forested areas of very poorly drained, poorly drained, and somewhat poorly drained soils. Wetness can cause seedling mortality on some of the soils and can limit the use of equipment and increase the windthrow hazard. It also increases the extent of the vegetation that competes with tree regeneration.

The mortality rate can be high on the poorly drained and very poorly drained soils. It also is a problem on the somewhat poorly drained Au Gres, Ingalls, Iosco, Peshtigo, Robago, Wainola, and Wayka soils and in some areas of the somewhat poorly drained Lablatz, Moodig, Worcester, and Wormet soils where water accumulates in the swales between cradle-knolls. Seedling survival rates can be increased by planting vigorous nursery stock on prepared ridges or on the crest of cradle-knolls. Where mechanical tree planters cannot be used because of wetness during the planting season, hand planting of trees is necessary if natural tree regeneration is unreliable.

The use of equipment on poorly drained and very poorly drained soils is generally limited to periods during the winter when the ground is frozen. On somewhat poorly drained soils, especially silty soils, using equipment only when the soils are not too wet or when the ground is frozen helps to prevent the formation of ruts. On these soils, logging roads and landings that have a gravel base can better withstand the repeated use of heavy equipment. Also, the landings can be established on suitable adjacent soils that are better drained. Culverts are needed along graveled roads to maintain the natural drainage system.

Trees tend to be shallow rooted in areas where a zone of saturation is near the surface. During periods of excessive wetness, there is a high potential for trees to be blown down as a result of strong winds.

Soil productivity is so high on much of the forested acreage in the county that the growth of undesirable plants is a problem. Competition from unwanted plants can delay or prevent natural regeneration of the desired tree species and can hinder the establishment of planted trees. Plant competition is especially severe on nutrient-rich soils and on the wetter soils. In areas where equipment can be used, the unwanted plants can be removed by machinery. Skidding may expose enough soil for adequate regeneration. Before trees are planted, site preparation by mechanical or chemical means generally is needed to control competing vegetation. Subsequent control of invading species may be needed on the more fertile soils.

Slope, stoniness, and *rock outcrops* can limit the use of forestry equipment. The slope is a problem in areas where it is 15 percent or more. Surface stones and bedrock outcrops also interfere with the use of equipment. Stones are common in some areas of soils that formed wholly or partly in glacial till. Rock outcrops are common in some areas of Ishpeming, Mequithy, and Wayka soils. Trees should be planted by hand and yarded with a cable in areas where the slope, stones, or rock outcrops prohibit the use of equipment. Building logging roads on the contour helps to maintain a low grade. Roads and landings can be established in the less sloping areas. In areas of Ishpeming and Mequithy soils, the underlying bedrock restricts the excavation of deep cuts and road ditches.

Droughtiness can cause seedling mortality. The steeper south- or west-facing slopes are especially droughty because of high soil temperatures and a high evaporation rate. Droughtiness is a problem in areas of Cress, Crex, Cromwell, Croswell, Grayling, Ishpeming, Karlin, Mahtomedi, Neconish, Noseum, Pence, Rousseau, Shawano, Sunia, Vilas, and Wurtsmith soils and in hilly to very steep areas of Padus and Rosholt soils that face south or west. If natural regeneration is unreliable, seedling survival during dry periods can be improved by planting containerized seedlings or vigorous nursery stock during periods when the soil is moist. Reinforcement planting may be needed on very dry sites.

Information about the hazards and limitations that should be considered in areas used as forest land is provided in tables 5 through 8.

Forest Land Harvest Equipment Considerations

For most soils spring is the most limiting season. Alternate thawing and freezing during snowmelt cause saturation and low strength of the surface soil layers. When thawing is complete, saturation continues for short periods in well drained soils to nearly all year in very poorly drained soils in depressions. Degrees of wetness are generally proportionate to the depth at which a zone of saturation occurs. This zone generally is lower in summer during the heavy use of moisture by vegetation and is nearer the surface during periods when absorbed precipitation is greater than the vegetation requires. Harvesting during periods of saturation usually results in severe soil damage, except when the soil is frozen. The preferred season for timber harvest on many soils is winter, when wetness and low soil strength can be overcome by freezing.

Considerations shown in table 5 are as follows:

Slope.—The upper slope limit is more than 15 percent.

Flooding.—The map unit component is frequently flooded.

Wetness.—The map unit component is somewhat poorly drained, poorly drained, or very poorly drained or has a perched zone in which the soil moisture status is wet (any drainage class).

Depth to hard rock.—The depth to hard bedrock is less than 10 inches.

Rubbly surface.—The word “rubbly” is in the map unit name.

Surface stones.—The words “extremely stony” are in the map unit name.

Surface boulders.—The word “bouldery” is in the map unit name.

Areas of rock outcrop.—Rock outcrop is a named component in the map unit.

Susceptible to rutting and wheel slippage (low strength).—The AASHTO classification is A-6, A-7, or A-8 in any layer at a depth of 20 inches or less.

Poor traction (loose sandy material).—The USDA texture includes sands or loamy sands in any layer at a depth of 10 inches or less.

Forest Haul Road Considerations

Haul roads serve as transportation routes from log landings to primary roads. Generally, haul roads are unpaved, but some are graveled.

Considerations shown in table 6 are as follows:

Slope.—The slope is 8 percent or more.

Flooding.—The map unit component is frequently flooded.

Wetness.—The map unit component is somewhat poorly drained, poorly drained, or very poorly drained or has a perched zone in which the soil moisture status is wet (any drainage class).

Depth to hard rock.—The depth to hard bedrock is less than 20 inches.

Depth to soft rock.—The depth to soft bedrock is less than 20 inches.

Surface boulders.—The word “bouldery” is in the map unit name.

Areas of rock outcrop.—Rock outcrop is a named component in the map unit.

Low bearing strength.—The AASHTO classification is A-6, A-7, or A-8 in any layer at a depth of 20 inches or less.

Rubbly surface.—The word “rubbly” is in the map unit name.

Forest Log Landing Considerations

Log landings are areas where logs are assembled for transportation (fig. 5). Areas that require little or no cutting, filling, or surface preparation are desired.

Considerations shown in table 7 are as follows:

Slope.—The slope is more than 3 percent.

Flooding.—The map unit component is occasionally flooded or frequently flooded.

Wetness.—The map unit component is somewhat poorly drained, poorly drained, or very poorly drained or has a perched zone in which the soil moisture status is wet (any drainage class).

Surface boulders.—The word “bouldery” is in the map unit name.

Areas of rock outcrop.—Rock outcrop is a named component in the map unit.

Susceptible to rutting and wheel slippage (low strength).—The AASHTO classification is A-6, A-7, or A-8 in any layer at a depth of 20 inches or less.

Rubbly surface.—The word “rubbly” is in the map unit name.

Forest Land Site Preparation and Planting Considerations

Considerations shown in table 8 are as follows:

Slope.—The upper slope limit is more than 15 percent.

Flooding.—The map unit component is frequently flooded.

Wetness.—The map unit component is somewhat

Figure 5.—A log landing site for the Menominee Tribal Enterprises sawmill at Neopit, in an area of Padus soils.

poorly drained, poorly drained, or very poorly drained or has a perched zone in which the soil moisture status is wet (any drainage class).

Depth to hard rock.—The depth to hard bedrock is less than 20 inches.

Surface stones.—The word “stony” is in the map unit name.

Surface boulders.—The word “bouldery” is in the map unit name.

Areas of rock outcrop.—Rock outcrop is a named component in the map unit.

Water erosion.—The slope is 8 percent or more.

Potential poor tilth and compaction.—The AASHTO classification is A-6 or A-7 in the upper 10 inches.

Rubbly surface.—The word “rubbly” is in the map unit name.

Cobbly surface.—The word “cobbly” is in the map unit name.

Forest Land Productivity

Table 9 can be used by forest land owners or managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index* and as a *volume* number. The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest land managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

The *volume*, 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 on a fully stocked, even-aged, unmanaged stand.

Trees to manage are based on the forest habitat classification system. They are the trees that are most likely to produce the maximum quality and quantity of sawlog material.

Forest Habitat Types

A forest habitat type includes all sites capable of producing similar potential climax plant communities. Each habitat type represents a relatively narrow segment of environmental variation that is characterized by a specific potential for vegetation development.

The habitat type classification system classifies forest plant communities and the sites on which they develop. It groups land units that have similar capacity to produce vegetation (biological potential). The habitat type system uses floristic composition of plant communities as an integrated indicator of those environmental factors that affect species reproduction, growth, competition, and community development. Within a class, although a variety of forest cover types may be associated with early and middle successional stages, the ecologically significant results of long-term environmental interactions are similar.

Habitat types are characterized by plant associations, not by individual indicator species. Differential (diagnostic) species combinations in the understory flora are used to identify habitat types at any successional stage, but they have meaning only in the context of the specific habitat types or groups being compared.

Forest habitat types in Menominee County can be identified and interpreted using one of two field guides. The field guide developed specifically for Menominee County is the primary guide used in Tribal forest management plans (Kotar and Burger, 1989). This guide has since been incorporated into the second edition of the “Field Guide to Forest Habitat Types of Northern Wisconsin” (Kotar and others, 2002). Some of the original habitat types have been redefined to reflect conditions and applications on a more regional basis and to improve understanding of their characteristics.

Both guides provide keys to habitat type identification based on the presence or absence of differential understory species; describe the characteristic understory species composition, the common forest cover types, and the expected successional trends; and summarize management implications for each habitat type. Management considerations include inherent site capability (biological potential), potential responses to disturbance, competition, successional trends, potential cover types, and expected suitability and productivity for specific tree species.

Although soil map units do not coincide exactly with habitat types, there is a strong correlation between them. Soil moisture and nutrient regimes are key factors determining habitat type occurrence. Each soil map unit can be consistently associated with one dominant or two codominant habitat types. A dominant habitat type is expected to be associated with the given soil map unit at least 60 percent of the time. If two codominant habitat types are assigned, the expected combined frequency of occurrence is at least 70 percent and both are listed together. Depending on site conditions, other habitat types may occur within a soil map unit, but individually they have a relatively low percentage of occurrence. Based on the ecological potential of the soil rather than on the current forest cover type, which may vary depending on stand history, this correlation between soil map units and forest habitat types provides forest managers with a valuable tool in developing forest management plans.

The habitat types are listed in order of their associated site moisture and nutrient status. Moisture and nutrient status terms simply reflect an abstract gradient as a means to compare one habitat type with another. The moisture status range includes dry, dry-mesic, mesic, and wet-mesic. The nutrient status range includes poor, medium, rich, and very rich. Habitat types on the driest and poorest nutrient sites are listed first.

The following paragraphs provide brief general descriptions of the habitat types in Menominee County (see table 10). Habitat types have been assigned to all upland soils using both of the field guides. The vegetative communities on lowland and wetland soils are not addressed in either guide; therefore, no further source of information is available other than what is described in this survey. These soils have been assigned vegetative categories based on soil properties. The categories are indicated by the letter L followed by letters referring to general soil properties. For some map units, including miscellaneous areas, no habitat type or vegetative category has been assigned.

The habitat types for upland soils are as follows:

PArVAo—Pinus strobus-Acer rubrum/Vaccinium angustifolium-Apocynum androsaemifolium habitat type (northern Wisconsin guide only). The common name is White pine-Red maple/Low sweet blueberry-Spreading dogbane. Timber stands dominated by pin oak are common. This species is commonly mixed with jack pine, white pine, red pine, and aspen. The shrub layer commonly includes low sweet blueberry, raspberry, sweet fern, hazel, blackberry, chokecherry, and juneberry. The ground flora commonly includes bracken fern, wild lily-of-the-valley, wintergreen, spreading dogbane, starflower, rose, sedge, and wild strawberry. Site characteristics include dry moisture status and poor nutrient status. This habitat type is mostly in areas of some of the Grayling soils in the southeastern part of the county. It is related to the QV habitat type in the Menominee guide.

QV—Quercus/Vaccinium habitat type (Menominee guide only). The common name is Pin oak/Low sweet blueberry. Timber stands dominated by pin oak are common. This species is commonly mixed with jack pine, white pine, red pine, and aspen. The shrub layer commonly includes blackberry, raspberry, blueberry, chokecherry, hazel, and juneberry. The ground flora commonly includes bracken fern, spreading dogbane, rose, sedge, wild lily-of-the-valley, and sweet fern. Site characteristics include dry moisture status and poor nutrient status. This habitat type is mostly in areas of some of the Grayling soils in the southeastern part of the county. It is related to the PArVAo habitat type in the northern Wisconsin guide.

PArVPo—Pinus strobus-Acer rubrum/Vaccinium angustifolium-Polygonatum pubescens habitat type (northern Wisconsin guide only). The common name is White pine-Red oak/Low sweet blueberry-Hairy Solomon's seal. Timber stands dominated by white pine, jack pine, red pine, red oak, red maple, and aspen are common. The shrub layer commonly includes hazel, blackberry, low sweet blueberry, chokecherry, juneberry, hawthorn, and bush honeysuckle. The ground flora commonly includes bracken fern, wild lily-of-the-valley, hairy Solomon's seal, whorled loosestrife, spreading dogbane, starflower, sedge, and poison ivy. Site characteristics include dry or dry-mesic moisture status and poor or medium nutrient status. This habitat type is in areas of Crex, Grayling, Mahtomedi, Shawano, and Wurtsmith soils in the eastern part of the county. It is related to the PMV(Q) habitat type in the Menominee guide.

PMV(Q)—Pinus/Maianthemum-Vaccinium (Quercus ellipsoidalis phase) habitat type (Menominee guide only). The common name is White pine/Wild lily-of-the-valley-Blueberries (northern pin oak phase). Timber stands dominated by white pine, red maple, red oak, and aspen are common. Most stands include pin oak, red pine, and jack pine. The shrub layer commonly includes hazel, maple-leaf viburnum, tick trefoil, bush honeysuckle, blackberry, chokecherry, hawthorn, and blueberry. The ground flora commonly includes bracken fern, wild lily-of-the-valley, hairy Solomon's seal, shinleaf, early meadow rue, sedge, and poison ivy. Site characteristics include dry-mesic moisture status and poor or medium nutrient status. This habitat type is in areas of Crex, Grayling, Mahtomedi, Shawano, and Wurtsmith soils in the eastern part of the county. It is related to the PArVPo habitat type in the northern Wisconsin guide.

AVb—Acer saccharum/Viburnum acerifolium habitat type (northern Wisconsin guide only). The common name is Sugar maple/Maple-leaf viburnum. Timber stands dominated by red maple, red oak, American basswood, white ash, and aspen are common. Most stands include white birch and white pine. Sugar maple and American beech occur only in the understory. The shrub layer commonly includes hazel, maple-leaf viburnum, witchhazel, juneberry, blackberry, and bush honeysuckle. The ground flora commonly includes bracken fern, large-leaved aster, wild sarsaparilla, trillium, hog peanut, round-lobed hepatica, false Solomon's seal, starflower, wood anemone, wild lily-of-the-valley, and pointed-leaf tick trefoil. Site characteristics include dry-mesic moisture status and medium or rich nutrient status. This habitat type is mostly in areas of Aftad, Cress, Cromwell, Frechette, Keshena, Mahtomedi, Menominee, Moshawquit, Pecore, Perote, Rabe, Rosholt, Scott Lake, Sunia, Tilleda, and Tourtillotte soils in the eastern part of the county. It is related to the AQVib and AQVib(Ha) habitat types in the Menominee guide.

AQVib—Acer-Quercus/Viburnum habitat type (Menominee guide only). The common name is Sugar maple-Red oak/Maple-leaf viburnum. Timber stands dominated by mixtures of red oak, red maple, aspen, and white pine are common. Sugar maple, basswood, beech, and white ash are associated as part of the understory in most stands. The shrub layer commonly includes hazel, maple-leaf viburnum, and witchhazel. The ground flora commonly includes bush honeysuckle, trillium, starflower, wild lily-of-the-valley, bracken fern, false Solomon's seal, large-leaved aster, and pointed-leaf tick trefoil. Site characteristics include dry-mesic moisture status and medium nutrient status. This habitat type is mostly in areas of Cress, Cromwell, Mahtomedi, Moshawquit, Perote, Rabe, Rosholt, Sunia, and Tourtillotte soils in the eastern part of the county. It is related to the AVb habitat type in the northern Wisconsin guide.

AQVib(Ha)—Acer-Quercus/Viburnum (Hamamelis phase) habitat type (Menominee guide only). The common name is Sugar maple-Red oak/Maple-leaf viburnum (witchhazel phase). Timber stands dominated by mixtures of red oak, red maple, aspen, and white pine are common. Sugar maple, basswood, beech, and white ash are associated as part of the understory in most stands. The shrub layer commonly includes hazel, maple-leaf viburnum, and witchhazel. The ground flora commonly includes spinulose shield fern, bristly greenbriar, sweet cicely, alternate-leaved dogwood, early meadow rue, large-leaved aster, lady fern, violet, pointed-leaf tick trefoil, and round-lobed hepatica. Site characteristics include dry-mesic moisture status and medium nutrient status. This habitat type is mostly in areas of Frechette, Keshena, Menominee, Morganlake, Pecore, Perote, and Tilleda soils on the moraines in the eastern part of the county, but it is also in areas of Aftad, Rosholt, and Scott Lake soils in the central part of the county. It is related to the AVb and AFVb habitat types in the northern Wisconsin guide.

AFVb—Acer saccharum-Fagus grandifolia/ Viburnum acerifolium habitat type (northern Wisconsin guide only). The common name is Sugar maple-American beech/Maple-leaf viburnum. Timber stands dominated by sugar maple, red oak, and aspen are most common. American beech, basswood, white ash, and red maple are in most stands. The shrub layer commonly includes hazel, maple-leaf viburnum, and witchhazel. The ground flora commonly includes bracken fern, large-leaved aster, spinulose shield fern, hog peanut, wild sarsaparilla, trillium, large-flowered bellwort, false Solomon's seal, starflower, violet, wild lily-of-the-valley, hairy Solomon's seal, Indian cucumber root, and lady fern. Site characteristics include dry-mesic or mesic moisture status and medium or rich nutrient status. This habitat type is primarily in areas of Aftad, Frechette, Kennan, Keshena, Menominee, Neopit, Pecore, Perote, Rabe, Rosholt, Scott Lake, and Tilleda soils in the eastern part of the county and in areas of Kennan and Neopit soils on drumlins in the central part of the county. It is related to the AFVib and AQVib(Ha) habitat types in the Menominee guide.

AFVib—Acer-Fagus/Viburnum habitat type (Menominee guide only). The common name is Sugar maple-American beech/Maple-leaf viburnum. Timber stands dominated by sugar maple, red oak, red maple, white ash, and American beech are common. The shrub layer commonly includes maple-leaf viburnum. The common ground flora includes starflower, violet, wild lily-of-the-valley, false Solomon's seal, hairy Solomon's seal, large-flowered bellwort, wild sarsaparilla, spinulose shield fern, Indian cucumber root, and lady fern. Site characteristics include dry-mesic or mesic moisture status and medium or rich nutrient status. This habitat type is primarily in areas of Frechette soils on the mountain moraines in the eastern part of the county and in areas of Kennan and Neopit soils on drumlins and Scott Lake soils in the central part of the county. It is related to the AFVb habitat type in the northern Wisconsin guide.

ATM—Acer saccharum-Tsuga canadensis/ Maianthemum canadense habitat type (Menominee and northern Wisconsin guides). The common name is Sugar maple-Eastern hemlock/Wild lily-of-the-valley. On loamy sites, timber stands dominated by sugar maple and aspen are common; eastern hemlock, yellow birch, white ash, red maple, white pine, and red oak are in most stands. On sandy sites, timber stands dominated by eastern hemlock, red maple, yellow birch, and aspen are common; sugar maple and white pine are in most stands. The shrub layer commonly includes hazel, alternate-leaved dogwood, American fly honeysuckle, and bush honeysuckle. The ground flora commonly includes wild lily-of-the-valley, large-leaved aster, wild sarsaparilla, bracken fern, clubmoss, spinulose shield fern, lady fern, starflower, yellow beadlily, ground pine, partridgeberry, rosy twistedstalk, and wood anemone. Site characteristics include mesic or dry-mesic moisture status and medium nutrient status. This habitat type is mostly in the central and western parts of the county in areas of Karlin, Mequithy, Pence, and Tipler soils and in the central and south-central parts of the county in areas of Ishpeming, Rousseau, and Vilas soils.

ATFD—Acer saccharum-Tsuga canadensis-Fagus grandifolia/Dryopteris spinulosa habitat type (Menominee and northern Wisconsin guides). The common name is Sugar maple-Eastern hemlock-American beech/Spinulose shield fern. Timber stands dominated by sugar maple are common. Eastern hemlock, American beech, basswood, white ash, yellow birch, and red oak are in most stands. Red maple and white birch stands also occur. The shrub layer commonly includes gooseberry. The ground flora commonly includes spinulose shield fern, hairy Solomon's seal, wild sarsaparilla, baneberry, rosy twistedstalk, trillium, wild lily-of-the-valley, partridgeberry, starflower, bracken fern, large-leaved aster, and American fly honeysuckle. Site characteristics include mesic moisture status and medium or rich nutrient status. This habitat type occurs in the eastern part of the county in areas of Croswell, Lablatz, Neconish, Rousseau, and Vilas soils.

ATDH—Acer saccharum-Tsuga canadensis/ Dryopteris spinulosa-Hydrophyllum virginianum habitat type (Menominee and northern Wisconsin guides). The common name is Sugar maple-Eastern hemlock/ Spinulose shield fern-Virginia waterleaf. Timber stands dominated by sugar maple are common. Eastern hemlock, basswood, white ash, and yellow birch are in most stands. Red maple is typically a component of stands on the wetter sites. The shrub layer commonly includes gooseberry, hazel, blackberry, American fly honeysuckle, and leatherwood. The ground flora commonly includes spinulose shield fern, large-leaved aster, wild lily-of-the-valley, trillium, wild sarsaparilla, sweet cicely, jack-in-the-pulpit, large-flowered bellwort, Virginia waterleaf, blue cohosh, sharp-lobed hepatica, starflower, clubmoss, violet, red elderberry, and yellow beadlily. Site characteristics include mesic moisture status and rich nutrient status. This habitat type commonly is in the western part of the county in areas of Karlin, Padus, Padwet, and Tipler soils. It is also in areas of Annalake, Moodig, and Noseum soils that have a seasonal zone of saturation close to the surface.

AFAd—Acer saccharum-Fagus grandifolia/ Adiantum pedatum habitat type (Menominee and northern Wisconsin guides). The common name is Sugar maple-American beech/Maidenhair fern. Timber stands dominated by sugar maple are most common. American beech, basswood, red oak, white ash, and bitternut hickory are in most stands. The shrub layer commonly includes gooseberry and leatherwood. The ground flora commonly includes sharp-lobed hepatica, maidenhair fern, Virginia waterleaf, bloodroot, baneberry, large-flowered bellwort, trillium, false Solomon's seal, sweet cicely, violet, blue cohosh, miterwort, hairy Solomon's seal, and lady fern. Site characteristics include dry-mesic or mesic moisture status and rich or very rich nutrient status. This habitat type typically is in areas of Frechette soils on the westernmost mountain moraine in the east-central part of the county.

AH—Acer saccharum/Hydrophyllum virginianum habitat type (Menominee and northern Wisconsin guides). The common name is Sugar maple/Virginia waterleaf. Timber stands dominated by sugar maple are common. Basswood, white ash, red maple, red oak, and yellow birch are in most stands. The shrub layer commonly includes gooseberry, leatherwood, red elderberry, and alternate-leaved dogwood. The ground flora commonly includes Virginia waterleaf, blue cohosh, bloodroot, maidenhair fern, sweet cicely, lady fern, downy yellow violet, early meadow rue, large-flowered bellwort, trillium, large-leaved aster, sharp-lobed hepatica, spinulose shield fern, wood nettle, hairy Solomon's seal, and wild leek. Site characteristics include mesic moisture status and rich or very rich nutrient status. This habitat type is primarily in areas of Annalake and Antigo soils and in some areas of Kennan and Neopit soils in the western part of the county.

ATAtOn—Acer saccharum-Tsuga canadensis/ Athyrium filix-femina-Onoclea sensibilis habitat type (northern Wisconsin guide only). The common name is Sugar maple-Eastern hemlock/Lady fern-Sensitive fern. Timber stands dominated by sugar maple, red maple, and aspen are common. Eastern hemlock, yellow birch, basswood, white ash, and black ash are in most stands. The shrub layer commonly includes hazel, blackberry, gooseberry, and dwarf raspberry. The ground flora is dominated by lady fern and spinulose shield fern but commonly includes beech fern, oak fern, sensitive fern, interrupted fern, large-leaved aster, wild sarsaparilla, Virginia creeper, wild lily-of-the-valley, horsetails, and jack-in-the-pulpit. Site characteristics include mesic or wet-mesic moisture status and medium nutrient status. This habitat type is mostly in areas of Peshtigo soils in the eastern part of the county. It has no counterpart in the Menominee guide.

TMC—Tsuga canadensis/Maianthemum canadense-Coptis groenlandica habitat type (northern

Wisconsin guide). The common name is Eastern hemlock/Wild lily-of-the-valley-Goldthread. Timber stands dominated by eastern hemlock, red maple, balsam fir, and sugar maple are common. White birch, yellow birch, white spruce, and white pine are in most stands. The shrub layer commonly includes hazel, American fly honeysuckle, bush honeysuckle, blackberry, and raspberry. The ground flora commonly includes goldthread, wild lily-of-the-valley, starflower, bunchberry, clubmoss, yellow beadlily, large-leaved aster, wild sarsaparilla, bracken fern, spinulose shield fern, wood sorrel, violet, and lady fern. Site characteristics include mesic or wet-mesic moisture status and medium nutrient status. This habitat type is mostly in the central and western parts of the county in areas of Ingalls, Lablatz, Moodig, Robago, Wayka, Worcester, and Wormet soils. All of the soils have a seasonal zone of saturation that restricts rooting depth, and cradle-knolls resulting from the windthrow of trees are common. This habitat type is related to the TMC habitat type in the Menominee guide.

TMC—Tsuga/Maianthemum-Coptis habitat type (Menominee guide only). The common name is Eastern hemlock/Wild lily-of-the-valley-Goldthread. Timber stands dominated by eastern hemlock are common. Yellow birch, white pine, red maple, sugar maple, balsam fir, and white cedar are in most stands. Basswood and white ash are in many stands. The shrub layer commonly includes mountain maple and Canada yew. The ground flora commonly includes wild lily-of-the-valley, goldthread, spinulose shield fern, shining clubmoss, yellow beadlily, wood sorrel, bunchberry, and starflower. On loamy sites, violet and lady fern are common. On sandy sites, blueberry, bracken fern, ground pine, and wintergreen are common. Site characteristics include mesic or wet-mesic moisture status and poor or medium nutrient status. This habitat type is in the central and western parts of the county in areas of Ingalls, Lablatz, Moodig, Robago, Wayka, Worcester, and Wormet soils and in the central and eastern parts of the county in areas of Au Gres, Iosco, and Wainola soils. All of the soils have a seasonal zone of saturation that restricts rooting depth, and cradle-knolls resulting from the windthrow of trees are common. This habitat type is related to the TMC and ArAbVC habitat types in the northern Wisconsin guide.

ArAbVC—Acer rubrum-Abies balsamea/Vaccinium spp.-Coptis groenlandica habitat type (northern Wisconsin guide only). The common name is Red maple-Balsam fir/Blueberries-Goldthread. Timber stands dominated by red maple, balsam fir, white pine, red pine, and aspen are common. White birch and white spruce are in most stands. The shrub layer commonly includes blueberry, hazel, blackberry, juneberry, and bush honeysuckle. The ground flora commonly includes bracken fern, large-leaved aster, wild sarsaparilla, wild lily-of-the-valley, starflower, yellow beadlily, spinulose shield fern, clubmoss, bunchberry, goldthread, ground pine, and wintergreen. Site characteristics include mesic or wet-mesic moisture status and poor nutrient status. This habitat type is mostly in the central and eastern parts of the county in areas of Au Gres, Iosco, and Wainola soils. All of the soils have a seasonal zone of saturation that restricts rooting depth, and cradle-knolls resulting from the windthrow of trees are common. This habitat type is related to the TMC habitat type in the Menominee guide.

The vegetative categories for lowland soils are as follows:

Llmin—Lowland-Loamy mineral soils. This vegetative community occurs in areas of wet, loamy mineral soils, such as Minocqua soils, in depressions, mostly in the central and western parts of the county. These soils have not been assigned a habitat type. They commonly support timber stands dominated by black ash, red maple, yellow birch, and eastern hemlock. The ground flora commonly includes sedge, goldthread, marsh shield fern, sphagnum moss, impatiens, starflower, wild lily-of-the-valley, and yellow beadlily.

Lsmin—Lowland-Sandy mineral soils. This vegetative community occurs in areas of wet, sandy mineral soils, such as Roscommon soils, in depressions, mostly in the central and eastern parts of the county. These soils have not been assigned a habitat type. They commonly support sparse timber stands dominated by quaking aspen, paper birch, and red maple. The ground flora commonly includes cinnamon fern, sedge, dewberry, goldthread, marsh shield fern, bunchberry, sphagnum moss, tag alder, and redosier dogwood.

Laor—Lowland-Acid organic soils. This vegetative community occurs in areas of acid organic soils, such as Loxley soils, in bogs throughout the county. These soils have not been assigned a habitat type. They commonly do not support trees of merchantable size or quality. The timber stands consist mostly of widely spaced and stunted black spruce and tamarack. The ground flora commonly includes sphagnum moss, leatherleaf, and bog laurel.

Lnor—Lowland-Nonacid organic soils. This vegetative community occurs in areas of nonacid organic soils, such as Cathro, Lupton, and Markey soils, in depressions throughout the county. These soils have not been assigned a habitat type. They commonly support timber stands dominated by northern whitecedar, tamarack, and balsam fir. The ground flora commonly includes sphagnum moss, goldthread, bunchberry, tag alder, marsh shield fern, starflower, naked miterwort, cinnamon fern, yellow beadlily, wild lily-of-the-valley, and wood sorrel.

Crops and Pasture

General management needed for crops and for hay and pasture is suggested in this section. Also, prime farmland is defined.

Planners of management systems for individual fields or farms should consider obtaining specific information from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Historically, as much as about 1,500 acres of the county has been used as cropland. In 1997, according to the USDA Farm Service Agency, about 550 acres in Menominee County was used for crops and pasture. About 50 acres was pasture. About 380 acres of the harvested cropland was used for hay, 4 acres for oats, and 80 acres for corn.

A large part of the cropland is used for the production of forage hay, oats, and corn to support the dairy industry. The hay crop is commonly a mixture of bromegrass and timothy in areas where the soils are well drained. The acreage used for hay, corn, and oats has remained relatively stable for many years.

The soils in Menominee County vary in their suitability for specialty crops. Special, more intensive management commonly is needed if specialty crops are grown. The latest information about growing specialty crops can be obtained from the local office of the Cooperative Extension Service.

The soils in Menominee County have good potential for increased production of farm crops. Applying proper conservation measures can help to maintain productivity, reduce the hazard of erosion, and help to protect water quality. Food production could be increased considerably by applying the latest crop production technology to all of the cropland in the county. This soil survey can greatly facilitate the application of such technology.

Management varies on the different kinds of soil in Menominee County. Basic management, however, is needed on practically all of the soils. It includes controlling erosion; providing an adequate drainage system; maintaining fertility; maintaining or improving tilth; preparing a good seedbed; and timely planting, harvesting, and pest-control measures. Basic management of pasture includes proper stocking rates; rotation grazing; pasture renovation; clipping or mowing, which removes weeds and brush and encourages uniform regrowth and grazing; and restricted use during periods when the soil can be damaged by grazing. Crop yields and the kinds of crops that can be grown are limited by the frost hazard, a short growing season, and cool temperatures.

The paragraphs that follow describe the main concerns in managing the cropland and pasture in the county. These concerns are water erosion, wind erosion, drainage, fertility, and tilth.

Water erosion is generally a hazard in areas where the slope is more than 2 percent. Erosion is a problem in areas where erodible soils are used for row crops. Erosion-control measures provide a protective cover, help to control runoff rates, increase the rate of water infiltration, and divert runoff from critical areas.

Wind erosion is a hazard on soils that have a surface layer of loamy sand, sandy loam, fine sandy loam, or muck. Most areas of these soils, however, currently have a protective cover of vegetation. Wind erosion can damage the soils in a short time if winds are strong and the soils are dry and bare of vegetation. Field borders, field windbreaks, and vegetative wind barriers help to prevent the damage caused by wind erosion. They also conserve moisture. Conservation tillage, cover crops, green manure crops, crop residue management, a cropping sequence that includes grasses and legumes, regular additions of manure, and tillage methods that keep the surface rough also help to control soil blowing and conserve the water available for plant growth.

Information about the design of measures that control water erosion and wind erosion on each kind of soil is provided in the Field Office Technical Guide, which is available at the local office of the Natural Resources Conservation Service.

Drainage is a major management concern on much of the acreage used for crops and pasture. Most of the wetter areas are not farmed. The poorly drained and very poorly drained soils generally are not farmed. The somewhat poorly drained soils are mostly used for nonfarm purposes, primarily forest land.

Small areas of wetter soils are included with the moderately well drained soils in mapping. A drainage system is needed in some of these included areas to promote uniform drying.

Surface drainage systems provide for the orderly removal of the excess surface water resulting from spring runoff or heavy rains. A surface drainage system can improve the growing conditions for most crops. Information about the design of drainage systems for each kind of soil is provided in the Field Office Technical Guide, which is available at local offices of the Natural Resources Conservation Service.

Soil fertility is naturally low in the sandy Au Gres, Croswell, Crex, Grayling, Mahtomedi, Rousseau, Shawano, Vilas, Wainola, and Wurtsmith soils. Some of the most fertile soils in the county are the very deep, silty soils, such as Antigo, Kennan, and Neopit soils, or the deep, loamy soils, such as Aftad, Annalake, Keshena, Moodig, Padus, Peshtigo, and Tilleda soils, which have a high available water capacity.

Fertility can be improved by applying nutrients. The response to additions of plant nutrients is limited on most of the soils, however, because of acid soil conditions, wetness, low available water content during dry periods, or a combination of these soil properties. Most of the soils have a low supply of potassium. Applications of nitrogen, phosphorus, and potassium generally are needed. Applications of sulfur are beneficial on the sandy soils.

Fertility also can be improved or maintained by using measures that add organic material to the soil. Examples are applying barnyard manure, plowing a green manure crop under, and returning crop residue to the soil.

All of the cropped soils in the county are naturally acid. Applications of lime are needed to raise the pH level sufficiently for good growth of crops that grow best on nearly neutral soils.

On all soils, additions of lime 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 Cooperative Extension Service can help in determining the kinds and amounts of fertilizer and lime needed.

Soil tilth is an important factor affecting the germination of seeds, the emergence of seedlings, and the infiltration of water into the soil. Soils that have good tilth are granular and porous. Tilth generally is good in the soils in Menominee County if the surface layer has a high or very high content of organic matter or is loamy sand, sandy loam, fine sandy loam, or loam.

Most of the cropped soils in the county have a surface layer of loam that has a moderate or moderately low content of organic matter. Cover crops, green manure crops, crop residue management, a cropping sequence that includes grasses and legumes, regular additions of manure, and mulching improve soil structure.

Surface stones are common in some areas of Kennan, Mequithy, Moodig, Neopit, and Wayka soils, which formed wholly or partly in glacial till. These areas cannot be tilled unless the stones are removed.

Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or forest land or for other purposes. They either are used for food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils in which a zone with a wet soil moisture status is high in the profile or soils that are subject to flooding may qualify as prime farmland where these limitations are overcome by drainage measures or flood control. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

About 49,370 acres, or 21 percent of the survey area, meets the requirements for prime farmland.

The map units in the survey area that meet the requirements for prime farmland are listed in table 11. This list does not constitute a recommendation for a particular land use. On some soils included in the table, measures that overcome limitations are needed. The need for these measures is indicated in parentheses after the map unit name. The location of each map unit is shown on the soil maps. The soil qualities that affect use and management are described in the section “Soil Map Unit Descriptions.”

Recreation

Menominee County provides many opportunities for outdoor recreation for its local population and for the seasonal influx of tourists and vacationers. Because the county is also a reservation, there is limited access to the general public. The major attractions are the many species of fish and wildlife, the scenic wild river landscapes, and the many lakes and streams.

About 93.4 percent of the forest land in the county is under Menominee Tribal Enterprises (MTE) management. General public access is provided on Legend Lake, and rafting and kayaking are available on the upper parts of the Wolf River (fig. 6).

Fish and other wildlife resources are plentiful and readily available for fishing, hunting, trapping, and viewing. Conservation of wildlife habitat is vitally important if the county is to continue providing recreational opportunities. MTE does manage the forest land for increased wildlife populations.

Forest land resources are used for recreational activities, such as hunting, hiking, picnicking, gathering, horseback riding, and limited use of all-terrain vehicles and snowmobiles. Many paths and trails, including old logging and tote roads, meander through the forest. Many trails are available to the public for hiking.

Most water resources are used for fishing, swimming, trapping, and waterfowl hunting. Legend Lake provides fishing, canoeing, boating, sailing, water skiing, jet skiing, and swimming. Skating and snowmobiling are available in the winter, and all-terrain vehicles can be used.

Menominee County has many miles of water frontage along Legend, LaMotte, Moshawquit, and Round Lakes. This frontage area is developed and used for summer and year-round homes. Big Smokey Falls and Shotgun Eddy’s provide access to the Wolf River for rafting and kayaking.

The soils of the survey area are rated in tables 12a and 12b according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in tables 12a and 12b 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,

Figure 6.—White-water rafting on the Wolf River, which is also used for fishing, kayaking, and swimming.

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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a zone in which the soil moisture status is wet, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a zone in which the soil moisture status is wet; 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 zone in which the soil moisture status is wet, 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

Menominee County supports numerous wildlife species because of the habitat diversity provided by wetland, woodland, cropland, open water, and remote areas. The rare mammals in the remote areas include gray wolf, fisher, and bobcat. The common mammals are white-tailed deer, black bear, coyote, red fox, porcupine, beaver, snowshoe hare, otter, raccoon, skunk, gray squirrel, muskrat, mink, cottontail, and many small mammals.

Ruffed grouse, woodcock, and wild turkeys are the common woodland game birds. Crows, ravens, hawks, owls, woodpeckers, and a variety of songbirds also inhabit the woodland. Redwing blackbirds, sparrows, bobolinks, and meadowlarks are common in the limited areas of cropland. The areas of surface water attract a variety of birds, including wood duck, teal, mallard, geese, herons, shore birds, loons, bald eagles, and ospreys.

The many lakes, impoundments, and streams support many species of fish, including muskellunge, lake sturgeon, trout, northern pike, walleye, largemouth bass, smallmouth bass, and panfish, such as perch, sunfish, bluegill, crappie, and pumpkinseed.

Areas of the poorly drained or very poorly drained Cathro, Loxley, Lupton, Markey, Minocqua, and Roscommon soils provide good habitat for wetland wildlife (fig. 7). These areas occur as brushy wetlands, freshwater marshes, meadows, or wooded swamps. They provide the diversity of habitat needed by many species of wildlife.

Increasing the supply of food and water and the amount of cover can enhance wildlife habitat on many of the soils in Menominee County (fig. 8). Large stands of upland hardwoods can be enhanced as wildlife habitat by using logging methods that create brushy areas and by planting clumps of conifers near trails and clearings. Creating impoundments in drainageways improves habitat for waterfowl and furbearers. Management that preserves den trees, favors the production of herbaceous vegetation and shrubs, provides seedlings and saplings for browse, and favors oak trees for the production of mast also can improve the habitat. Protection from fire helps to preserve the woodland habitat.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The

Figure 7.—A beaver impoundment in an area of Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes.

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 13, 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

Figure 8.—A small area of Cromwell sandy loam, 0 to 6 percent slopes, that has been cleared and seeded to grasses for improvement of wildlife habitat.

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, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are bromegrass, timothy, clover, alfalfa, and birdsfoot trefoil.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluegrass, blueberry, goldenrod, lambsquarters, blackberry, ragweed, foxtail, and nightshade.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, aspen, hickory, birch, maple, and willow. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are dogwood, hazelnut, elderberry, gooseberry, and viburnum.

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, cedar, balsam fir, Canada yew, and hemlock.

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 smartweeds, wild millet, rushes, sedges, bulrushes, wild rice, arrowhead, cattail, and cordgrass.

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 waterfowl feeding areas, wildlife watering developments, beaver ponds, and other wildlife ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobolink, meadowlark, song sparrow, killdeer, cottontail rabbit, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, owls, squirrels, porcupine, snowshoe hare, raccoon, bobcat, coyote, white-tailed deer, and black 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, bitterns, rails, kingfishers, muskrat, otter, 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 data in the tables described under the heading “Soil Properties.”

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a zone in which the soil moisture status is wet, 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 14a and 14b show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 a seasonal zone in which the soil moisture status is wet, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to a zone in which the soil moisture status is wet, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a zone in which the soil moisture status is wet; 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 zone in which the soil moisture status is wet, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Tables 15a and 15b 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 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 a saturated zone 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, 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 a saturated zone 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 zone in which the soil moisture status is wet, 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 a saturated zone 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 16a and 16b 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 16a, 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 as *possible, probable,* or *improbable* sources of gravel and are rated *good, fair,* or *poor* as potential sources of sand. In this table, gravel is defined as particles ranging from 0.2 inch to 3.0 inches in diameter. Soils rated as a *possible* source of gravel contain at least 25 percent gravel, by weight. Soils rated as a *probable* source contain at least 50 percent gravel, by weight. For sand, a rating of *good* or *fair* means that the source material is likely to be in or below the soil. For both sand and gravel, 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.

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 tables. 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 zone in which the soil moisture status is wet, 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 zone in which the soil moisture status is wet, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a zone in which the soil moisture status is wet, 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

Table 17 gives 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; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A zone of saturation high in the profile 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 zone in which the soil moisture status is wet. 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 zone in which the soil moisture status is wet, 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.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics. These results are reported in table 24.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

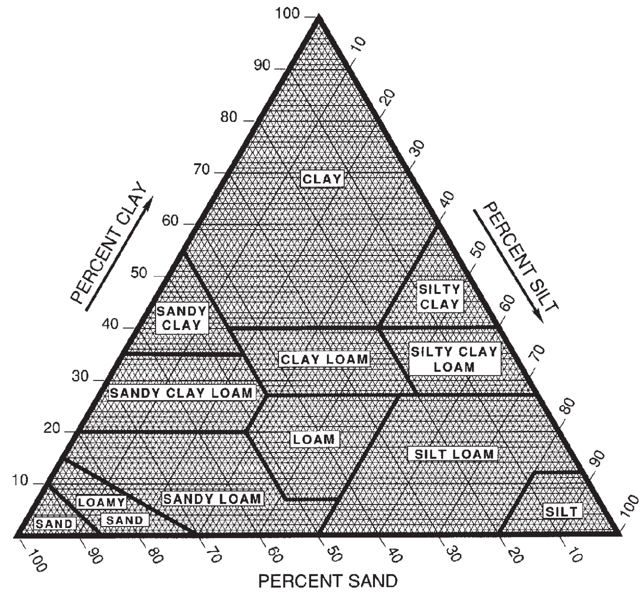

Figure 9.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

Engineering Index Properties

Table 18 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 9). “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 24.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 19 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 19, 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 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 refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 19, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 19 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.

2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.

3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.

5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.

6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.

7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.

8. Soils that are not subject to wind erosion because of rock fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 20 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

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.

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.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

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 of the time. *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.

In table 21, *hydrologic soil groups* are groups of soils that, when saturated, have the same runoff potential under similar storm and ground cover conditions. The soil properties that affect the runoff potential are those that influence the minimum rate of infiltration in a bare soil after prolonged wetting and when the soil is not frozen. These properties include the depth to a zone in which the soil moisture status is wet, the infiltration rate, permeability after prolonged wetting, and the depth to a very slowly permeable horizon or horizons. The influences of ground cover and slope are treated independently and are not taken into account in hydrologic soil groups.

In the definitions of the hydrologic soil groups, the infiltration rate is the rate at which water enters the soil at the surface and is controlled by surface conditions. The transmission rate is the rate at which water moves through the soil and is controlled by properties of the soil horizons.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist chiefly of very 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 a moderately fine 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 horizon or horizons that impede the downward movement of water or soils that have a moderately fine 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 clayey soils that have a high linear extensibility; soils that have a zone, high in the profile, in which the soil moisture status is wet on a permanent basis; soils that have a claypan or clay horizon or horizons 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.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflow from streams or by runoff from adjacent slopes. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in marshes and swamps or in closed depressions is considered to be ponding.

Table 22 gives estimates of the frequency and duration of flooding for every month of the year. Flooding frequency is the annual probability of a flood event expressed as a class. *None* indicates no reasonable possibility of flooding (the chance of flooding is nearly 0 percent in any year, or flooding is likely less than once in 500 years). *Very rare* indicates that flooding is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year, or flooding is likely less than once in 100 years but more than once in 500 years). *Rare* indicates that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year, or flooding is likely 1 to 5 times in 100 years). *Occasional* indicates that flooding occurs infrequently under usual weather conditions (the chance of flooding is 5 to 50 percent in any year, or flooding is likely 5 to 50 times in 100 years). *Frequent* indicates that flooding is likely to occur often under usual weather conditions (the chance of flooding is more than 50 percent in any year, or flooding is likely more than 50 times in 100 years; but the chance of flooding is less than 50 percent in all months in any year). *Very frequent* indicates that flooding is likely to occur very often under usual weather conditions (the chance of flooding is more than 50 percent in all months of any year).

Flooding duration is the average duration of inundation per flood occurrence expressed as a class. *Extremely brief* is 0.1 hour to 4.0 hours; *very brief* is 4 to 48 hours; *brief* is 2 to 7 days; *long* is 7 to 30 days; and *very long* is more than 30 days. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding 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 level of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 23 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 zone of saturation close to the surface 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.

Engineering Index Test Data

Table 24 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are representative of the series described in the section “Soil Series and Their Morphology.” The soil samples were tested by the Wisconsin Department of Transportation, Division of Highways and Transportation Facilities.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487-00 (ASTM); Mechanical analysis—T 88 (AASHTO), D 422 (ASTM), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 4318 (ASTM); and Plasticity index—T 90 (AASHTO), D 4318 (ASTM).

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 25 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

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

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 Orthods (*Orth*, meaning common, plus *od*, from Spodosol).

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 Haplorthods (*Hapl*, meaning minimal horizonation, plus *orthod*, the suborder of the Spodosols that have a horizon in which aluminum, iron, and organic carbon have accumulated).

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. An example is Alfic Haplorthods.

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, superactive, frigid Alfic Haplorthods.

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.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “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.

Aftad Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately slow
Landform: Lake plains and stream terraces
Parent material: Loamy lacustrine deposits
Slope range: 0 to 6 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Oxyaquic Glossudalfs

Typical Pedon

Aftad loam, 0 to 6 percent slopes, approximately 1,170 feet east and 1,950 feet north of the southwest corner of sec. 19, T. 29 N., R. 16 E.

A—0 to 4 inches; very dark gray (10YR 3/1) loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine roots; about 2 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

Bw1—4 to 7 inches; brown (7.5YR 4/3) sandy loam; weak fine subangular blocky structure; very friable; many fine roots; common medium prominent very dark gray (10YR 3/1) wormcasts; about 2 percent gravel and 1 percent cobbles; moderately acid; clear broken boundary.

Bw2—7 to 12 inches; brown (7.5YR 4/4) sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

E—12 to 18 inches; brown (7.5YR 5/3) sandy loam, pink (7.5YR 7/3) dry; weak medium platy structure; very friable; common fine roots; about 3 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

E/B—18 to 21 inches; 60 percent brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) loam (Bt); moderate fine angular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

B/E—21 to 28 inches; 80 percent reddish brown (5YR 4/4) loam (Bt); moderate fine angular blocky structure; friable; many distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; common fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; abrupt wavy boundary.

BC—28 to 43 inches; primarily stratified brown (7.5YR 5/4) silt loam and brown (7.5YR 4/3) very fine sand; a few thin interbedded strata of reddish brown (5YR 4/4) loam; weak coarse prismatic structure parting to moderate medium subangular blocky (weak medium and thick plates inherited from the parent material); friable; few fine roots; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common medium prominent grayish brown (10YR 5/2) masses of iron depletion; few fine prominent red (2.5YR 4/6) and common fine prominent yellowish red (5YR 4/6) masses of iron accumulation; common fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; strongly acid; abrupt wavy boundary.

C—43 to 60 inches; primarily stratified brown (10YR 5/3) silt loam and brown (7.5YR 4/3) very fine sand; a few thin interbedded strata of reddish brown (2.5YR 4/4) silty clay loam; massive (moderate fine and medium plates inherited from the parent material); friable; few fine roots; many coarse faint light brownish gray (10YR 6/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; many fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches
Content of gravel: 0 to 5 percent throughout the profile
Depth to stratified lacustrine deposits: 20 to 40 inches

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

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

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, very fine sandy loam, or loam

Bw horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, very fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—typically sandy loam, fine sandy loam,

very fine sandy loam, or loam; loamy sand, loamy fine sand, or loamy very fine sand in some pedons

Bt horizon (if it occurs) or Bt part of glossic horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, very fine sandy loam, or loam

C horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—dominantly stratified silt loam, very fine sandy loam, loamy very fine sand, or very fine sand; thin strata of coarser or finer texture in many pedons

Annalake Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate
Landform: Lake plains and stream terraces
Parent material: Loamy lacustrine deposits
Slope range: 0 to 6 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Alfic Oxyaquic Haplorthods

Typical Pedon

Annalake fine sandy loam, 0 to 6 percent slopes, approximately 70 feet west and 2,065 feet north of the southeast corner of sec. 1, T. 29 N., R. 13 E.

Oa—0 to 1 inch; black (7.5YR 2/1), highly decomposed plant material; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.

E—1 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; many fine roots; few black (10YR 2/1) wormcasts throughout; very strongly acid; abrupt wavy boundary.

Bs1—3 to 6 inches; brown (7.5YR 4/3) fine sandy loam; weak fine subangular blocky structure; friable; many fine roots; about 1 percent gravel; very strongly acid; clear wavy boundary.

Bs2—6 to 9 inches; brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.

Bs3—9 to 12 inches; yellowish brown (10YR 5/6) fine sandy loam; weak medium subangular blocky structure; friable; common fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.

E/B—12 to 25 inches; 85 percent yellowish brown (10YR 5/4) fine sandy loam, very pale brown (10YR 7/4) dry (E); weak medium platy structure; friable; extends as tongues into dark yellowish brown (10YR 4/4) fine sandy loam (Bt); weak medium subangular blocky structure; friable; common fine roots; very few distinct dark brown (7.5YR 3/4) clay films on faces of peds; about 1 percent gravel; strongly acid; gradual wavy boundary.

2B/E1—25 to 32 inches; 80 percent brown (7.5YR 4/4) very fine sandy loam (Bt); moderate medium subangular blocky structure; friable; few distinct dark brown (7.5YR 3/4) clay films on faces of peds; penetrated by tongues of yellowish brown (10YR 5/4) loamy very fine sand (E); weak medium platy structure; friable; few fine roots; strongly acid; gradual wavy boundary.

2B/E2—32 to 40 inches; 75 percent brown (7.5YR 4/4) very fine sandy loam (Bt); moderate medium subangular blocky structure; friable; common dark brown (7.5YR 3/4) clay films on faces of peds; penetrated by tongues of yellowish brown (10YR 5/4) loamy very fine sand (E); weak medium platy structure; friable; few fine roots; few medium distinct reddish yellow (7.5YR 6/8) masses of iron accumulation; strongly acid; clear wavy boundary.

2C1—40 to 46 inches; yellowish brown (10YR 5/6), stratified very fine sandy loam, loamy very fine sand, and silt loam; massive; friable; few fine roots; many medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; strongly acid; clear wavy boundary.

2C2—46 to 58 inches; pale brown (10YR 6/3), stratified very fine sandy loam, loamy very fine sand, and silt loam; massive; friable; few fine roots; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; strongly acid; clear wavy boundary.

2C3—58 to 62 inches; light yellowish brown (10YR 6/4), stratified very fine sandy loam, loamy very fine sand, and silt loam; massive; friable; common medium prominent reddish yellow (7.5YR 6/8) masses of iron accumulation; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to 60 inches
Content of gravel: 0 to 5 percent throughout the profile
Depth to stratified lacustrine deposits: 30 to 60 inches
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—typically sandy loam, fine sandy loam, very fine sandy loam, or loam; loamy fine sand or loamy very fine sand in some pedons

Bs horizon:
Hue—5YR or 7.5YR
Value—3 to 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, very fine sandy loam, or loam

E´ horizon or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 to 4
Texture—typically sandy loam, fine sandy loam, very fine sandy loam, or loam; loamy sand, loamy fine sand, or loamy very fine sand in some pedons

Bt horizon or Bt part of glossic horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—sandy loam, fine sandy loam, very fine sandy loam, or loam

C horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—dominantly stratified silt, silt loam, very fine sandy loam, loamy very fine sand, or very fine sand; thin strata of coarser or finer textures in many pedons

Antigo Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains
Parent material: Silty and loamy alluvium over sandy outwash
Slope range: 0 to 6 percent

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Haplic Glossudalfs

Typical Pedon

Antigo silt loam, 0 to 6 percent slopes, approximately 1,010 feet west and 2,420 feet north of the southeast corner of sec. 20, T. 30 N., R. 13 E.

A—0 to 4 inches; very dark gray (10YR 3/1) silt loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine roots; about 3 percent gravel and 2 percent cobbles; moderately acid; abrupt wavy boundary.

Bw1—4 to 7 inches; dark yellowish brown (10YR 3/4) silt loam; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; moderately acid; clear wavy boundary.

Bw2—7 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; strongly acid; abrupt wavy boundary.

E/B—12 to 15 inches; 85 percent brown (10YR 5/3) silt loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into brown (7.5YR 4/4) silt loam (Bt); moderate very fine angular blocky structure; friable; few distinct reddish brown (5YR 4/3) clay films on faces of peds; many fine roots; about 2 percent gravel; moderately acid; abrupt wavy boundary.

B/E—15 to 19 inches; 75 percent brown (7.5YR 4/4) silt loam (Bt); moderate fine angular blocky structure; friable; common distinct reddish brown (5YR 4/3) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) silt loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; many fine roots; about 2 percent gravel; very strongly acid; abrupt wavy boundary.

2Bt1—19 to 24 inches; brown (7.5YR 4/4) sandy loam; weak medium prismatic structure parting to moderate medium angular blocky (moderate thick and very thick plates inherited from the parent material); friable; common fine roots; many distinct reddish brown (5YR 4/3) clay films on faces of peds; common distinct brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms;

about 8 percent gravel and 2 percent cobbles; strongly acid; abrupt wavy boundary.

3Bt2—24 to 27 inches; brown (7.5YR 4/4) loamy sand; weak coarse prismatic structure parting to weak coarse angular blocky (weak very thick plates inherited from the parent material); very friable; common fine roots; many distinct reddish brown (5YR 4/3) clay bridges between mineral grains; common prominent brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; about 12 percent gravel; strongly acid; abrupt wavy boundary.

3C—27 to 60 inches; primarily yellowish brown (10YR 5/4), stratified sand and gravelly sand; a few thin interbedded strata of strongly acid, brown (7.5YR 4/4) sand and loamy sand; single grain; loose; about 3 percent gravel and 2 percent cobbles as an average; moderately acid.

Range in Characteristics

Thickness of the solum and depth to sandy outwash: 20 to 40 inches
Thickness of the silty mantle: 12 to 30 inches
Content of gravel: 0 to 10 percent in the silty mantle; 0 to 35 percent in the loamy subsoil; 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 5 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

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

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam

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

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, loam, or silt loam

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam, gravelly sandy loam, fine sandy loam, or loam

3Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; thin subhorizons of very gravelly sand or very gravelly loamy sand in some pedons

3C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4
Texture—typically strata of coarse sand, sand, gravelly coarse sand, or gravelly sand; thin strata of very gravelly coarse sand or very gravelly sand in some pedons

Au Gres Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Rapid
Landform: Outwash plains and stream terraces
Parent material: Sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Sandy, mixed, frigid Typic Endoaquods

Typical Pedon

Au Gres loamy sand, 0 to 3 percent slopes, approximately 1,480 feet west and 740 feet north of the southeast corner of sec. 34, T. 29 N., R. 16 E.

Oe—0 to 1 inch; dark brown (7.5YR 3/2), moderately decomposed plant material; weak very fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

Oa—1 to 3 inches; black (7.5YR 2/1), highly decomposed plant material; weak very fine subangular blocky structure; very friable; many fine roots; about 10 percent sand grains; very strongly acid; abrupt smooth boundary.

E—3 to 7 inches; grayish brown (10YR 5/2) loamy sand, light gray (10YR 7/2) dry; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

Bhs—7 to 10 inches; dark reddish brown (5YR 3/2) loamy sand; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

Bs1—10 to 16 inches; brown (7.5YR 4/4) loamy sand; weak fine subangular blocky structure; very friable; common fine roots; few fine prominent red (2.5YR 4/6) masses of iron accumulation; about 1 percent gravel; strongly acid; clear wavy boundary.

Bs2—16 to 21 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; common fine roots; few fine prominent dark red (2.5YR 3/6) and common medium distinct yellowish red (5YR 4/6) masses of iron accumulation; about 2 percent gravel; strongly acid; clear wavy boundary.

BC—21 to 44 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine roots; common medium distinct yellowish red (5YR 4/6) and common coarse prominent dark reddish brown (2.5YR 3/4) masses of iron accumulation; about 2 percent gravel; moderately acid; gradual wavy boundary.

C—44 to 63 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 3 percent gravel; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 48 inches
Content of gravel: 0 to 10 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—loamy sand or sand

Bhs horizon:
Hue—5YR or 7.5YR
Value—2 or 3
Chroma—2 or 3
Texture—loamy sand or sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—loamy sand or sand

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 to 6
Texture—sand

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—sand

Cathro Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately rapid to moderately slow in the organic material and moderate or moderately slow in the mineral deposits
Landform: Outwash plains, lake plains, and moraines
Parent material: Organic material over loamy or silty deposits
Slope range: 0 to 1 percent

Taxonomic classification: Loamy, mixed, euic, frigid Terric Haplosaprists

Typical Pedon

Cathro muck, in an area of Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes, approximately 2,185 feet east and 1,470 feet north of the southwest corner of sec. 22, T. 29 N., R. 13 E.

Oa1—0 to 8 inches; muck, black (10YR 2/1) broken face, rubbed, and pressed; about 25 percent fiber, 8 percent rubbed; weak fine granular structure; very friable; many fine roots; herbaceous and woody fibers; light yellowish brown (10YR 6/4) sodium pyrophosphate extract; about 3 percent brown (7.5YR 4/4) wood fragments; neutral (pH 7.0 by the Truog method); clear smooth boundary.

Oa2—8 to 32 inches; muck, black (5YR 2/1) broken face, dark reddish brown (5YR 2/2) rubbed and pressed; about 30 percent fiber, 7 percent rubbed; massive; very friable; few fine roots; herbaceous and woody fibers; dark yellowish brown (10YR 4/4) sodium pyrophosphate extract; about 1 percent brown (7.5YR 4/4) wood fragments; moderately acid (pH 5.6 by the Truog method); clear smooth boundary.

Oa3—32 to 37 inches; muck, reddish black (2.5YR 2/1) broken face, rubbed, and pressed; about 17 percent fiber, 5 percent rubbed; massive; very friable; herbaceous and woody fibers; dark yellowish brown (10YR 3/4) sodium pyrophosphate extract; about 2 percent brown (7.5YR 4/4) wood fragments; moderately acid (pH 5.7 by the Truog method); abrupt smooth boundary.

Cg1—37 to 45 inches; dark gray (2.5Y 4/1) fine sandy loam; massive; friable; about 1 percent gravel; slightly acid; clear wavy boundary.

Cg2—45 to 60 inches; olive gray (5Y 4/2) silt loam; massive; friable; about 1 percent gravel; slightly acid.

Range in Characteristics

Thickness of the organic material: 16 to 51 inches
Thickness of the sphagnum moss mantle: 0 to 4 inches
Content of wood fragments in the organic material: 0 to 15 percent

Oa horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 to 3
Texture—muck

C horizon:
Hue—5YR, 7.5YR, 10YR, 2.5Y, 5Y, 5GY, or 5GB
Value—4 to 6
Chroma—1 to 3
Texture—sandy loam, fine sandy loam, very fine sandy loam, sandy clay loam, loam, clay loam, silt loam, or silty clay loam

Cress Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderate or moderately rapid in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains, outwash fans, eskers, and kames
Parent material: Loamy alluvium over sandy and gravelly outwash
Slope range: 0 to 35 percent

Taxonomic classification: Sandy, mixed, frigid Typic Dystrudepts

Typical Pedon

Cress sandy loam, 6 to 15 percent slopes, approximately 1,550 feet west and 1,030 feet north of the southeast corner of sec. 30, T. 30 N., R. 15 E.

A—0 to 3 inches; very dark gray (10YR 3/1) sandy loam, dark gray (10YR 4/1) dry; moderate fine granular structure; friable; many fine roots; about 8 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

Bw1—3 to 6 inches; dark brown (7.5YR 3/4) sandy loam; weak fine subangular blocky structure; very friable; many fine roots; common medium prominent very dark gray (10YR 3/1) wormcasts; about 12 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

Bw2—6 to 14 inches; brown (7.5YR 4/4) gravelly sandy loam; weak medium subangular blocky structure; very friable; common fine roots; about 19 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

2Bw3—14 to 26 inches; strong brown (7.5YR 4/6) gravelly loamy coarse sand; single grain; loose; common fine roots; about 16 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

2C—26 to 60 inches; brown (7.5YR 5/4), stratified gravelly coarse sand to coarse sand; single grain; loose; few fine roots; about 17 percent gravel and 3 percent cobbles as an average; moderately acid.

Range in Characteristics

Thickness of the solum: 26 to 50 inches
Thickness of the loamy mantle: 10 to 24 inches
Content of gravel: 0 to 20 percent in the loamy mantle; 15 to 45 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 3 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

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

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2
Texture—gravelly sandy loam, sandy loam, or fine sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4
Texture—gravelly sandy loam, sandy loam, or fine sandy loam

2Bw horizon:
Hue—7.5YR or 10YR
Value—4
Chroma—4 to 6
Texture—coarse sand, sand, loamy coarse sand, loamy sand, or the gravelly or very gravelly analogs of these textures

2BC horizon (if it occurs) or 2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—gravelly coarse sand to sand

Crex Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, lake plains, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Mixed, frigid Oxyaquic Udipsamments

Typical Pedon

Crex fine sand, 0 to 3 percent slopes, approximately 970 feet east and 400 feet north of the southwest corner of sec. 27, T. 28 N., R. 16 E.

A—0 to 3 inches; black (10YR 2/1) fine sand, very dark grayish brown (10YR 3/2) dry; weak very fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

AB—3 to 5 inches; dark brown (7.5YR 3/3) fine sand, brown (10YR 4/3) dry; weak fine subangular blocky structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.

Bw1—5 to 10 inches; brown (7.5YR 4/4) fine sand; weak fine subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.

Bw2—10 to 21 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; very friable; common fine roots; moderately acid; clear wavy boundary.

BC—21 to 37 inches; brown (7.5YR 5/4) fine sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.

C1—37 to 48 inches; light brown (7.5YR 6/4) fine sand; single grain; loose; few fine roots; few fine prominent red (2.5YR 4/6) and few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid; gradual wavy boundary.

C2—48 to 57 inches; strong brown (7.5YR 5/6) fine sand; single grain; loose; few fine roots; common fine prominent dark red (2.5YR 3/6), common medium distinct yellowish red (5YR 4/6), and common coarse distinct light brown (7.5YR 6/4) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; moderately acid; gradual wavy boundary.

C3—57 to 60 inches; yellowish red (5YR 4/6) fine sand; single grain; loose; common medium prominent brown (7.5YR 5/4), common coarse faint yellowish red (5YR 5/6), and many medium distinct dark red (2.5YR 3/6) masses of iron accumulation; common fine and medium prominent very dusky red (2.5YR 2/2) iron-manganese concretions; moderately acid.

Range in Characteristics

Thickness of the solum: 25 to 40 inches
Content of gravel: 0 to 2 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sand

AB horizon:
Hue—7.5YR or 10YR
Value—3
Chroma—3
Texture—fine sand or loamy fine sand

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4 to 6
Texture—fine sand or loamy fine sand

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—fine sand or loamy fine sand

C horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—typically fine sand; sand or loamy fine sand in some pedons

Cromwell Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderate or moderately rapid in the upper part of the profile and rapid in the lower part
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Sandy, mixed, frigid Typic Dystrudepts

Typical Pedon

Cromwell sandy loam, 0 to 6 percent slopes, approximately 935 feet east and 1,660 feet north of the southwest corner of sec. 29, T. 30 N., R. 15 E.

A—0 to 3 inches; black (10YR 2/1) sandy loam, very dark gray (10YR 3/1) dry; moderate medium granular structure; friable; many fine roots; common uncoated sand grains; few wood charcoal fragments; about 2 percent gravel; strongly acid; abrupt wavy boundary.
Bw1—3 to 11 inches; dark brown (7.5YR 3/4) sandy loam; weak very fine subangular blocky structure; friable; many fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.
Bw2—11 to 21 inches; brown (7.5YR 4/4) sandy loam; weak fine subangular blocky structure; very friable; common fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.
2Bw3—21 to 24 inches; strong brown (7.5YR 4/6) loamy sand; weak fine subangular blocky structure; very friable; few fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.
2BC1—24 to 30 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine roots; about 3 percent gravel; moderately acid; gradual wavy boundary.
2BC2—30 to 38 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine roots; about 3 percent gravel; moderately acid; gradual wavy boundary.
2C—38 to 60 inches; light yellowish brown (10YR 6/4), stratified sand; single grain; loose; few fine roots; about 2 percent gravel as an average; slightly acid.

Range in Characteristics

Thickness of the solum: 24 to 50 inches
Thickness of the loamy mantle: 10 to 24 inches
Content of gravel: 0 to 15 percent throughout the profile
Content of cobbles: 0 to 3 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

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

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam or fine sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4
Texture—sandy loam or fine sandy loam

2Bw horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4
Chroma—4 to 6
Texture—coarse sand, loamy coarse sand, sand, or loamy sand

2BC horizon or 2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—typically strata of sand or coarse sand; thin strata of gravelly sand or gravelly coarse sand in some pedons

Croswell Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Sandy, mixed, frigid Oxyaquic Haplorthods

Typical Pedon

Croswell loamy sand, 0 to 3 percent slopes, approximately 820 feet east and 1,580 feet south of the northwest corner of sec. 29, T. 28 N., R. 16 E.

Oe—0 to 1 inch; dark brown (7.5YR 3/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.
Oa—1 to 2 inches; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.
A—2 to 4 inches; very dark gray (10YR 3/1) loamy sand, dark gray (10YR 4/1) dry; weak fine granular structure; very friable; many fine roots; common uncoated sand grains; very strongly acid; abrupt broken boundary.
E—4 to 5 inches; brown (7.5YR 4/2) sand, grayish brown (10YR 5/2) dry; weak medium platy structure; very friable; many fine roots; strongly acid; abrupt broken boundary.
Bs1—5 to 9 inches; dark reddish brown (5YR 3/4) loamy sand; weak very fine subangular blocky structure; very friable; many fine roots; strongly acid; clear wavy boundary.
Bs2—9 to 16 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.
Bs3—16 to 26 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; few fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.
BC—26 to 43 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; many coarse faint pale brown (10YR 6/3) masses of iron depletion; many fine prominent dark red (2.5YR 3/6) and many medium prominent yellowish red (5YR 4/6) masses of iron accumulation; about 1 percent gravel; slightly acid; gradual wavy boundary.
C—43 to 62 inches; light brown (7.5YR 6/3) sand; single grain; loose; common medium prominent yellowish red (5YR 5/6) and reddish yellow (7.5YR 6/8) masses of iron accumulation; about 1 percent gravel; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 45 inches
Content of gravel: 0 to 15 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—loamy sand or sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—loamy sand or sand

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—sand

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—sand

Frechette Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landform: Moraines
Parent material: Calcareous, loamy glacial till
Slope range: 2 to 35 percent

Taxonomic classification: Coarse-loamy, mixed, active, frigid Typic Glossudalfs

Typical Pedon

Frechette fine sandy loam, 6 to 15 percent slopes, approximately 1,700 feet north and 1,350 feet east of the southwest corner of sec. 8, T. 30 N., R. 16 E.

A—0 to 4 inches; very dark gray (10YR 3/1) fine sandy loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine roots; few uncoated sand grains; about 4 percent gravel and 2 percent cobbles; strongly acid; abrupt wavy boundary.

Bw1—4 to 7 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; many medium and coarse distinct very dark gray (10YR 3/1) wormcasts; about 13 percent gravel and 1 percent cobbles; strongly acid; abrupt wavy boundary.

Bw2—7 to 12 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; many fine roots; about 9 percent gravel and 3 percent cobbles; strongly acid; abrupt wavy boundary.

E/B—12 to 18 inches; 85 percent brown (10YR 5/3) fine sandy loam (E), very pale brown (10YR 7/3) dry; moderate medium platy structure; very friable; surrounds remnants of reddish brown (5YR 4/4) fine sandy loam (Bt); moderate fine subangular blocky structure; friable; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; about 10 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

B/E1—18 to 30 inches; 70 percent reddish brown (5YR 4/4) fine sandy loam (Bt); moderate fine angular blocky structure; firm; many distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; common fine roots; about 4 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.

B/E2—30 to 45 inches; 85 percent reddish brown (5YR 4/4) sandy loam (Bt); moderate coarse angular blocky structure (weak thick plates inherited from the parent material); friable; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; few fine roots; about 6 percent gravel and 2 percent cobbles; slightly acid; gradual wavy boundary.

Bt—45 to 63 inches; brown (7.5YR 4/4) fine sandy loam; weak coarse prismatic structure parting to weak coarse angular blocky (weak medium plates inherited from the parent material); friable; few fine roots; few distinct dark brown (7.5YR 3/4) clay films on faces of peds; common faint brown (7.5YR 5/3) coatings of clean sand grains on vertical faces of prisms; about 4 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

C—63 to 80 inches; brown (7.5YR 4/3) sandy loam; massive (weak medium plates inherited from the parent material); friable; few fine roots; slightly effervescent; about 9 percent gravel and 2 percent cobbles; moderately alkaline.

Range in Characteristics

Thickness of the solum: 45 to 75 inches
Depth to carbonates: 45 to 75 inches
Content of gravel: 2 to 15 percent throughout the profile
Content of cobbles: 0 to 5 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam or fine sandy loam

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5

Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—loamy sand, sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically sandy loam, fine sandy loam, or loam; thin subhorizons of sandy clay loam in some pedons

C horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically sandy loam or fine sandy loam; loam in some pedons

Grayling Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Mixed, frigid Typic Udipsamments

Typical Pedon

Grayling sand, 0 to 6 percent slopes, approximately 270 feet north and 120 feet west of the southeast corner of sec. 36, T. 28 N., R. 16 E.

Oa—0 to 2 inches; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 20 percent sand grains; few wood charcoal fragments; very strongly acid; abrupt wavy boundary.
A—2 to 5 inches; very dark grayish brown (10YR 3/2) sand, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.
Bw1—5 to 9 inches; dark brown (7.5YR 3/4) sand; weak medium subangular blocky structure; very friable; common fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.
Bw2—9 to 18 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; common fine roots; about 1 percent gravel; moderately acid; clear wavy boundary.
Bw3—18 to 26 inches; strong brown (7.5YR 4/6) sand; weak coarse subangular blocky structure; very friable; few fine roots; about 1 percent gravel; moderately acid; clear wavy boundary.
BC—26 to 37 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine roots; about 2 percent gravel; moderately acid; gradual wavy boundary.
C—37 to 62 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; about 2 percent gravel; slightly acid.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Content of gravel: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sand or loamy sand

AB horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3
Chroma—3
Texture—sand or loamy sand

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4 to 6
Texture—sand or loamy sand

BC horizon:
Hue—7.5YR or 10YR
Value—5
Chroma—4 to 6
Texture—sand

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4
Texture—sand

Ingalls Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Rapid in the upper part of the profile and moderately slow in the lower part
Landform: Stream terraces and lake plains
Parent material: Sandy outwash over silty, loamy, and sandy lacustrine sediment
Slope range: 0 to 3 percent

Taxonomic classification: Sandy over loamy, mixed, active, frigid Typic Endoaquods

Typical Pedon

Ingalls loamy sand, 0 to 3 percent slopes, approximately 485 feet west and 2,585 feet north of the southeast corner of sec. 35, T. 29 N., R. 14 E.

Oa—0 to 2 inches; black (7.5YR 2/1), highly decomposed plant material; weak fine granular structure; very friable; many fine roots; extremely acid; abrupt smooth boundary.
E—2 to 5 inches; light brownish gray (10YR 6/2) loamy sand, light gray (10YR 7/2) dry; weak medium granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.
Bhs—5 to 7 inches; dark reddish brown (5YR 3/4) loamy sand; weak fine subangular blocky structure; friable; common fine roots; very strongly acid; abrupt wavy boundary.
Bs1—7 to 13 inches; brown (7.5YR 4/4) loamy sand; weak fine subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.
Bs2—13 to 26 inches; strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; friable; few fine roots; common medium distinct yellowish red (5YR 5/8) masses of iron accumulation; very strongly acid; clear wavy boundary.
C1—26 to 33 inches; pale brown (10YR 6/3) sand; single grain; loose; common coarse prominent yellowish red (5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary.
2C2—33 to 38 inches; brown (7.5YR 5/4), stratified very fine sandy loam, loamy very fine sand, and silts; massive; friable; common medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; moderately acid; gradual wavy boundary.
2C3—38 to 50 inches; light yellowish brown (10YR 6/4), stratified very fine sandy loam, loamy very fine sand, and silts; massive; friable; common medium prominent reddish yellow (7.5YR 6/8) and strong brown (7.5YR 5/8) masses of iron accumulation; neutral; gradual wavy boundary.
2C4—50 to 62 inches; light yellowish brown (10YR 6/4), stratified very fine sandy loam, loamy very fine sand, and silts; massive; friable; common medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; very slightly effervescent; moderately alkaline.

Range in Characteristics

Thickness of the solum: 18 to 40 inches
Thickness of the sandy mantle: 20 to 40 inches
Content of gravel: 0 to 10 percent throughout the profile
Content of cobbles: 0 to 2 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sand, fine sand, loamy sand, or loamy fine sand

Bhs horizon:
Hue—5YR or 7.5YR
Value—2 or 3
Chroma—2 or 3
Texture—sand, fine sand, loamy sand, or loamy fine sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—sand, fine sand, loamy sand, or loamy fine sand

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—sand or fine sand

C horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—sand or fine sand

2C horizon:
Hue—5YR, 7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 4
Texture—dominantly silt loam, very fine sandy loam, loamy very fine sand, or very fine sand; thin strata of silty clay loam, loam, fine sandy loam, loamy fine sand, fine sand, or sand in many pedons

Iosco Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Rapid in the upper part of the profile and moderate or moderately slow in the lower part
Landform: Moraines
Parent material: Sandy outwash over loamy or silty glacial till
Slope range: 0 to 4 percent

Taxonomic classification: Sandy over loamy, mixed, active, frigid Argic Endoaquods

Typical Pedon

Iosco loamy sand, 0 to 4 percent slopes, approximately 1,230 feet north and 680 feet west of the southeast corner of sec. 36, T. 28 N., R. 15 E.

Oe—0 to 1 inch; dark brown (7.5YR 3/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; moderately acid; abrupt wavy boundary.

Oa—1 to 2 inches; black (7.5YR 2/1), highly decomposed plant material; weak medium granular structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.

E—2 to 4 inches; brown (7.5YR 4/2) loamy sand, brown (7.5YR 5/2) dry; weak medium platy structure; very friable; many fine roots; about 2 percent gravel; strongly acid; abrupt wavy boundary.

Bs1—4 to 6 inches; dark brown (7.5YR 3/4) loamy sand; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; strongly acid; clear broken boundary.

Bs2—6 to 13 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; very friable; many fine roots; about 2 percent gravel; moderately acid; clear wavy boundary.

Bs3—13 to 22 inches; brown (7.5YR 4/3) loamy sand; weak medium subangular blocky structure; very friable; common fine roots; few fine prominent dark red (2.5YR 3/6) and common fine prominent red (2.5YR 4/6) masses of iron accumulation; few fine distinct dark reddish brown (5YR 3/2) iron-manganese concretions; about 2 percent gravel; moderately acid; clear wavy boundary.

E´—22 to 35 inches; brown (10YR 5/3) sand, very pale brown (10YR 7/3) dry; single grain; loose; few fine roots; common fine prominent dark red (2.5YR 3/6), common medium prominent yellowish red (5YR 4/6), and common coarse faint yellowish brown (10YR 5/4) masses of iron accumulation; common medium and coarse prominent dark reddish brown (5YR 3/2) iron-manganese concretions; few very coarse irregular very firm chunks of dark reddish brown (5YR 3/2) ortstein; about 3 percent gravel and 4 percent cobbles; moderately acid; abrupt wavy boundary.

2E/B—35 to 42 inches; 70 percent brown (7.5YR 5/3) sandy loam (2E´), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) sandy clay loam (2Bt); moderate fine subangular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds and many distinct dark brown (7.5YR 3/2) clay films in pores; few fine roots; few medium faint and prominent brown (7.5YR 5/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and common medium distinct and prominent yellowish red (5YR 4/6) masses of iron accumulation; many fine and medium distinct and prominent dark reddish brown (5YR 3/2) iron-manganese concretions; about 6 percent gravel and 2 percent cobbles; slightly acid; clear wavy boundary.

2Bt—42 to 56 inches; reddish brown (5YR 4/4) sandy clay loam; moderate fine angular blocky structure; friable; few fine roots; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds and many prominent dark brown (7.5YR 3/2) clay films in pores; common prominent brown (7.5YR 5/3) coatings of clean sand grains on vertical faces of peds; common fine prominent brown (7.5YR 5/2) masses of iron depletion; common fine distinct yellowish red (5YR 4/6) masses of iron accumulation; many fine distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 6 percent gravel and 2 percent cobbles; slightly acid; gradual wavy boundary.

2C—56 to 62 inches; reddish brown (5YR 4/3) loam; massive; friable; few fine roots; common fine prominent brown (7.5YR 5/2) masses of iron depletion; many fine distinct yellowish red (5YR 4/6) masses of iron accumulation; common fine faint dark reddish brown (5YR 2/2) iron-manganese concretions; about 5 percent gravel and 2 percent cobbles; neutral.

Range in Characteristics

Thickness of the sandy mantle: 20 to 40 inches
Thickness of the solum and depth to carbonates: 40 to 70 inches
Content of gravel: 0 to 15 percent throughout the profile
Content of cobbles: 0 to 5 percent in the sandy mantle and 0 to 7 percent in the till
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sand, loamy sand, fine sand, or loamy fine sand

Bhs horizon (if it occurs):
Hue—5YR or 7.5YR
Value—2 or 3
Chroma—2 or 3
Texture—sand, loamy sand, fine sand, or loamy fine sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—3 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

E´ horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sand, loamy sand, fine sand, or loamy fine sand

2E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—typically sandy loam or fine sandy loam; loamy sand or loamy fine sand in some pedons

2Bt horizon or 2Bt part of glossic horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically loam, clay loam, or sandy clay loam; subhorizons of silt loam in some pedons

2C horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically silt loam or loam; clay loam or sandy clay loam in some pedons

Ishpeming Series

Depth class: Moderately deep to igneous bedrock
Drainage class: Somewhat excessively drained
Permeability: Rapid
Landform: Outwash plains and stream terraces
Parent material: Sandy outwash over bedrock
Slope range: 0 to 15 percent

Taxonomic classification: Sandy, mixed, frigid Entic Haplorthods

Typical Pedon

Ishpeming sand, in an area of Ishpeming-Rock outcrop complex, 0 to 6 percent slopes, approximately 2,550 feet south and 80 feet east of the northwest corner of sec. 11, T. 28 N., R. 15 E.

Oa—0 to 2 inches; black (7.5YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 30 percent sand grains; very strongly acid; abrupt wavy boundary.

E—2 to 7 inches; brown (7.5YR 5/2) sand, pinkish gray (7.5YR 7/2) dry; single grain; loose; many fine roots; about 3 percent gravel; strongly acid; abrupt wavy boundary.

Bs1—7 to 12 inches; dark reddish brown (5YR 3/4) sand; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.

Bs2—12 to 20 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; many fine roots; about 4 percent gravel; strongly acid; clear wavy boundary.

BC—20 to 27 inches; strong brown (7.5YR 4/6) sand; single grain; loose; common fine roots; about 5 percent gravel; strongly acid; abrupt wavy boundary.

2R—27 inches; igneous bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Thickness of the solum: 20 to 40 inches
Content of gravel: 0 to 10 percent throughout the profile
Content of cobbles: 0 to 10 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sand

E horizon:
Hue—7.5YR
Value—4 to 6
Chroma—2
Texture—sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

BC horizon:
Hue—7.5YR
Value—5
Chroma—4 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

2R layer:
Kind of bedrock—hard, fractured igneous or metamorphic bedrock

Karlin Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid in the upper part of the profile and rapid in the lower part
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Sandy, mixed, frigid Entic Haplorthods
Taxadjunct features: The Karlin soils in this survey area have a spodic horizon that is sandy loam. Also, they have more organic carbon than is defined as the range for the series. These soils are classified as sandy, mixed, frigid Typic Haplorthods.

Typical Pedon

Karlin sandy loam, 6 to 15 percent slopes, approximately 500 feet north and 1,060 feet west of the southeast corner of sec. 31, T. 30 N., R. 13 E.

Oa—0 to 1 inch; black (10YR 2/1), highly decomposed plant material; weak very fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

E—1 to 3 inches; brown (7.5YR 4/2) sandy loam, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; moderately acid; abrupt wavy boundary.

Bhs—3 to 5 inches; dark reddish brown (5YR 3/2) sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; strongly acid; clear wavy boundary.

Bs1—5 to 15 inches; dark brown (7.5YR 3/4) sandy loam; weak medium subangular blocky structure; very friable; many fine roots; about 4 percent gravel; strongly acid; clear wavy boundary.

2Bs2—15 to 20 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; common fine roots; about 2 percent gravel; moderately acid; clear broken boundary.

2BC—20 to 33 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine roots; about 1 percent gravel; moderately acid; gradual wavy boundary.

2C—33 to 61 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; about 1 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 22 to 40 inches
Thickness of the loamy mantle: 10 to 20 inches
Content of gravel: 0 to 15 percent throughout the profile
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

Bhs horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 or 3
Texture—sandy loam or fine sandy loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam or fine sandy loam

2Bs horizon:
Hue—5YR or 7.5YR
Value—4
Chroma—4 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

2BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—sand or fine sand

2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—sand

Kennan Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the upper part of the profile and moderate or moderately rapid in the lower part
Landform: Moraines and drumlins
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Slope range: 6 to 35 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Haplic Glossudalfs
Taxadjunct features: The Kennan soils in this survey area have a thicker glossic horizon than is defined as the range for the series. These soils are classified as coarse-loamy, mixed, superactive, frigid Typic Glossudalfs.

Typical Pedon

Kennan silt loam, 6 to 15 percent slopes, very bouldery, approximately 1,490 feet north and 1,990 feet west of the southeast corner of sec. 31, T. 30 N., R. 13 E.

Oa—0 to 2 inches; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; neutral; abrupt wavy boundary.

E—2 to 4 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure; very friable; many fine roots; about 11 percent gravel and 3 percent cobbles; strongly acid; abrupt wavy boundary.

Bw—4 to 10 inches; dark yellowish brown (10YR 3/4) silt loam; weak fine subangular blocky structure; very friable; many fine roots; about 5 percent gravel and 4 percent cobbles; strongly acid; clear wavy boundary.

E´—10 to 15 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium platy structure; friable; common fine roots; about 1 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

E/B—15 to 21 inches; 60 percent brown (10YR 5/3) fine sandy loam (E´), very pale brown (10YR 7/3) dry; moderate medium platy structure; very friable; surrounds remnants of brown (7.5YR 4/4) fine sandy loam (Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; few fine roots; about 4 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

B/E1—21 to 36 inches; 60 percent brown (7.5YR 4/4) gravelly sandy loam (Bt); weak coarse prismatic structure parting to moderate fine and medium angular blocky; firm; many distinct dark reddish brown (2.5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) gravelly sandy loam (E´), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; few fine roots; about 14 percent gravel and 6 percent cobbles; strongly acid; clear wavy boundary.

B/E2—36 to 58 inches; 70 percent brown (7.5YR 4/4) gravelly sandy loam (Bt); weak coarse prismatic structure parting to moderate coarse subangular blocky; friable; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) gravelly loamy sand (E´), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; few fine roots; about 14 percent gravel and 5 percent cobbles; strongly acid; gradual wavy boundary.

B/E3—58 to 66 inches; 80 percent dark yellowish brown (10YR 4/4) gravelly sandy loam (Bt); weak coarse prismatic structure parting to weak medium subangular blocky; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) gravelly loamy sand (E´), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; few fine roots; about 15 percent gravel and 5 percent cobbles; moderately acid; gradual wavy boundary.

C—66 to 80 inches; brown (10YR 4/3) gravelly loamy sand; massive; very friable; about 15 percent gravel and 4 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 85 inches

Content of gravel: 0 to 15 percent in the upper part of the solum and 2 to 25 percent in the lower part of the solum and in the substratum

Content of cobbles: 0 to 15 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam or silt loam

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam, fine sandy loam, loam, or silt loam

Bw horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, loam, or silt loam

E´ horizon or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—loamy sand, gravelly loamy sand, sandy loam, gravelly sandy loam, fine sandy loam, loam, or silt loam

Bt horizon (if it occurs) or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—typically sandy loam, gravelly sandy loam, fine sandy loam, or loam; loamy sand or gravelly loamy sand in the lower part of some pedons

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—loamy sand, sandy loam, gravelly loamy sand, or gravelly sandy loam

Keshena Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the profile and moderately slow in the lower part
Landform: Moraines
Parent material: Calcareous, loamy or silty glacial till
Slope range: 2 to 6 percent

Taxonomic classification: Fine-loamy, mixed, active, frigid Oxyaquic Glossudalfs

Typical Pedon

Keshena fine sandy loam, 2 to 6 percent slopes, approximately 1,910 feet west and 2,590 feet north of the southeast corner of sec. 5, T. 28 N., R. 16 E.

A—0 to 3 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine roots; few uncoated sand grains; about 3 percent gravel and 2 percent cobbles; very strongly acid; abrupt wavy boundary.

Bw1—3 to 7 inches; dark brown (10YR 3/3) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; many medium and coarse distinct very dark gray (10YR 3/1) wormcasts; about 5 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

Bw2—7 to 12 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; many fine roots; about 12 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

E/B—12 to 19 inches; 70 percent brown (7.5YR 5/3) fine sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) loam (Bt); moderate fine subangular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; many fine roots; about 9 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

B/E1—19 to 30 inches; 75 percent reddish brown (5YR 4/4) loam (Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; common fine roots; few fine prominent red (2.5YR 4/6) masses of iron accumulation; common fine and medium distinct and prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.

B/E2—30 to 49 inches; 85 percent reddish brown (5YR 4/4) loam (Bt); moderate medium angular blocky structure; firm; many distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; common fine roots; few fine prominent dark red (2.5YR 3/6) and common fine prominent red (2.5YR 4/6) masses of iron accumulation; common fine and medium distinct and prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 2 percent gravel and 1 percent cobbles; moderately acid; gradual wavy boundary.

Bt1—49 to 61 inches; reddish brown (5YR 4/4) loam; weak coarse prismatic structure parting to weak coarse angular blocky; firm; few fine roots; common distinct dark reddish brown (5YR 3/3) clay films on faces of peds; many distinct brown (7.5YR 5/3) coatings of clean sand grains on vertical faces of prisms; few fine prominent dark red (2.5YR 3/6) masses of iron accumulation; common fine and medium distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 1 percent gravel and 1 percent cobbles; moderately acid; gradual wavy boundary.

Bt2—61 to 75 inches; reddish brown (5YR 4/4) loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; common distinct dark reddish brown (5YR 3/3) clay films on faces of peds; common distinct brown (7.5YR 5/3) coatings of clean sand grains on vertical faces of prisms; few fine prominent dark red (2.5YR 3/6) masses of iron accumulation; few fine distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 1 percent gravel and 1 percent cobbles; moderately acid; gradual wavy boundary.

C—75 to 80 inches; reddish brown (5YR 4/3) silt loam; massive (moderate thin plates inherited from the parent material); friable; few fine roots; slightly effervescent; about 3 percent gravel and 1 percent cobbles; slightly alkaline.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to carbonates: 40 to 70 inches
Content of gravel: 2 to 15 percent throughout the profile
Content of cobbles: 0 to 5 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically loam, clay loam, or sandy clay loam; subhorizons of silt loam in some pedons

C horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically silt loam or loam; clay loam in some pedons

Lablatz Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Landform: Moraines
Parent material: Calcareous, loamy glacial till
Slope range: 0 to 4 percent

Taxonomic classification: Coarse-loamy, mixed, active, frigid Alfic Epiaquods

Typical Pedon

Lablatz sandy loam, 0 to 4 percent slopes, approximately 1,550 feet west and 160 feet north of the southeast corner of sec. 30, T. 28 N., R. 15 E.

Oa—0 to 4 inches; black (5YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 5 percent sand grains; few wood charcoal fragments; very strongly acid; abrupt wavy boundary.

E—4 to 7 inches; grayish brown (10YR 5/2) sandy loam, light gray (10YR 7/2) dry; weak thin platy structure; very friable; many fine roots; about 5 percent gravel and 1 percent cobbles; very strongly acid; abrupt wavy boundary.

Bhs—7 to 9 inches; dark brown (7.5YR 3/2) sandy loam; weak very fine subangular blocky structure; very friable; many fine roots; few fine distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 5 percent gravel and 1 percent cobbles; very strongly acid; pellets of ortstein 2 to 5 millimeters in diameter; abrupt wavy boundary.

Bs1—9 to 12 inches; brown (7.5YR 4/4) sandy loam; weak fine subangular blocky structure; very friable; many fine roots; few fine prominent yellowish red (5YR 4/6) masses of iron accumulation; common fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 5 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

Bs2—12 to 16 inches; brown (7.5YR 5/4) fine sandy loam; weak medium subangular blocky structure; very friable; many fine roots; common fine prominent yellowish red (5YR 4/6) masses of iron accumulation; many fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 7 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

E/B—16 to 22 inches; 85 percent brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) loam (Bt); moderate fine angular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; common fine prominent red (2.5YR 4/6) and many medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; many fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 5 percent gravel and 2 percent cobbles; very strongly acid; clear wavy boundary.

B/E—22 to 30 inches; 75 percent reddish brown (5YR

4/4) loam (Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds and many reddish brown (5YR 5/3) clay films in pores; penetrated by tongues of brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; few fine roots; common fine prominent dark red (2.5YR 3/6) and many medium distinct yellowish red (5YR 4/6) masses of iron accumulation; many fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.

Bt—30 to 41 inches; reddish brown (5YR 4/3) fine sandy loam; weak coarse prismatic structure parting to weak fine angular blocky (moderate thick plates inherited from the parent material); firm; few fine roots; many distinct dark reddish brown (5YR 3/3) clay films on faces of peds; common fine distinct brown (7.5YR 5/2) masses of iron depletion; many medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; common fine and medium prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

C—41 to 64 inches; brown (7.5YR 4/3) fine sandy loam; massive (weak medium plates inherited from the parent material); friable; few fine roots; common fine distinct grayish brown (10YR 5/2) masses of iron depletion; common medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation; moderately effervescent; about 4 percent gravel and 2 percent cobbles; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to carbonates: 40 to 70 inches
Content of gravel: 0 to 15 percent throughout the profile
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam

Bhs horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 to 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—typically sandy loam, fine sandy loam, or loam; thin subhorizons of sandy clay loam in some pedons

C horizon:
Hue—5YR, 7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—3 to 6
Texture—typically sandy loam or fine sandy loam; loam in some pedons

Loxley Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately slow to moderately rapid
Landform: Outwash plains, lake plains, and moraines
Parent material: Organic material
Slope range: 0 to 1 percent

Taxonomic classification: Dysic, frigid Typic Haplosaprists

Typical Pedon

Loxley peat, 0 to 1 percent slopes, approximately 1,090 feet east and 950 feet south of the northwest corner of sec. 22, T. 30 N., R. 13 E.

Oi1—0 to 5 inches; peat, very dark grayish brown (10YR 3/2) broken face and rubbed, light gray (10YR 7/2) pressed; about 95 percent fiber, 90 percent rubbed; massive; very friable; many fine roots; primarily sphagnum fibers; very pale brown (10YR 7/3) sodium pyrophosphate extract; extremely acid (pH 3.5 by the Truog method); clear smooth boundary.

Oi2—5 to 10 inches; peat, very dark grayish brown (2.5Y 3/2) broken face, dark brown (10YR 3/3) rubbed, light yellowish brown (2.5Y 6/3) pressed; about 80 percent fiber, 50 percent rubbed; massive; very friable; common fine roots; primarily sphagnum fibers; very pale brown (10YR 8/3) sodium pyrophosphate extract; few reddish brown (5YR 4/4) wood fragments; extremely acid (pH 3.7 by the Truog method); clear smooth boundary.

Oa1—10 to 37 inches; muck, dark reddish brown (5YR 3/2) broken face, dark reddish brown (5YR 2/2) rubbed, dark brown (7.5YR 3/2) pressed; about 40 percent fiber, 10 percent rubbed; weak thick platy structure; very friable; few fine roots in the upper 14 inches; primarily herbaceous fibers; very pale brown (10YR 7/4) sodium pyrophosphate extract; about 5 percent reddish brown (5YR 4/4) wood fragments; extremely acid (pH 3.8 by the Truog method); gradual wavy boundary.

Oa2—37 to 60 inches; muck, dark reddish brown (5YR 2/2) broken face, rubbed, and pressed; about 20 percent fiber, 5 percent rubbed; massive; very friable; primarily herbaceous fibers; light yellowish brown (10YR 6/4) sodium pyrophosphate extract; few brown (7.5YR 4/4) wood fragments; extremely acid (pH 3.9 by the Truog method).

Range in Characteristics

Thickness of the organic material: More than 51 inches
Thickness of the sphagnum moss mantle: 4 to 11 inches
Content of wood fragments: 0 to 5 percent

Oi horizon:
Hue—10YR or 2.5Y
Value—3 to 7
Chroma—2 to 6
Texture—peat

Oe horizon (if it occurs):
Hue—5YR, 7.5YR, 10YR, or 2.5Y
Value—2 to 4
Chroma—1 to 4
Texture—mucky peat

Oa horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 to 3
Texture—muck

Lupton Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately slow to moderately rapid
Landform: Outwash plains, lake plains, and moraines
Parent material: Organic material
Slope range: 0 to 1 percent

Taxonomic classification: Euic, frigid Typic Haplosaprists

Typical Pedon

Lupton muck, in an area of Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes, approximately 2,100 feet east and 900 feet north of the southwest corner of sec. 30, T. 28 N., R. 15 E.

Oa1—0 to 7 inches; muck, black (5YR 2/1) broken face, black (7.5YR 2/1) rubbed, dark reddish brown (5YR 2/2) pressed; about 5 percent fiber, 2 percent rubbed; weak fine subangular blocky structure; very friable; many fine roots; primarily woody fibers; dark brown (10YR 3/3) sodium pyrophosphate extract; about 10 percent dark reddish brown (5YR 3/4) wood fragments; slightly acid (pH 6.2 by the Truog method); clear smooth boundary.

Oa2—7 to 35 inches; muck, dark reddish brown (5YR 3/2) broken face, dark reddish brown (5YR 2/2) rubbed, dark reddish brown (5YR 3/3) pressed; about 20 percent fiber, 4 percent rubbed; weak coarse subangular blocky structure; very friable; primarily woody fibers; brown (10YR 5/3) sodium pyrophosphate extract; about 15 percent dark reddish brown (5YR 3/4) wood fragments; neutral (pH 7.1 by the Truog method); clear smooth boundary.

Oa3—35 to 55 inches; muck, dark reddish brown (5YR 2/2) broken face and rubbed, dark brown (7.5YR 3/2) pressed; about 15 percent fiber, 6 percent rubbed; massive; very friable; primarily herbaceous fibers; brown (10YR 5/3) sodium pyrophosphate extract; about 3 percent dark reddish brown (5YR 3/2) wood twigs; slightly alkaline (pH 7.5 by the Truog method); clear smooth boundary.

Oa4—55 to 60 inches; muck, black (10YR 2/1) broken face and rubbed, very dark brown (10YR 2/2) pressed; about 5 percent fiber, 1 percent rubbed; massive; very friable; primarily herbaceous fibers; pale brown (10YR 6/3) sodium pyrophosphate extract; about 1 percent dark reddish brown (5YR 3/2) wood twigs; slightly alkaline (pH 7.5 by the Truog method).

Range in Characteristics

Thickness of the organic material: More than 51 inches
Thickness of the sphagnum moss mantle: 0 to 6 inches
Content of wood fragments: 0 to 30 percent

Oa horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 to 3
Texture—muck

Mahtomedi Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Landform: Outwash plains, outwash fans, eskers, and kames
Parent material: Sandy and gravelly outwash
Slope range: 0 to 35 percent

Taxonomic classification: Mixed, frigid Typic Udipsamments

Typical Pedon

Mahtomedi loamy sand, 0 to 6 percent slopes, approximately 330 feet south and 2,640 feet east of the northwest corner of sec. 27, T. 28 N., R. 15 E.

A—0 to 4 inches; very dark gray (10YR 3/1) loamy sand, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine roots; common uncoated sand grains; about 6 percent gravel; strongly acid; abrupt wavy boundary.

Bw1—4 to 7 inches; dark brown (7.5YR 3/4) loamy sand; weak fine subangular blocky structure; friable; many fine roots; common medium prominent very dark gray (10YR 3/1) wormcasts; about 7 percent gravel; moderately acid; clear wavy boundary.

Bw2—7 to 13 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; common fine roots; about 9 percent gravel; moderately acid; clear wavy boundary.

Bw3—13 to 20 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; common fine roots; about 11 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

BC1—20 to 26 inches; strong brown (7.5YR 5/6) gravelly sand; single grain; loose; few fine roots; about 21 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

BC2—26 to 38 inches; yellowish brown (10YR 5/6) gravelly sand; single grain; loose; few fine roots; about 16 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

C—38 to 60 inches; light yellowish brown (10YR 6/4), stratified sand and gravelly sand; single grain; loose; few fine roots; about 17 percent gravel and 1 percent cobbles as an average; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Content of gravel: 0 to 35 percent in the solum; 15 to 35 percent as a weighted average in the substratum; 0 to 60 percent in individual strata
Content of cobbles: 0 to 10 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 to 3
Texture—loamy sand

AB horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3
Chroma—3
Texture—sand or loamy sand

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4 to 6
Texture—sand, loamy sand, gravelly sand, or gravelly loamy sand

BC horizon:
Hue—7.5YR or 10YR
Value—5

Chroma—4 to 6
Texture—sand, coarse sand, gravelly sand, or gravelly coarse sand

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4
Texture—typically strata of sand, coarse sand, gravelly sand, or gravelly coarse sand; thin strata of very gravelly sand or very gravelly coarse sand in many pedons

Markey Series

Depth class: Very deep
Drainage class: Very poorly drained
Permeability: Moderately rapid to moderately slow in the organic material and rapid or very rapid in the mineral deposits
Landform: Outwash plains
Parent material: Organic material over sandy outwash
Slope range: 0 to 1 percent

Taxonomic classification: Sandy or sandy-skeletal, mixed, euic, frigid Terric Haplosaprists

Typical Pedon

Markey muck, in an area of Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes, approximately 370 feet south and 1,910 feet west of the northeast corner of sec. 35, T. 29 N., R. 16 E.

Oa1—0 to 8 inches; muck, black (5YR 2/1) broken face and rubbed, dark reddish brown (5YR 2/2) pressed; about 20 percent fiber, 8 percent rubbed; weak medium granular structure; very friable; many fine roots; herbaceous and woody fibers; very pale brown (10YR 7/4) sodium pyrophosphate extract; about 10 percent brown (7.5YR 4/4) wood fragments; moderately acid (pH 5.7 by the Truog method); clear smooth boundary.
Oa2—8 to 28 inches; muck, dark reddish brown (5YR 3/2) broken face, black (5YR 2/1) rubbed, dark reddish brown (5YR 3/3) pressed; about 12 percent fiber, 2 percent rubbed; weak coarse subangular blocky structure; very friable; herbaceous and woody fibers; about 40 percent mineral ash material in the lower 2 inches; brown (10YR 4/3) sodium pyrophosphate extract; about 15 percent brown (7.5YR 4/4) wood fragments; slightly acid (pH 6.4 by the Truog method); abrupt smooth boundary.
C—28 to 60 inches; pale brown (10YR 6/3) sand; single grain; loose; about 3 percent gravel; slightly alkaline.

Range in Characteristics

Thickness of the organic material: 16 to 51 inches
Thickness of the sphagnum moss mantle: 0 to 4 inches
Content of wood fragments in the organic material: 0 to 15 percent
Content of gravel: 0 to 15 percent in the sandy outwash
Content of cobbles: 0 to 5 percent in the sandy outwash

Oa horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—muck

A horizon (if it occurs):
Hue—10YR
Value—2 or 3
Chroma—1
Texture—typically coarse sand, sand, fine sand, or the gravelly analogs of these textures; loamy sand or gravelly loamy sand in some pedons

C horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—3 to 6
Chroma—1 to 3
Texture—typically coarse sand, sand, fine sand, or the gravelly analogs of these textures; loamy sand or gravelly loamy sand in some pedons

Menominee Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid in the upper part of the profile and moderate or moderately slow in the lower part
Landform: Moraines
Parent material: Sandy outwash over loamy or silty glacial till
Slope range: 6 to 35 percent

Taxonomic classification: Sandy over loamy, mixed, active, frigid Alfic Haplorthods

Typical Pedon

Menominee loamy fine sand, 6 to 15 percent slopes, approximately 1,250 feet north and 2,020 feet east of the southwest corner of sec. 36, T. 29 N., R. 16 E.

Oe—0 to 1 inch; dark brown (7.5YR 3/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 10 percent sand grains; moderately acid; abrupt wavy boundary.

Oa—1 to 2 inches; very dark gray (10YR 3/1), highly decomposed plant material; weak fine granular structure; very friable; many fine roots; about 30 percent sand grains; strongly acid; abrupt wavy boundary.

E—2 to 4 inches; brown (7.5YR 5/2) loamy fine sand, pinkish gray (7.5YR 7/2) dry; weak medium platy structure; very friable; many fine roots; about 2 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

Bs1—4 to 8 inches; dark brown (7.5YR 3/4) loamy fine sand; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

Bs2—8 to 17 inches; brown (7.5YR 4/4) loamy fine sand; weak medium subangular blocky structure; very friable; many fine roots; about 2 percent gravel and 2 percent cobbles; strongly acid; gradual wavy boundary.

Bs3—17 to 27 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; very friable; common fine roots; about 6 percent gravel and 5 percent cobbles; moderately acid; clear wavy boundary.

2E/B—27 to 37 inches; 70 percent brown (10YR 5/3) sandy loam (2E), very pale brown (10YR 7/3) dry; moderate medium platy structure; friable; extends as tongues into reddish brown (5YR 4/4) loam (2Bt); moderate fine subangular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; few fine roots; about 7 percent gravel and 3 percent cobbles; moderately acid; clear wavy boundary.

2B/E—37 to 60 inches; 80 percent reddish brown (5YR 4/4) loam (2Bt); moderate medium angular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) fine sandy loam (2E), very pale brown (10YR 7/3) dry; moderate medium platy structure; few fine roots; about 4 percent gravel and 2 percent cobbles; slightly acid; gradual wavy boundary.

2Bt—60 to 74 inches; reddish brown (5YR 4/4) loam; weak coarse prismatic structure parting to weak medium angular blocky; friable; few fine roots; many distinct dark reddish brown (5YR 3/4) clay films on faces of peds and many prominent dark brown (7.5YR 3/2) clay films in pores; many prominent brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; about 4 percent gravel and 2 percent cobbles; neutral; gradual wavy boundary.

2C—74 to 80 inches; reddish brown (5YR 4/3) silt loam; massive (moderate thin plates inherited from the parent material); friable; few fine roots; slightly effervescent; about 4 percent gravel and 2 percent cobbles; moderately alkaline.

Range in Characteristics

Thickness of the sandy mantle: 20 to 40 inches

Thickness of the solum and depth to carbonates: 40 to 80 inches

Content of gravel: 0 to 15 percent in the sandy mantle and 0 to 10 percent in the till

Content of cobbles: 0 to 7 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy fine sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sand, loamy sand, fine sand, or loamy fine sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

E´ horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sand, loamy sand, fine sand, or loamy fine sand

2E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—typically sandy loam or fine sandy loam; loamy sand or loamy fine sand in some pedons

2Bt horizon or 2Bt part of glossic horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically loam, clay loam, or sandy clay loam; subhorizons of silt loam in some pedons

2C horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically silt loam or loam; clay loam or sandy clay loam in some pedons

Mequithy Series

Depth class: Moderately deep to igneous bedrock
Drainage class: Well drained
Permeability: Moderate
Landform: Outwash plains and stream terraces
Parent material: Loamy deposits over bedrock
Slope range: 0 to 15 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Alfic Haplorthods

Typical Pedon

Mequithy fine sandy loam, in an area of Mequithy-Rock outcrop complex, 6 to 15 percent slopes, approximately 430 feet east and 2,330 feet north of the southwest corner of sec. 19, T. 29 N., R. 14 E.

A—0 to 3 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate fine and medium granular structure; friable; many fine roots; common prominent black (5YR 2/1) wood charcoal fragments; about 3 percent gravel and 2 percent cobbles; strongly acid; abrupt wavy boundary.

E—3 to 4 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 7/2) dry; weak medium platy structure; very friable; many fine roots; about 3 percent gravel and 2 percent cobbles; very strongly acid; abrupt broken boundary.

Bs1—4 to 7 inches; dark brown (7.5YR 3/4) fine sandy loam; weak very fine subangular blocky structure; very friable; many fine roots; about 5 percent gravel and 4 percent cobbles; very strongly acid; clear wavy boundary.

Bs2—7 to 13 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel and 3 percent cobbles; strongly acid; gradual wavy boundary.

2E/B—13 to 21 inches; 80 percent brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into and surrounds remnants of yellowish red (5YR 4/6) sandy loam (Bt); moderate fine subangular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; about 6 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

2B/E—21 to 27 inches; 85 percent yellowish red (5YR 4/6) sandy loam (Bt); moderate medium subangular blocky structure (weak thick and very thick plates inherited from the parent material); friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; friable; few fine roots; about 8 percent gravel and 5 percent cobbles; very strongly acid; abrupt wavy boundary.

2R—27 inches; unweathered igneous bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Thickness of the solum: 20 to 40 inches
Content of gravel: 0 to 15 percent in the upper part of the solum and 5 to 30 percent in the lower part
Content of cobbles: 0 to 15 percent throughout the profile

O horizon (if it occurs):
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR

Value—3 or 4
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, loam, or the gravelly analogs of these textures

Bt horizon (if it occurs) or Bt part of glossic horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, loam, or the gravelly analogs of these textures

2R layer:
Kind of bedrock—hard, fractured igneous or metamorphic bedrock

Minocqua Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains and stream terraces
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 2 percent

Taxonomic classification: Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, nonacid, frigid Typic Endoaquepts

Typical Pedon

Minocqua muck, 0 to 2 percent slopes, approximately 390 feet north and 1,560 feet west of the southeast corner of sec. 30, T. 30 N., R. 13 E.

Oa—0 to 6 inches; muck, black (7.5YR 2/1) broken face, black (5YR 2/1) rubbed and pressed; about 10 percent fiber, 3 percent rubbed; weak fine subangular blocky structure; very friable; many fine roots; primarily herbaceous fibers; brown (10YR 5/3) sodium pyrophosphate extract; about 5 percent dark brown (7.5YR 3/4) wood fragments; slightly acid (pH 6.4 by the Truog method); abrupt smooth boundary.

A—6 to 8 inches; very dark gray (10YR 3/1) silt loam, dark gray (10YR 4/1) dry; weak fine subangular blocky structure; friable; many fine roots; many fine prominent dark brown (7.5YR 3/4) masses of iron accumulation; about 2 percent gravel; moderately acid; abrupt wavy boundary.

Bg1—8 to 11 inches; dark gray (10YR 4/1) silt loam; weak medium subangular blocky structure; friable; common fine roots; many fine prominent dark brown (7.5YR 3/4) masses of iron accumulation; about 1 percent gravel; moderately acid; clear broken boundary.

Bg2—11 to 24 inches; grayish brown (2.5Y 5/2) silt loam; weak coarse subangular blocky structure (a few vertical cleavage planes); friable; few fine roots; few fine prominent dark reddish brown (5YR 3/4) and many fine prominent dark yellowish brown (10YR 4/6) masses of iron accumulation; about 1 percent gravel; slightly acid; gradual wavy boundary.

Bg3—24 to 30 inches; gray (5Y 5/1) silt loam; weak coarse subangular blocky structure (a few vertical cleavage planes); friable; few fine roots; few fine prominent reddish brown (5YR 4/4) and many medium prominent dark yellowish brown (10YR 4/6) masses of iron accumulation; about 1 percent gravel; slightly acid; clear wavy boundary.

2Bg4—30 to 35 inches; grayish brown (10YR 5/2) loam; weak coarse subangular blocky structure (a few vertical cleavage planes); very friable; few fine roots; few fine prominent dark brown (7.5YR 3/4) and common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 2 percent gravel; slightly acid; abrupt wavy boundary.

2Bw—35 to 38 inches; brown (10YR 4/3) sandy loam; weak coarse subangular blocky structure; very friable; few fine roots; common fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; about 8 percent gravel; slightly acid; abrupt wavy boundary.

3C—38 to 66 inches; yellowish brown (10YR 5/4), stratified sand; single grain; loose; about 3 percent gravel as an average; neutral.

Range in Characteristics

Thickness of the organic material: 2 to 6 inches
Thickness of the solum and depth to sandy outwash: 20 to 40 inches
Thickness of the silty mantle: 0 to 40 inches
Content of gravel: 0 to 35 percent in the silty or loamy mantle (typically less than 15 percent); 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—5YR, 7.5YR, or 10YR

Value—2 or 3
Chroma—1 or 2
Texture—muck or mucky peat

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam, fine sandy loam, loam, or silt loam

Bg or 2Bg horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 or 2
Texture—typically sandy loam, fine sandy loam, loam, or silt loam; gravelly sandy loam or gravelly fine sandy loam in some pedons

3B horizon (if it occurs):
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 3
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; very gravelly sand or very gravelly loamy sand in some pedons

3C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 4
Texture—typically strata of coarse sand, sand, gravelly coarse sand, or gravelly sand; thin strata of very gravelly coarse sand or very gravelly sand in some pedons

Moodig Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate in the upper part of the profile and moderate or moderately rapid in the lower part
Landform: Moraines and drumlins
Parent material: Sandy or loamy glacial till
Slope range: 0 to 4 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Alfic Epiaquods

Typical Pedon

Moodig fine sandy loam, 0 to 4 percent slopes, bouldery, approximately 975 feet east and 640 feet north of the southwest corner of sec. 32, T. 30 N., R. 13 E.

Oe—0 to 1 inch; very dark grayish brown (10YR 3/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

Oa—1 to 2 inches; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

E—2 to 5 inches; grayish brown (10YR 5/2) fine sandy loam, light gray (10YR 7/2) dry; weak medium platy structure; very friable; many fine roots; about 2 percent gravel and 1 percent cobbles; very strongly acid; abrupt wavy boundary.

Bhs—5 to 9 inches; dark reddish brown (5YR 3/2) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; abrupt wavy boundary.

Bs—9 to 14 inches; dark brown (7.5YR 3/4) fine sandy loam; weak medium subangular blocky structure; very friable; many fine roots; few fine prominent dark red (2.5YR 3/6) and common fine prominent yellowish red (5YR 4/6) masses of iron accumulation; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

E/B—14 to 19 inches; 80 percent brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; moderate medium platy structure; friable; extends as tongues into yellowish brown (10YR 5/4) sandy loam (Bt); weak fine subangular blocky structure; friable; few prominent dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; few medium faint and distinct light brownish gray (10YR 6/2) masses of iron depletion; common fine prominent dark red (2.5YR 3/6) and common medium prominent yellowish red (5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (2.5YR 2/3) iron-manganese concretions; about 8 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

B/E—19 to 25 inches; 60 percent strong brown (7.5YR 4/6) sandy loam (Bt); weak coarse prismatic structure parting to moderate fine subangular blocky; friable; few prominent dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; moderate medium platy structure; friable; few fine roots; few medium distinct and prominent grayish brown (2.5Y 5/2) and brown (7.5YR 5/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and common medium distinct and prominent yellowish red (5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 8 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.

Btg1—25 to 33 inches; brown (7.5YR 5/2) sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky; friable; few fine roots; few distinct brown (7.5YR 4/2) clay films on faces of peds; few medium prominent grayish brown (2.5Y 5/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and many medium prominent yellowish red (5YR 4/6) masses of iron accumulation; common fine prominent black (5YR 2/1) iron-manganese concretions; about 10 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

Btg2—33 to 41 inches; gray (5Y 5/1) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; common distinct gray (5Y 6/1) clay films on faces of peds; few medium distinct dark greenish gray (5G 4/1) masses of iron depletion; common medium prominent dark yellowish brown (10YR 4/6) and yellowish red (5YR 4/6) masses of iron accumulation; about 9 percent gravel and 2 percent cobbles; moderately acid; clear irregular boundary.

Bt—41 to 49 inches; brown (10YR 5/3) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; few distinct brown (7.5YR 4/2) clay films on faces of peds; many medium prominent grayish brown (2.5Y 5/2) masses of iron depletion; common medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation; about 6 percent gravel and 1 percent cobbles; slightly acid; gradual wavy boundary.

C—49 to 62 inches; brown (7.5YR 5/3) sandy loam; massive; very friable; few fine roots; about 9 percent gravel and 2 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the solum: 40 to 80 inches

Content of gravel: 0 to 15 percent in the upper part of the solum and 2 to 35 percent in the lower part of the solum and in the substratum

Content of cobbles: 0 to 15 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bhs horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—loamy sand, gravelly loamy sand, sandy loam, gravelly sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—7.5YR, 10YR, 2.5Y, or 5Y
Value—4 or 5
Chroma—1 to 6
Texture—typically sandy loam, gravelly sandy loam, fine sandy loam, or loam; loamy sand or gravelly loamy sand in the lower part of some pedons

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—loamy sand, sandy loam, gravelly loamy sand, or gravelly sandy loam

Morganlake Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately rapid or rapid in the upper part of the profile and moderately slow in the lower part
Landform: Moraines
Parent material: Sandy outwash over loamy or silty glacial till
Slope range: 0 to 6 percent

Taxonomic classification: Sandy over loamy, mixed, active, frigid Alfic Oxyaquic Haplorthods

Typical Pedon

Morganlake loamy fine sand, 0 to 6 percent slopes, approximately 1,090 feet east and 2,530 feet north of the southwest corner of sec. 36, T. 29 N., R. 16 E.

Oe—0 to 1 inch; dark brown (7.5YR 3/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; moderately acid; abrupt wavy boundary.

Oa—1 to 2 inches; black (10YR 2/1), highly decomposed plant material; weak fine granular structure; very friable; many fine roots; moderately acid; abrupt wavy boundary.

E—2 to 4 inches; brown (7.5YR 4/2) loamy fine sand, pinkish gray (7.5YR 6/2) dry; weak medium platy structure; very friable; many fine roots; about 1 percent gravel; strongly acid; abrupt wavy boundary.

Bs1—4 to 7 inches; dark reddish brown (5YR 3/4) loamy fine sand; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; strongly acid; abrupt broken boundary.

Bs2—7 to 14 inches; brown (7.5YR 4/4) loamy fine sand; weak medium subangular blocky structure; very friable; many fine roots; about 2 percent gravel; strongly acid; clear wavy boundary.

Bs3—14 to 26 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; very friable; common fine roots; about 3 percent gravel; moderately acid; abrupt wavy boundary.

2E/B—26 to 36 inches; 70 percent brown (10YR 5/3) fine sandy loam (2E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) loam (2Bt); moderate fine subangular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; few fine roots; common medium distinct yellowish red (5YR 4/6) and few fine distinct and prominent dark red (2.5YR 3/6) masses of iron accumulation; common fine distinct and prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 5 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

2Bt1—36 to 51 inches; reddish brown (5YR 4/4) loam; weak coarse prismatic structure parting to moderate medium angular blocky (moderate thick plates inherited from the parent material); firm; few fine roots; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds and many prominent dark brown (7.5YR 3/2) clay films in pores; common prominent brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; few fine prominent dark red (2.5YR 3/6) and common medium distinct yellowish red (5YR 4/6) masses of iron accumulation; few distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

2Bt2—51 to 65 inches; reddish brown (5YR 4/3) loam; weak coarse prismatic structure parting to weak medium angular blocky (weak medium plates inherited from the parent material); friable; few fine roots; few distinct reddish brown (5YR 5/3) clay films on faces of peds and many distinct dark brown (7.5YR 3/2) clay films in pores; common prominent brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; few fine prominent gray (5Y 5/1) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and many medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; few fine distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel and 1 percent cobbles; moderately acid; gradual wavy boundary.

2C—65 to 80 inches; reddish brown (5YR 5/3) silt loam; massive (weak medium plates inherited from the parent material); friable; few fine roots; few medium prominent gray (5Y 5/1) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel and 1 percent cobbles; slightly acid.

Range in Characteristics

Thickness of the sandy mantle: 20 to 40 inches
Thickness of the solum and depth to carbonates: 40 to 80 inches
Content of gravel: 0 to 15 percent in the sandy mantle and 0 to 10 percent in the till

Content of cobbles: 0 to 7 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
- Hue—7.5YR or 10YR
- Value—2 or 3
- Chroma—1 or 2
- Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
- Hue—7.5YR or 10YR
- Value—2 or 3
- Chroma—1 or 2
- Texture—loamy fine sand

E horizon:
- Hue—7.5YR or 10YR
- Value—4 to 6
- Chroma—2
- Texture—sand, loamy sand, fine sand, or loamy fine sand

Bs horizon:
- Hue—5YR or 7.5YR
- Value—3 or 4
- Chroma—4 to 6
- Texture—sand, loamy sand, fine sand, or loamy fine sand

E´ horizon (if it occurs):
- Hue—7.5YR or 10YR
- Value—4 to 6
- Chroma—2 or 3
- Texture—sand, loamy sand, fine sand, or loamy fine sand

2E part of glossic horizon:
- Hue—7.5YR or 10YR
- Value—4 to 6
- Chroma—2 or 3
- Texture—typically sandy loam or fine sandy loam; loamy sand or loamy fine sand in some pedons

2Bt horizon or 2Bt part of glossic horizon:
- Hue—2.5YR or 5YR
- Value—4 or 5
- Chroma—3 or 4
- Texture—typically loam, clay loam, or sandy clay loam; subhorizons of silt loam in some pedons

2C horizon:
- Hue—2.5YR or 5YR
- Value—4 or 5
- Chroma—3 or 4
- Texture—typically silt loam or loam; clay loam or sandy clay loam in some pedons

Moshawquit Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid in the upper part of the profile, moderate in the middle part, and rapid or very rapid in the lower part
Landform: Moraines and outwash fans
Parent material: Sandy outwash over loamy till over calcareous, sandy outwash
Slope range: 2 to 15 percent

Taxonomic classification: Loamy, mixed, active, frigid Arenic Glossudalfs

Typical Pedon

Moshawquit loamy sand, 6 to 15 percent slopes, approximately 430 feet west and 1,800 feet north of the southeast corner of sec. 20, T. 29 N., R. 16 E.

Oa—0 to 1 inch; very dark brown (7.5YR 2/2), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.

A—1 to 3 inches; very dark gray (10YR 3/1) loamy sand, dark gray (10YR 4/1) dry; weak fine subangular blocky structure; very friable; many fine roots; common uncoated sand grains; about 1 percent gravel; strongly acid; abrupt wavy boundary.

Bw1—3 to 7 inches; dark brown (7.5YR 3/4) loamy sand; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; strongly acid; clear wavy boundary.

Bw2—7 to 14 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; common fine roots; about 2 percent gravel; strongly acid; gradual wavy boundary.

Bw3—14 to 26 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; common fine roots; about 3 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

2E/B—26 to 30 inches; 70 percent brown (10YR 5/3) loamy sand (2E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; surrounded by reddish brown (5YR 4/4) sandy loam (2Bt); moderate fine angular blocky structure; friable; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; about 5 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

2B/E1—30 to 39 inches; 70 percent reddish brown (5YR 4/4) sandy loam (2Bt); moderate fine angular blocky structure; friable; many distinct dark reddish brown (5YR 3/4) clay films on faces of peds; surrounded by brown (7.5YR 5/3) sandy loam (2E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; few fine roots; about 6 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

2B/E2—39 to 48 inches; 80 percent reddish brown (5YR 4/3) sandy loam (2Bt); weak medium subangular blocky structure; friable; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; surrounded by brown (7.5YR 5/3) sandy loam (2E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; few fine roots; about 7 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

3C—48 to 60 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; about 2 percent gravel; slightly alkaline.

Range in Characteristics

Thickness of the sandy mantle: 20 to 40 inches
Thickness of the loamy deposits (material in the 2E/B and 2B/E horizons): 10 to 30 inches
Thickness of the solum and depth to underlying sandy deposits: 40 to 60 inches
Depth to carbonates: 40 to 80 inches
Content of gravel: 0 to 15 percent in the sandy mantle, 2 to 15 percent in the loamy deposits, and 0 to 35 percent in the underlying sandy deposits
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 to 3
Texture—loamy sand

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

E´ horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sand, loamy sand, fine sand, or loamy fine sand

2E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sand, loamy sand, sandy loam, fine sand, loamy fine sand, or fine sandy loam

2Bt horizon (if it occurs) or 2Bt part of glossic horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically sandy loam, fine sandy loam, or loam; thin subhorizons of sandy clay loam in some pedons

3Bt or 3BC horizon (if it occurs):
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Texture—sand, coarse sand, loamy sand, sandy loam, or the gravelly analogs of these textures; stratified in some pedons

3C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—strata of sand, coarse sand, gravelly sand, or gravelly coarse sand

Neconish Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, lake plains, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Sandy, isotic, frigid Oxyaquic Haplorthods

Typical Pedon

Neconish fine sand, 0 to 3 percent slopes, approximately 165 feet west and 1,175 feet north of the southeast corner of sec. 33, T. 29 N., R. 16 E.

Oa—0 to 1 inch; black (10YR 2/1), highly decomposed plant material; weak medium granular structure;

very friable; many fine roots; about 5 percent sand grains; very strongly acid; abrupt wavy boundary.

E—1 to 4 inches; grayish brown (10YR 5/2) fine sand, light gray (10YR 7/2) dry; weak fine subangular blocky structure; very friable; many fine roots; extremely acid; abrupt wavy boundary.

Bs1—4 to 8 inches; dark brown (7.5YR 3/4) fine sand; weak very fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

Bs2—8 to 11 inches; brown (7.5YR 4/4) fine sand; weak fine subangular blocky structure; very friable; common fine roots; strongly acid; clear wavy boundary.

Bs3—11 to 30 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; very friable; few fine roots; very strongly acid; gradual wavy boundary.

BC—30 to 36 inches; brown (7.5YR 5/4) fine sand; single grain; loose; few fine roots; few medium prominent strong brown (7.5YR 5/8) masses of iron accumulation; strongly acid; clear wavy boundary.

C1—36 to 50 inches; strong brown (7.5YR 5/6) fine sand; single grain; loose; few fine prominent red (2.5YR 4/6), common medium prominent yellowish red (5YR 5/8), and common coarse distinct light brown (7.5YR 6/4) masses of iron accumulation; strongly acid; clear wavy boundary.

C2—50 to 61 inches; light brown (7.5YR 6/4) fine sand; single grain; loose; common medium prominent yellowish red (5YR 5/6) masses of iron accumulation; strongly acid.

Range in Characteristics

Thickness of the solum: 25 to 45 inches
Content of gravel: 0 to 2 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—fine sand or loamy fine sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—fine sand or loamy fine sand

BC horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—fine sand or loamy fine sand

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—typically fine sand; sand or loamy fine sand in some pedons

Neopit Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the profile and moderate or moderately rapid in the lower part
Landform: Moraines and drumlins
Parent material: Silty or loamy alluvium over sandy or loamy glacial till
Slope range: 2 to 6 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Oxyaquic Glossudalfs

Typical Pedon

Neopit silt loam, 2 to 6 percent slopes, very bouldery, approximately 2,030 feet west and 2,200 feet north of the southeast corner of sec. 31, T. 30 N., R. 13 E.

Oa—0 to 1 inch; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; neutral; abrupt wavy boundary.

E—1 to 4 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak medium platy structure; very friable; many fine roots; about 6 percent gravel and 5 percent cobbles; very strongly acid; abrupt wavy boundary.

Bw—4 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; very friable; many fine roots; about 7 percent gravel and 5 percent cobbles; very strongly acid; clear wavy boundary.

E´—12 to 15 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate medium platy structure; friable; common fine roots; about 4 percent gravel and 2 percent cobbles; very strongly acid; clear wavy boundary.

E/B—15 to 20 inches; 80 percent brown (10YR 5/3) fine sandy loam (E´), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; surrounds remnants of brown (7.5YR 4/4) loam (Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

B/E1—20 to 26 inches; 70 percent brown (7.5YR 4/4) loam (Bt); moderate fine angular blocky structure; firm; many distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) fine sandy loam (E´), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; few fine roots; few fine prominent yellowish red (5YR 4/6) masses of iron accumulation; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

B/E2—26 to 36 inches; 80 percent brown (7.5YR 4/4) sandy loam (Bt); moderate medium subangular blocky structure; firm; many distinct dark reddish brown (5YR 3/3) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E´), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; few fine roots; few fine prominent yellowish red (5YR 5/6) masses of iron accumulation; few fine distinct and prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 5 percent gravel and 2 percent cobbles; strongly acid; gradual wavy boundary.

B/E3—36 to 67 inches; 85 percent dark yellowish brown (10YR 4/4) gravelly sandy loam (Bt); weak medium subangular blocky structure (moderate medium plates inherited from the parent material); friable; few prominent reddish brown (5YR 4/3) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) gravelly sandy loam (E´), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; few fine roots; few fine prominent red (2.5YR 4/6) and common medium prominent yellowish red (5YR 5/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 10 percent gravel and 7 percent cobbles; strongly acid; gradual wavy boundary.

C—67 to 80 inches; brown (10YR 4/3) loamy sand; massive; friable; about 12 percent gravel and 2 percent cobbles; moderately acid.

Range in Characteristics

Thickness of the solum: 45 to 85 inches

Content of gravel: 0 to 15 percent in the upper part of the solum and 2 to 25 percent in the lower part of the solum and in the substratum

Content of cobbles: 0 to 15 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam or silt loam

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam, fine sandy loam, loam, or silt loam

Bw horizon:
Hue—10YR
Value—3 or 4
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, loam, or silt loam

E´ horizon or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—loamy sand, gravelly loamy sand, sandy loam, gravelly sandy loam, fine sandy loam, loam, or silt loam

Bt horizon (if it occurs) or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—typically sandy loam, gravelly sandy loam, fine sandy loam, or loam; loamy sand or

gravelly loamy sand in the lower part of some pedons

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—loamy sand, sandy loam, gravelly loamy sand, or gravelly sandy loam

Noseum Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderately rapid in the upper part of the profile and rapid in the lower part
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Sandy, isotic, frigid Oxyaquic Haplorthods

Typical Pedon

Noseum fine sandy loam, 0 to 3 percent slopes, approximately 2,070 feet east and 2,070 feet south of the northwest corner of sec. 34, T. 30 N., R. 13 E.

Oa—0 to 1 inch; black (7.5YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 10 percent sand grains; very strongly acid; abrupt wavy boundary.
E—1 to 3 inches; brown (7.5YR 5/2) fine sandy loam, pinkish gray (7.5YR 7/2) dry; weak medium platy structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.
Bs1—3 to 7 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.
Bs2—7 to 14 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.
2Bs3—14 to 19 inches; strong brown (7.5YR 4/6) loamy fine sand; weak medium subangular blocky structure; very friable; common fine roots; about 2 percent gravel; strongly acid; clear wavy boundary.
2BC1—19 to 22 inches; strong brown (7.5YR 5/6) fine sand; weak medium subangular blocky structure (weak medium to very thick plates inherited from the parent material); very friable; few fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.
2BC2—22 to 27 inches; yellowish brown (10YR 5/6) fine sand; weak medium subangular blocky structure (weak medium to very thick plates inherited from the parent material); very friable; few fine roots; strongly acid; clear wavy boundary.
2BC3—27 to 32 inches; yellowish brown (10YR 5/4) fine sand; weak medium subangular blocky structure (weak medium to very thick plates inherited from the parent material); very friable; few fine roots; strongly acid; gradual wavy boundary.
2C1—32 to 44 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few fine roots; few fine prominent red (2.5YR 4/8) and few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; common medium prominent black (5YR 2/1) iron-manganese concretions; moderately acid; gradual wavy boundary.
2C2—44 to 61 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few fine roots; common fine prominent dark reddish brown (2.5YR 3/4), common medium prominent red (2.5YR 4/6), and common coarse prominent yellowish red (5YR 5/6) masses of iron accumulation; strongly acid.

Range in Characteristics

Thickness of the solum: 22 to 40 inches
Thickness of the loamy mantle: 10 to 20 inches
Content of gravel: 0 to 15 percent throughout the profile
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2

Texture—loamy sand, loamy fine sand, sandy loam, or fine sandy loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam or fine sandy loam

2Bs horizon:
Hue—5YR or 7.5YR
Value—4
Chroma—4 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

2BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—sand or fine sand

2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—3 to 6
Texture—sand or fine sand

Padus Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains, stream terraces, eskers, and kames
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Alfic Haplorthods

Typical Pedon

Padus fine sandy loam, 0 to 6 percent slopes, approximately 2,030 feet east and 2,300 feet north of the southwest corner of sec. 29, T. 30 N., R. 13 E.

Oa—0 to 1 inch; black (10YR 2/1), highly decomposed plant material; weak fine granular structure; very friable; many fine roots; about 20 percent sand grains; strongly acid; abrupt wavy boundary.

E—1 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium platy structure; very friable; many fine roots; about 2 percent gravel; strongly acid; abrupt wavy boundary.

Bs1—4 to 6 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; strongly acid; clear broken boundary.

Bs2—6 to 13 inches; brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; friable; many fine roots; about 2 percent gravel; strongly acid; clear wavy boundary.

E/B—13 to 22 inches; 60 percent brown (10YR 5/3) fine sandy loam (E), very pale brown (10YR 7/3) dry; moderate medium platy structure; friable; extends as tongues into brown (7.5YR 4/4) fine sandy loam (Bt); moderate fine subangular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; about 4 percent gravel and 4 percent cobbles; very strongly acid; clear wavy boundary.

Bt1—22 to 27 inches; brown (7.5YR 4/4) sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky (moderate thick and very thick plates inherited from the parent material); firm; few fine roots; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common prominent brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; about 10 percent gravel and 2 percent cobbles; very strongly acid; abrupt wavy boundary.

2Bt2—27 to 31 inches; brown (7.5YR 4/4) loamy sand; a few thin interbedded strata of sandy loam and strong brown (7.5YR 4/6) sand; weak fine subangular blocky structure; very friable; few fine roots; common distinct dark reddish brown (5YR 3/4) clay bridges between mineral grains; about 7 percent gravel; strongly acid; abrupt wavy boundary.

2C—31 to 61 inches; primarily yellowish brown (10YR 5/4), stratified sand and coarse sand; single grain; loose; few fine roots; about 4 percent gravel as an average; moderately acid.

Range in Characteristics

Thickness of the solum and thickness of the loamy mantle: 24 to 40 inches
Content of gravel: 0 to 35 percent in the loamy mantle (typically less than 15 percent); 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR

Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam, fine sandy loam, or loam

Bw horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; thin subhorizons of very gravelly sand or very gravelly loamy sand in some pedons

2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4
Texture—typically strata of coarse sand, sand, gravelly coarse sand, or gravelly sand; thin strata of very gravelly coarse sand or very gravelly sand in some pedons

Padwet Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 6 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Alfic Haplorthods

Typical Pedon

Padwet fine sandy loam, 0 to 6 percent slopes, approximately 880 feet north and 2,090 feet west of the southeast corner of sec. 18, T. 30 N., R. 13 E.

A—0 to 3 inches; very dark gray (10YR 3/1) fine sandy loam, gray (10YR 5/1) dry; moderate medium granular structure; friable; many fine roots; common uncoated sand grains; about 4 percent gravel and 4 percent cobbles; strongly acid; abrupt wavy boundary.

E—3 to 5 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; moderate medium platy structure; very friable; many fine roots; many medium faint very dark gray (10YR 3/1) wormcasts; about 4 percent gravel and 4 percent cobbles; moderately acid; abrupt wavy boundary.

Bs1—5 to 7 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 4 percent gravel and 2 percent cobbles; moderately acid; abrupt wavy boundary.

Bs2—7 to 13 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 4 percent gravel and 2 percent cobbles; moderately acid; abrupt wavy boundary.

E/B—13 to 22 inches; 70 percent brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; moderate medium platy structure; very friable; extends as tongues into brown (7.5YR 4/4) sandy loam (Bt); moderate fine subangular blocky structure; friable; few distinct dark brown (7.5YR 3/4) clay films on faces of peds; common fine roots; about 9 percent gravel and 2 percent cobbles; strongly acid; clear wavy boundary.

B/E—22 to 32 inches; 80 percent brown (7.5YR 4/4) sandy loam (Bt); moderate fine subangular blocky structure; friable; common distinct dark brown (7.5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; moderate medium platy structure; very friable; common fine roots; few medium faint and prominent grayish brown (10YR 5/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and common fine prominent yellowish red (5YR 4/6) masses of iron accumulation; about 8 percent gravel and 2 percent cobbles; very strongly acid; clear wavy boundary.

Bt—32 to 38 inches; brown (7.5YR 4/4) sandy loam; weak coarse prismatic structure parting to moderate fine angular blocky (moderate medium and thick plates inherited from the parent material); friable; few fine roots; common distinct dark brown (7.5YR 3/4) clay films on faces of peds; common prominent brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; common fine prominent yellowish red (5YR 4/6) masses of iron accumulation; common fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 7 percent gravel and 2 percent cobbles; strongly acid; abrupt wavy boundary.

2C—38 to 60 inches; primarily light yellowish brown (10YR 6/4), stratified sand and coarse sand; a few thin interbedded strata of brown (7.5YR 4/4) sand (containing about 10 percent gravel); single grain; loose; about 2 percent gravel as an average; moderately acid.

Range in Characteristics

Thickness of the solum and thickness of the loamy mantle: 24 to 40 inches

Content of gravel: 0 to 35 percent in the loamy mantle (typically less than 15 percent); 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata

Content of cobbles: 0 to 5 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam, fine sandy loam, or loam

Bw horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

2Bt horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; thin subhorizons of very gravelly sand or very gravelly loamy sand in some pedons

2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—typically strata of coarse sand, sand, gravelly coarse sand, or gravelly sand; thin strata of very gravelly coarse sand or very gravelly sand in some pedons

Pecore Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Moraines
Parent material: Loamy glacial till over calcareous, sandy outwash
Slope range: 2 to 35 percent

Taxonomic classification: Fine-loamy, mixed, active, frigid Haplic Glossudalfs

Typical Pedon

Pecore loam, 15 to 35 percent slopes, approximately 310 feet west and 1,400 feet north of the southeast corner of sec. 5, T. 28 N., R. 16 E.

Oa—0 to 2 inches; black (5YR 2/1), highly decomposed plant material; weak medium granular structure; very friable; many fine roots; about 10 percent sand grains; moderately acid; abrupt wavy boundary.

Bw1—2 to 4 inches; dark brown (10YR 3/3) loam; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

Bw2—4 to 10 inches; brown (10YR 4/3) loam; weak medium subangular blocky structure; very friable; many fine roots; about 4 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

E/B—10 to 15 inches; 80 percent brown (7.5YR 5/2) loam (E), pinkish gray (7.5YR 7/2) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (2.5YR 4/4) loam (Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (2.5YR 3/4) clay films on faces of peds; common fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

B/E—15 to 27 inches; 80 percent reddish brown (2.5YR 4/4) clay loam (Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (2.5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/2) loam (E), pinkish gray (7.5YR 7/2) dry; weak medium platy structure; very friable; common fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.

Bt1—27 to 37 inches; reddish brown (2.5YR 4/4) clay loam; weak coarse prismatic structure parting to moderate fine angular blocky; firm; few fine roots; many distinct reddish brown (2.5YR 4/3) and common distinct dark reddish brown (5YR 3/3) clay films on faces of peds; many prominent brown (7.5YR 5/3) coatings of clean silt and sand grains on vertical faces of prisms; about 2 percent gravel and 1 percent cobbles; moderately acid; gradual wavy boundary.

Bt2—37 to 47 inches; reddish brown (2.5YR 4/4) silt loam; weak coarse prismatic structure parting to moderate medium angular blocky (weak thick plates inherited from the parent material); friable; few fine roots; common distinct reddish brown (5YR 4/3) clay films on faces of peds and many prominent light reddish brown (2.5YR 6/3) clay films in pores; common prominent brown (7.5YR 5/3) coatings of clean silt and sand grains on vertical faces of prisms; about 2 percent gravel and 1 percent cobbles; slightly acid; abrupt smooth boundary.

2C—47 to 62 inches; primarily light yellowish brown (10YR 6/4), stratified sand and coarse sand; a few thin interbedded strata of yellowish red (5YR 4/6) sand in the upper part; single grain; loose; few fine roots; about 2 percent gravel as an average; neutral.

Range in Characteristics

Thickness of the solum, thickness of the loamy mantle, and depth to carbonates: 40 to 60 inches

Content of gravel: 2 to 15 percent in the loamy mantle; 0 to 35 percent as a weighted average in the sandy outwash

Content of cobbles: 0 to 5 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—loam

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically loam, clay loam, or sandy clay loam; subhorizons of silt loam in some pedons

2Bt horizon (if it occurs):
Hue—5YR or 7.5YR
Value—4 to 6
Chroma—3 or 4
Texture—sand, loamy sand, gravelly sand, or gravelly loamy sand

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—stratified gravelly coarse sand to sand

Pence Series

Depth class: Very deep
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains, outwash fans, eskers, and kames
Parent material: Loamy alluvium over sandy and gravelly outwash
Slope range: 0 to 35 percent

Taxonomic classification: Sandy, mixed, frigid Typic Haplorthods

Typical Pedon

Pence sandy loam, 15 to 35 percent slopes, approximately 1,620 feet east and 30 feet south of the northwest corner of sec. 8, T. 30 N., R. 14 E.

Oa—0 to 2 inches; black (7.5YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 10 percent sand grains; extremely acid; abrupt wavy boundary.
E—2 to 5 inches; brown (7.5YR 5/2) sandy loam, pinkish gray (7.5YR 7/2) dry; weak fine subangular blocky structure; very friable; many fine roots; about 6 percent gravel; very strongly acid; abrupt wavy boundary.
Bs1—5 to 8 inches; dark brown (7.5YR 3/4) sandy loam; weak fine subangular blocky structure; friable; many fine roots; about 12 percent gravel; very strongly acid; clear wavy boundary.
Bs2—8 to 14 inches; brown (7.5YR 4/4) gravelly sandy loam; weak medium subangular blocky structure; very friable; common fine roots; about 16 percent gravel and 1 percent cobbles; very strongly acid; clear wavy boundary.
2Bs3—14 to 18 inches; strong brown (7.5YR 4/6) gravelly loamy sand; weak coarse subangular blocky structure; very friable; few fine roots; about 20 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.
2C—18 to 62 inches; yellowish brown (10YR 5/4), stratified coarse sand and gravelly coarse sand; single grain; loose; few fine roots; about 20 percent gravel as an average; moderately acid.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Thickness of the loamy mantle: 10 to 20 inches
Content of gravel: 0 to 35 percent in the loamy mantle; 15 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 10 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—loamy sand or sandy loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam or gravelly sandy loam

2Bs horizon:
Hue—5YR or 7.5YR
Value—4
Chroma—4 to 6
Texture—coarse sand, sand, loamy sand, or the gravelly analogs of these textures

2BC horizon (if it occurs) or 2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—typically strata of coarse sand, sand, gravelly coarse sand, or gravelly sand; thin strata of very gravelly coarse sand or very gravelly sand in some pedons

Perote Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Moraines
Parent material: Loamy glacial till over calcareous, sandy outwash
Slope range: 2 to 35 percent

Taxonomic classification: Coarse-loamy, mixed, active, frigid Haplic Glossudalfs

Typical Pedon

Perote fine sandy loam, 2 to 6 percent slopes, approximately 2,340 feet west and 1,070 feet south of the northeast corner of sec. 29, T. 29 N., R. 16 E.

Oa—0 to 2 inches; black (7.5YR 2/1), highly decomposed plant material; weak medium granular structure; very friable; many fine roots; about 10 percent sand grains; very strongly acid; abrupt wavy boundary.

Bw1—2 to 4 inches; dark yellowish brown (10YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 3 percent gravel and 2 percent cobbles; very strongly acid; abrupt wavy boundary.

Bw2—4 to 11 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; many fine roots; about 7 percent gravel and 2 percent cobbles; very strongly acid; clear wavy boundary.

E/B—11 to 16 inches; 70 percent brown (10YR 5/3) fine sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) fine sandy loam (Bt); moderate fine angular blocky structure; friable; few distinct dark reddish brown (5YR 3/3) clay films on faces of peds; common fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

B/E—16 to 29 inches; 80 percent reddish brown (5YR 4/4) loam (Bt); moderate fine angular blocky structure; firm; many distinct dark reddish brown (5YR 3/3) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; common fine roots; about 2 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.

Bt1—29 to 39 inches; reddish brown (5YR 4/4) loam; weak coarse prismatic structure parting to moderate medium angular blocky; firm; few fine roots; common distinct dark reddish brown (5YR 3/3) clay films on faces of peds; many prominent pale brown (10YR 6/3) coatings of clean sand grains on vertical faces of prisms; about 3 percent gravel and 1 percent cobbles; strongly acid; gradual wavy boundary.

Bt2—39 to 51 inches; brown (7.5YR 4/3) fine sandy loam; weak coarse prismatic structure parting to weak coarse angular blocky (moderate thin plates inherited from the parent material); friable; few fine roots; few distinct dark reddish brown (5YR 3/3) clay films on faces of peds; many distinct dark reddish brown (5YR 3/3) clay films in pores; common distinct pale brown (10YR 6/3) coatings of clean sand grains on vertical faces of prisms; about 3 percent gravel and 1 percent cobbles; moderately acid; abrupt smooth boundary.

2C—51 to 62 inches; primarily pale brown (10YR 6/3), stratified sand and coarse sand; a few thin interbedded strata of fine sand; single grain; loose; few fine roots; about 9 percent gravel as an average; slightly alkaline.

Range in Characteristics

Thickness of the solum, thickness of the loamy mantle, and depth to carbonates: 40 to 60 inches
Content of gravel: 2 to 15 percent in the loamy mantle; 0 to 35 percent as a weighted average in the sandy outwash
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—10YR
Value—2 or 3

Chroma—1 or 2
Texture—fine sandy loam

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—loamy sand, sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

2Bt horizon (if it occurs):
Hue—5YR or 7.5YR
Value—4 to 6
Chroma—3 or 4
Texture—sand, loamy sand, gravelly sand, or gravelly loamy sand

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—stratified gravelly coarse sand to sand

Peshtigo Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate in the upper part of the profile and moderately slow in the lower part
Landform: Moraines
Parent material: Calcareous, loamy or silty glacial till
Slope range: 0 to 4 percent

Taxonomic classification: Fine-loamy, mixed, active, frigid Aquic Glossudalfs

Typical Pedon

Peshtigo loam, 0 to 4 percent slopes, approximately 20 feet east and 820 feet south of the northwest corner of sec. 31, T. 28 N., R. 16 E.

A—0 to 5 inches; very dark brown (10YR 2/2) loam, dark gray (10YR 4/1) dry; weak medium granular structure; friable; many fine roots; few uncoated sand grains; about 2 percent gravel and 4 percent cobbles; strongly acid; abrupt wavy boundary.

E—5 to 11 inches; brown (10YR 4/3) loam, light gray (10YR 7/2) dry; weak thin platy structure; very friable; many fine roots; few fine prominent strong brown (7.5YR 4/6) and common fine distinct dark brown (7.5YR 3/4) masses of iron accumulation; many medium faint very dark brown (10YR 2/2) wormcasts; about 12 percent gravel and 4 percent cobbles; strongly acid; clear wavy boundary.

E/B—11 to 15 inches; 80 percent brown (10YR 5/3) fine sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) sandy clay loam (Bt); moderate fine subangular blocky structure; friable; few distinct dark brown (7.5YR 3/4) clay films on faces of peds; many fine roots; few fine distinct and prominent grayish brown (10YR 5/2) masses of iron depletion; common fine prominent dark red (2.5YR 3/6) and many fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; common fine and medium distinct and prominent dark reddish brown (5YR 3/2) iron-manganese concretions; common medium prominent very dark brown (10YR 2/2) wormcasts; about 4 percent gravel and 3 percent cobbles; strongly acid; clear wavy boundary.

B/E—15 to 29 inches; 70 percent reddish brown (5YR 4/4) loam (Bt); moderate fine angular blocky structure (moderate thick plates inherited from the parent material); firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; common fine roots; few fine distinct and prominent grayish brown (10YR 5/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and common fine distinct and prominent yellowish red (5YR 4/6) masses of iron accumulation; many fine distinct and prominent dark reddish brown (5YR 2/2) iron-manganese concretions; few medium prominent very dark brown (10YR 2/2) wormcasts; about 1 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.

Bt1—29 to 46 inches; reddish brown (5YR 4/4) clay loam; moderate medium prismatic structure parting to strong medium angular blocky (moderate very thick plates inherited from the parent material); firm; common fine roots; common prominent dark reddish brown (5YR 3/4) clay films on faces of peds; many prominent brown (7.5YR 5/3) coatings of clean sand grains on vertical faces of prisms; common fine prominent brown (7.5YR 5/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and common fine distinct yellowish red (5YR 4/6) masses of iron accumulation; many fine distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 1 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.

Bt2—46 to 62 inches; reddish brown (5YR 4/4) clay loam; weak coarse prismatic structure parting to weak coarse angular blocky (weak medium plates inherited from the parent material); friable; few fine roots; common prominent dark reddish brown (5YR 3/3) clay films on faces of peds and many prominent brown (7.5YR 4/2) clay films in pores; few prominent brown (7.5YR 5/3) coatings of clean sand grains on vertical faces of prisms; common medium prominent brown (7.5YR 5/2) masses of iron depletion; common medium distinct yellowish red (5YR 4/6) masses of iron accumulation; many fine distinct dark reddish brown (5YR 2/2) iron-manganese concretions; about 1 percent gravel and 2 percent cobbles; slightly acid; gradual wavy boundary.

C—62 to 80 inches; reddish brown (5YR 4/4) clay loam; massive (moderate medium plates inherited from the parent material); friable; few fine roots; few fine distinct yellowish red (5YR 4/6) masses of iron accumulation; few fine distinct dark reddish brown (5YR 2/2) iron-manganese concretions; slightly effervescent; about 1 percent gravel and 2 percent cobbles; slightly alkaline.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to carbonates: 40 to 70 inches
Content of gravel: 0 to 10 percent throughout the profile
Content of cobbles: 0 to 5 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

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

Bw horizon (if it occurs):
Hue—10YR
Value—3 to 5
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

E horizon or E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically loam, clay loam, or sandy clay loam; subhorizons of silt loam in some pedons

C horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam, loam, or clay loam

Rabe Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid in the upper part of the profile and moderate in the lower part
Landform: Moraines
Parent material: Sandy outwash over loamy glacial till
Slope range: 2 to 35 percent

Taxonomic classification: Loamy, mixed, active, frigid Arenic Glossudalfs

Typical Pedon

Rabe loamy sand, 15 to 35 percent slopes, approximately 2,630 feet west and 1,170 feet north of the southeast corner of sec. 31, T. 28 N., R. 15 E.

Oa—0 to 1 inch; black (10YR 2/1), highly decomposed plant material; weak very fine subangular blocky structure; very friable; many fine roots; about 5 percent sand grains; few black (5YR 2/1) wood charcoal fragments; very strongly acid; abrupt wavy boundary.

A—1 to 2 inches; very dark grayish brown (10YR 3/2) loamy sand, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; very friable; many fine roots; common medium and coarse faint black (10YR 2/1) wormcasts; about 4 percent gravel; very strongly acid; abrupt wavy boundary.

Bw1—2 to 5 inches; dark yellowish brown (10YR 3/4) loamy sand; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

Bw2—5 to 13 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; many fine roots; about 2 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

Bw3—13 to 25 inches; brown (7.5YR 5/4) sand; weak medium subangular blocky structure; very friable; common fine roots; about 2 percent gravel and 1 percent cobbles; moderately acid; abrupt wavy boundary.

2E/B—25 to 35 inches; 70 percent brown (10YR 5/3) sand (2E), light gray (10YR 7/2) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) loam (2Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; few fine roots; about 5 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

2B/E—35 to 47 inches; 80 percent reddish brown (5YR 4/4) sandy loam (2Bt); moderate medium angular blocky structure; firm; many distinct dark reddish brown (5YR 2/2 and 3/3) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) sand (2E), light gray (10YR 7/2) dry; weak medium platy structure; friable; few fine roots; about 4 percent gravel and 2 percent cobbles; strongly acid; gradual wavy boundary.

2Bt—47 to 58 inches; reddish brown (5YR 4/3) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky; friable; few fine roots; few faint dark reddish brown (5YR 3/3) clay films on faces of peds; many faint brown (7.5YR 5/3) coatings of clean sand grains on vertical faces of prisms; about 4 percent gravel and 2 percent cobbles; moderately acid; gradual wavy boundary.

2C—58 to 80 inches; brown (5YR 5/3) sandy loam; massive (weak medium plates inherited from the parent material); friable; few fine roots; very slightly effervescent; about 4 percent gravel and 2 percent cobbles; slightly alkaline.

Range in Characteristics

Thickness of the sandy mantle: 20 to 40 inches

Thickness of the solum and depth to carbonates: 40 to 80 inches

Content of gravel: 0 to 15 percent in the sandy mantle and 2 to 15 percent in the till

Content of cobbles: 0 to 5 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy sand

E horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sand, loamy sand, fine sand, or loamy fine sand

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—4 to 6
Texture—sand, loamy sand, fine sand, or loamy fine sand

E´ horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sand, loamy sand, fine sand, or loamy fine sand

2E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sand, loamy sand, sandy loam, fine sand, loamy fine sand, or fine sandy loam

2Bt horizon or 2Bt part of glossic horizon:
Hue—7.5YR or 5YR
Value—4 or 5

Chroma—3 or 4
Texture—typically sandy loam, fine sandy loam, or loam; thin subhorizons of sandy clay loam in some pedons

2C horizon:
Hue—7.5YR or 5YR
Value—4 to 6
Chroma—3 or 4
Texture—typically sandy loam or fine sandy loam; loam in some pedons

Robago Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate
Landform: Lake plains and stream terraces
Parent material: Loamy lacustrine deposits
Slope range: 0 to 3 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Argic Endoaquods

Typical Pedon

Robago fine sandy loam, 0 to 3 percent slopes, approximately 2,067 feet west and 858 feet north of the southeast corner of sec. 32, T. 28 N., R. 15 E.

Oe—0 to 1 inch; dark brown (7.5YR 3/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.
Oa—1 to 3 inches; black (7.5YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.
E—3 to 4 inches; brown (7.5YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium platy structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.
Bs1—4 to 7 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.
Bs2—7 to 12 inches; brown (7.5YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; many fine roots; few fine distinct strong brown (7.5YR 4/6) masses of iron accumulation; about 1 percent gravel; strongly acid; clear wavy boundary.
E´—12 to 18 inches; brown (7.5YR 5/3) sandy loam, pink (7.5YR 7/3) dry; moderate thin platy structure; friable; common fine roots; common fine distinct strong brown (7.5YR 4/6) masses of iron accumulation and few fine dark reddish brown (5YR 2/2) iron-manganese concretions; about 1 percent gravel; strongly acid; clear wavy boundary.
E/B—18 to 26 inches; 80 percent brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; friable; surrounds remnants of brown (7.5YR 4/4) sandy loam (Bt); weak medium subangular blocky structure; friable; common fine roots; few distinct dark brown (7.5YR 3/3) clay films on faces of peds; common fine prominent yellowish red (5YR 4/6) masses of iron accumulation and many fine dark reddish brown (5YR 2/2) iron-manganese concretions; about 2 percent gravel; slightly acid; clear wavy boundary.
Bt—26 to 35 inches; reddish brown (5YR 4/3) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky (strong thin and medium plates inherited from the parent material); firm; few fine roots; common distinct reddish brown (5YR 4/3) clay films on faces of peds; common fine prominent dark red (2.5YR 3/6) and many fine distinct yellowish red (5YR 4/6) masses of iron accumulation; common fine prominent light brownish gray (2.5Y 6/2) iron depletions and many fine dark reddish brown (5YR 2/2) iron-manganese concretions; about 1 percent gravel; slightly acid; abrupt wavy boundary.
C—35 to 80 inches; brown (10YR 4/3), stratified very fine sandy loam, silt loam, and very fine sand; massive; friable; common fine prominent dark red (2.5YR 3/6) and many medium prominent yellowish red (5YR 4/6) masses of iron accumulation and common fine dark reddish brown (5YR 2/2) iron-manganese concretions; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Content of gravel: 0 to 5 percent throughout the profile
Depth to stratified lacustrine deposits: 20 to 40 inches
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3

Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bhs horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—typically sandy loam, fine sandy loam, or loam; loamy sand, loamy fine sand, or loamy very fine sand in some pedons

Bt horizon or Bt part of glossic horizon:
Hue—5YR or 7.5YR
Value—4 or 5
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

C horizon:
Hue—5YR, 7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—3 or 4
Texture—dominantly silt loam, very fine sandy loam, loamy very fine sand, or very fine sand; thin strata of silty clay loam, loam, fine sandy loam, loamy fine sand, fine sand, or sand in many pedons

Roscommon Series

Depth class: Very deep
Drainage class: Poorly drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, and lake plains
Parent material: Sandy outwash
Slope range: 0 to 2 percent

Taxonomic classification: Mixed, frigid Mollic Psammaquents

Typical Pedon

Roscommon muck, 0 to 2 percent slopes, approximately 780 feet east and 930 feet north of the southwest corner of sec. 35, T. 28 N., R. 16 E.

Oe—0 to 1 inch; mucky peat, dark reddish brown (5YR 3/2) broken face, dark reddish brown (5YR 2/2) rubbed, dark reddish brown (5YR 3/3) pressed; about 60 percent fiber, 30 percent rubbed; weak fine subangular blocky structure; very friable; many fine roots; primarily herbaceous fibers; a few woody fibers; about 10 percent mineral ash material; very pale brown (10YR 7/4) sodium pyrophosphate extract; about 5 percent dark brown (7.5YR 3/4) wood fragments; very strongly acid (pH 4.7 by the Truog method); abrupt wavy boundary.
Oa—1 to 6 inches; muck, black (5YR 2/1) broken face and rubbed, very dark gray (5YR 3/1) pressed; about 30 percent fiber, 10 percent rubbed; weak fine subangular blocky structure; very friable; many fine roots; primarily herbaceous fibers; a few woody fibers; about 20 percent mineral ash material; dark brown (10YR 3/3) sodium pyrophosphate extract; about 5 percent dark brown (7.5YR 3/4) wood fragments; very strongly acid (pH 4.6 by the Truog method); abrupt wavy boundary.
Cg1—6 to 18 inches; dark grayish brown (2.5Y 4/2) fine sand; a few thin discontinuous strata of very dark gray (10YR 3/1) and very dark grayish brown (2.5Y 3/2) fine sand; single grain; loose; few fine roots; many coarse prominent yellowish brown (10YR 5/8) masses of iron accumulation in the upper 1 inch; slightly acid; clear wavy boundary.
Cg2—18 to 22 inches; dark grayish brown (10YR 4/2) fine sand; single grain; loose; slightly alkaline; clear wavy boundary.
Cg3—22 to 35 inches; grayish brown (10YR 5/2) sand; single grain; loose; about 2 percent gravel; slightly alkaline; gradual wavy boundary.
C—35 to 66 inches; primarily brown (10YR 5/3) sand; a few thin discontinuous interbedded strata of brown (7.5YR 5/3) sand in the upper part; single grain; loose; about 2 percent gravel as an average; slightly alkaline.

Range in Characteristics

Thickness of the organic material: 2 to 6 inches
Content of gravel: 0 to 10 percent in the sandy outwash
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—muck or mucky peat

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 to 4
Chroma—1 or 2
Texture—sand, mucky sand, fine sand, or mucky fine sand

B horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—sand or fine sand

C horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—1 to 3
Texture—sand or fine sand

Rosholt Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate or moderately rapid in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains, stream terraces, outwash fans, eskers, and kames
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Haplic Glossudalfs

Typical Pedon

Rosholt fine sandy loam, 0 to 6 percent slopes, approximately 550 feet east and 290 feet north of the southwest corner of sec. 1, T. 29 N., R. 14 E.

A—0 to 4 inches; very dark gray (10YR 3/1) fine sandy loam, dark gray (10YR 4/1) dry; moderate medium granular structure; friable; many fine roots; about 2 percent gravel; moderately acid; abrupt wavy boundary.

Bw—4 to 10 inches; dark brown (10YR 4/4) fine sandy loam, yellowish brown (10YR 5/4) dry; weak fine and medium subangular blocky structure; very friable; many fine roots; common medium prominent very dark gray (10YR 3/1) wormcasts; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

E/B—10 to 17 inches; 80 percent brown (7.5YR 5/3) fine sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into brown (7.5YR 4/4) sandy loam (Bt); moderate fine angular blocky structure; friable; common distinct dark brown (7.5YR 3/4) clay films on faces of peds; common fine roots; about 5 percent gravel and 2 percent cobbles; moderately acid; clear wavy boundary.

B/E—17 to 22 inches; 80 percent brown (7.5YR 4/4) sandy loam (Bt); moderate fine angular blocky structure; firm; many distinct dark brown (7.5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (7.5YR 5/3) sandy loam (E), pink (7.5YR 7/3) dry; weak medium platy structure; friable; common fine roots; about 12 percent gravel and 2 percent cobbles; very strongly acid; abrupt wavy boundary.

2Bt1—22 to 26 inches; strong brown (7.5YR 4/6) loamy sand; weak medium subangular blocky structure; very friable; common fine roots; few distinct dark brown (7.5YR 3/4) clay films on faces of peds and many clay bridges between mineral grains; about 11 percent gravel and 2 percent cobbles; moderately acid; abrupt wavy boundary.

2Bt2—26 to 30 inches; strong brown (7.5YR 5/6) sand; weak coarse subangular blocky structure; very friable; few fine roots; few distinct dark brown (7.5YR 3/4) clay bridges between mineral grains; about 2 percent gravel; strongly acid; abrupt wavy boundary.

2C—30 to 60 inches; primarily yellowish brown (10YR 5/4), stratified sand and coarse sand; a few thin interbedded strata of brown (7.5YR 4/4) sand; single grain; loose; few fine roots; about 1 percent gravel as an average; moderately acid.

Range in Characteristics

Thickness of the solum and thickness of the loamy mantle: 20 to 40 inches
Content of gravel: 0 to 35 percent in the loamy mantle (typically less than 15 percent); 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 2 percent in the loamy mantle; 0 to 5 percent in the sandy outwash

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2

Texture—moderately or highly decomposed plant material

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon (if it occurs):
Hue—10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—10YR
Value—3 to 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—typically loamy sand, loamy fine sand, sandy loam, fine sandy loam, or loam; gravelly loamy sand or gravelly sandy loam in some pedons

Bt horizon (if it occurs) or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—4 to 6
Texture—typically sandy loam, fine sandy loam, or loam; gravelly sandy loam in some pedons

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; thin subhorizons of very gravelly sand or very gravelly loamy sand in some pedons

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—typically strata of sand, coarse sand, gravelly sand, or gravelly coarse sand; thin strata of very gravelly sand or very gravelly coarse sand in some pedons

Rousseau Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, lake plains, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Sandy, mixed, frigid Entic Haplorthods

Typical Pedon

Rousseau fine sand, 0 to 6 percent slopes, approximately 2,220 feet south and 1,990 feet west of the northeast corner of sec. 25, T. 29 N., R. 16 E.

Oa—0 to 1 inch; very dark gray (10YR 3/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 30 percent sand grains; few black (10YR 2/1) wood charcoal fragments; strongly acid; abrupt wavy boundary.
E—1 to 4 inches; brown (7.5YR 5/2) fine sand, pinkish gray (7.5YR 7/2) dry; weak medium platy structure; very friable; many fine roots; strongly acid; clear wavy boundary.
Bs1—4 to 7 inches; dark reddish brown (5YR 3/4) fine sand; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; clear wavy boundary.
Bs2—7 to 15 inches; brown (7.5YR 4/4) fine sand; weak medium subangular blocky structure; very friable; many fine roots; moderately acid; gradual wavy boundary.
Bs3—15 to 22 inches; strong brown (7.5YR 4/6) fine sand; weak coarse subangular blocky structure; very friable; common fine roots; moderately acid; gradual wavy boundary.
BC—22 to 34 inches; brown (7.5YR 5/4) fine sand; single grain; loose; few fine roots; slightly acid; gradual wavy boundary.
C—34 to 61 inches; light brown (7.5YR 6/4) fine sand; single grain; loose; few fine roots; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 45 inches
Content of gravel: 0 to 2 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed forest plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—fine sand or loamy fine sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—fine sand or loamy fine sand

BC horizon:
Hue—7.5YR or 10YR
Value—5
Chroma—4 to 6
Texture—fine sand

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4
Texture—typically fine sand; sand in some pedons

Scott Lake Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains and stream terraces
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Oxyaquic Glossudalfs

Typical Pedon

Scott Lake fine sandy loam, 0 to 3 percent slopes, approximately 400 feet west and 2,465 feet south of the northeast corner of sec. 7, T. 30 N., R. 16 E.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) fine sandy loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt smooth boundary.

Bw1—3 to 6 inches; brown (10YR 4/3) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; few medium very dark grayish brown (10YR 3/2) wormcasts; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

Bw2—6 to 13 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak medium subangular blocky structure; very friable; common fine roots; few medium very dark grayish brown (10YR 3/2) wormcasts; about 1 percent gravel; very strongly acid; clear wavy boundary.

E/B—13 to 17 inches; 85 percent brown (10YR 5/3) fine sandy loam, very pale brown (10YR 7/3) dry (E); weak medium platy structure; very friable; extends as tongues into brown (7.5YR 4/4) sandy loam (Bt); moderate medium angular blocky structure; friable common fine roots; very few distinct dark brown (7.5YR 3/4) clay films on faces of peds; about 1 percent gravel; strongly acid; clear wavy boundary.

B/E—17 to 23 inches; 85 percent reddish brown (5YR 4/4) sandy loam (Bt); moderate fine angular blocky structure; firm; common distinct dark brown (7.5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) sandy loam, very pale brown (10YR 7/3) dry (E); weak medium platy structure; friable; few fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.

2Bt—23 to 34 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; friable; few fine roots; common distinct dark brown (7.5YR 3/4) clay bridging between sand grains; about 7 percent gravel; moderately acid; clear wavy boundary.

2C1—34 to 39 inches; strong brown (7.5YR 4/6), stratified sand and coarse sand; single grain; loose; common medium strong brown (7.5YR 5/8) masses of iron accumulation; about 8 percent gravel; slightly acid; clear wavy boundary.

2C2—39 to 60 inches; yellowish brown (10YR 5/4), stratified sand and coarse sand; single grain; loose; common medium strong brown (7.5YR 5/8) masses of iron accumulation; about 6 percent gravel; slightly acid.

Range in Characteristics

Thickness of the solum and thickness of the loamy mantle: 20 to 40 inches
Content of gravel: 0 to 35 percent in the loamy mantle (typically less than 15 percent); 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 5 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon (if it occurs):
Hue—10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—typically loamy sand, sandy loam, fine sandy loam, or loam; gravelly loamy sand or gravelly sandy loam in some pedons

Bt horizon (if it occurs) or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—typically sandy loam, fine sandy loam, or loam; gravelly sandy loam in some pedons

2Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; thin subhorizons of very gravelly sand or very gravelly loamy sand in some pedons

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—typically strata of sand, coarse sand, gravelly sand, or gravelly coarse sand; thin strata of very gravelly sand or very gravelly coarse sand in some pedons

Shawano Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, lake plains, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Mixed, frigid Typic Udipsamments

Typical Pedon

Shawano fine sand, 0 to 6 percent slopes, approximately 2,560 feet west and 1,170 feet north of the southeast corner of sec. 34, T. 28 N., R. 16 E.

Oa—0 to 1 inch; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 10 percent sand grains; very strongly acid; abrupt wavy boundary.
A—1 to 2 inches; very dark grayish brown (10YR 3/2) fine sand, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; very friable; many fine roots; strongly acid; abrupt wavy boundary.
AB—2 to 6 inches; dark brown (10YR 3/3) fine sand, brown (10YR 4/3) dry; weak fine subangular blocky structure; very friable; many fine roots; moderately acid; abrupt wavy boundary.
Bw1—6 to 11 inches; brown (7.5YR 4/4) fine sand; weak medium subangular blocky structure; very friable; common fine roots; moderately acid; clear wavy boundary.
Bw2—11 to 26 inches; strong brown (7.5YR 4/6) fine sand; weak medium subangular blocky structure; very friable; common fine roots; moderately acid; clear wavy boundary.
BC—26 to 31 inches; strong brown (7.5YR 5/6) fine sand; single grain; loose; few fine roots; moderately acid; gradual wavy boundary.

C—31 to 61 inches; brown (7.5YR 5/4) fine sand; single grain; loose; few fine roots; moderately acid.

Range in Characteristics

Thickness of the solum: 18 to 36 inches
Content of gravel: 0 to 2 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sand

AB horizon:
Hue—7.5YR or 10YR
Value—3
Chroma—3
Texture—fine sand or loamy fine sand

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4 to 6
Texture—fine sand or loamy fine sand

BC horizon:
Hue—7.5YR or 10YR
Value—5
Chroma—4 to 6
Texture—fine sand

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4
Texture—typically fine sand; sand in some pedons

Sunia Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate or moderately rapid in the upper part of the profile and rapid in the lower part
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 3 percent
Taxonomic classification: Mixed, frigid Oxyaquic Udipsamments

Typical Pedon

Sunia sandy loam, 0 to 3 percent slopes, approximately 1,120 feet west and 1,615 feet south of the northeast corner of sec. 26, T. 30 N., R. 15 E.

A—0 to 5 inches; very dark brown (10YR 2/2) sandy loam, dark grayish brown (10YR 4/2) dry; weak medium granular structure; friable; many fine roots; about 2 percent gravel; strongly acid; abrupt smooth boundary.
Bw1—5 to 9 inches; dark yellowish brown (10YR 3/4) sandy loam; weak medium subangular blocky structure; friable; many fine roots; common distinct very dark brown (10YR 2/2) wormcasts; about 2 percent gravel; strongly acid; abrupt wavy boundary.
Bw2—9 to 19 inches; dark yellowish brown (10YR 4/4) sandy loam; weak medium subangular blocky structure; friable; common fine roots; about 3 percent gravel; strongly acid; clear wavy boundary.
2BC—19 to 30 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine roots; about 4 percent gravel; moderately acid; gradual wavy boundary.
2C1—30 to 41 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine roots; few medium distinct pale brown (10YR 6/3) masses of iron depletion; common fine prominent yellowish red (5YR 5/6) masses of iron accumulation; about 1 percent gravel; moderately acid; clear wavy boundary.
2C2—41 to 60 inches; strong brown (7.5YR 5/6), stratified sand; single grain; loose; many medium distinct yellowish red (5YR 4/6) and common medium prominent dark red (2.5YR 3/6) masses of iron accumulation; about 5 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 22 to 40 inches
Thickness of the loamy mantle: 10 to 24 inches
Content of gravel: 0 to 15 percent throughout the profile
Content of cobbles: 0 to 3 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

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

E horizon (if it occurs):
Hue—10YR
Value—4 to 6
Chroma—2
Texture—sandy loam or fine sandy loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4
Texture—sandy loam or fine sandy loam

2Bw horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4
Chroma—4 to 6
Texture—coarse sand, loamy coarse sand, sand, or loamy sand

2BC or 2C horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—typically strata of sand or coarse sand; thin strata of gravelly sand or gravelly coarse sand in some pedons

Tilleda Series

Depth class: Very deep
Drainage class: Well drained
Permeability: Moderate
Landform: Moraines
Parent material: Calcareous, loamy or silty glacial till
Slope range: 6 to 35 percent

Taxonomic classification: Fine-loamy, mixed, active, frigid Haplic Glossudalfs

Typical Pedon

Tilleda sandy loam, 6 to 15 percent slopes, approximately 1,090 feet east and 780 feet south of the northwest corner of sec. 31, T. 28 N., R. 16 E.

A—0 to 4 inches; very dark gray (10YR 3/1) sandy loam, dark gray (10YR 4/1) dry; moderate very fine granular structure; very friable; many fine roots; many uncoated sand grains; about 4 percent gravel and 3 percent cobbles; strongly acid; abrupt wavy boundary.

Bw—4 to 10 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; common medium and coarse distinct very dark gray (10YR 3/1) wormcasts; about 10 percent gravel and 4 percent cobbles; strongly acid; clear wavy boundary.

E/B—10 to 17 inches; 80 percent brown (10YR 5/3) fine sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; extends as tongues into reddish brown (5YR 4/4) loam (Bt); weak fine subangular blocky structure; friable; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common fine roots; about 3 percent gravel and 1 percent cobbles; moderately acid; clear wavy boundary.

B/E—17 to 27 inches; 70 percent reddish brown (5YR 4/4) loam (Bt); moderate fine angular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) fine sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; very friable; common fine roots; about 4 percent gravel and 3 percent cobbles; moderately acid; gradual wavy boundary.

Bt1—27 to 40 inches; reddish brown (5YR 4/4) loam; weak medium prismatic structure parting to moderate medium angular blocky (weak medium plates inherited from the parent material); firm; common fine roots; many distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common prominent brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; about 7 percent gravel and 3 percent cobbles; neutral; gradual wavy boundary.

Bt2—40 to 53 inches; reddish brown (5YR 4/4) loam; weak coarse prismatic structure parting to moderate coarse angular blocky (weak medium plates inherited from the parent material); friable; few fine roots; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; many distinct dark reddish brown (5YR 3/4) clay films in pores; about 4 percent gravel and 3 percent cobbles; neutral; gradual wavy boundary.

C—53 to 60 inches; reddish brown (5YR 4/3) loam; massive (moderate thin plates inherited from the parent material); friable; few fine roots; slightly effervescent; about 7 percent gravel and 3 percent cobbles; moderately alkaline.

Range in Characteristics

Thickness of the solum: 40 to 70 inches
Depth to carbonates: 40 to 70 inches

Content of gravel: 2 to 15 percent throughout the profile
Content of cobbles: 0 to 5 percent throughout the profile

O horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

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

E horizon (if it occurs):
Hue—10YR
Value—4 or 5
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—3 or 4
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically loam, clay loam, or sandy clay loam; subhorizons of silt loam in some pedons

C horizon:
Hue—2.5YR or 5YR
Value—4 or 5
Chroma—3 or 4
Texture—typically silt loam or loam; clay loam in some pedons

Tipler Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains and stream terraces
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Alfic Oxyaquic Haplorthods

Typical Pedon

Tipler fine sandy loam, 0 to 3 percent slopes, approximately 1,290 feet east and 1,830 feet north of the southwest corner of sec. 20, T. 30 N., R. 13 E.

Oa—0 to 1 inch; black (7.5YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

E—1 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam, light brownish gray (10YR 6/2) dry; weak medium platy structure; very friable; many fine roots; about 2 percent gravel; strongly acid; abrupt wavy boundary.

Bs1—3 to 6 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; very strongly acid; abrupt wavy boundary.

Bs2—6 to 13 inches; brown (7.5YR 4/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; very strongly acid; clear wavy boundary.

Bw—13 to 17 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; very friable; common fine roots; about 3 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

E/B—17 to 23 inches; 60 percent brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; friable; extends as tongues into brown (7.5YR 4/4) sandy loam (Bt); moderate fine subangular blocky structure; firm; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; few fine roots; about 5 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

B/E—23 to 29 inches; 70 percent brown (7.5YR 4/4) sandy loam (Bt); moderate medium subangular blocky structure; firm; common distinct dark reddish brown (5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; friable; few fine roots; few fine prominent yellowish red (5YR 4/6) masses of iron accumulation; common fine and medium prominent dark reddish brown (5YR 3/2) iron-manganese concretions; about 5 percent gravel and 1 percent cobbles; strongly acid; abrupt wavy boundary.

Bt—29 to 33 inches; brown (7.5YR 4/4) sandy loam; weak coarse prismatic structure parting to weak medium subangular blocky (weak thick plates inherited from the parent material); friable; few fine roots; few distinct dark reddish brown (5YR 3/4) clay films on faces of peds; common distinct brown (10YR 5/3) coatings of clean sand grains on vertical faces of prisms; few fine prominent dark red (2.5YR 3/6) and common fine prominent yellowish red (5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 11 percent gravel and 3 percent cobbles; strongly acid; abrupt wavy boundary.

2C1—33 to 42 inches; strong brown (7.5YR 5/6) gravelly sand; single grain; loose; few fine roots; common medium distinct yellowish red (5YR 4/6) masses of iron accumulation; about 16 percent gravel and 2 percent cobbles; moderately acid; abrupt wavy boundary.

2C2—42 to 61 inches; yellowish brown (10YR 5/4), stratified sand; a few thin interbedded strata of fine sand; single grain; loose; common medium prominent yellowish red (5YR 4/6) masses of iron accumulation in the upper 6 inches; about 2 percent gravel as an average; moderately acid.

Range in Characteristics

Thickness of the solum and thickness of the loamy mantle: 24 to 40 inches

Content of gravel: 0 to 35 percent in the loamy mantle (typically less than 15 percent); 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata

Content of cobbles: 0 to 5 percent throughout the profile

Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—typically sandy loam, fine sandy loam, or loam; loamy sand, gravelly loamy sand, gravelly sandy loam, or gravelly fine sandy loam in some pedons

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam, fine sandy loam, or loam

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bt horizon or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

2Bt horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—4 to 6
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; thin subhorizons of very gravelly sand or very gravelly loamy sand in some pedons

2C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—typically strata of coarse sand, sand, gravelly coarse sand, or gravelly sand; thin strata of very gravelly coarse sand or very gravelly sand in some pedons

Tourtillotte Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Rapid in the upper part of the profile and moderately slow in the lower part
Landform: Stream terraces and lake plains
Parent material: Sandy outwash over silty, loamy, and sandy lacustrine sediment
Slope range: 0 to 15 percent

Taxonomic classification: Mixed, frigid Oxyaquic Udipsamments

Typical Pedon

Tourtillotte loamy sand, 6 to 15 percent slopes, approximately 310 feet west and 2,260 feet north of the southeast corner of sec. 29, T. 29 N., R. 16 E.

Oa—0 to 1 inch; black (7.5YR 2/1), highly decomposed plant material; weak medium granular structure; very friable; many fine roots; moderately acid; abrupt wavy boundary.

A—1 to 3 inches; very dark grayish brown (10YR 3/2) loamy sand, dark grayish brown (10YR 4/2) dry; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

Bw1—3 to 6 inches; dark brown (7.5YR 3/4) loamy sand; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.

Bw2—6 to 18 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; very friable; common fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.

Bw3—18 to 25 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; common fine roots; about 4 percent gravel and 1 percent cobbles; strongly acid; clear wavy boundary.

BC—25 to 33 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine roots; about 5 percent gravel and 1 percent cobbles; moderately acid; gradual wavy boundary.

C1—33 to 52 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; few medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 3 percent gravel; moderately acid; abrupt wavy boundary.

C2—52 to 56 inches; brown (10YR 4/3) coarse sand; single grain; loose; few fine roots; common medium prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 14 percent gravel; moderately acid; abrupt smooth boundary.

2C3—56 to 80 inches; primarily stratified brown (10YR 4/3) silt loam and brown (10YR 5/3) very fine sand; thin interbedded strata of pale brown (10YR 6/3) fine sand and reddish brown (5YR 5/3) loam; massive (moderate thin and medium plates inherited from the parent material); very friable; few fine roots; many medium faint grayish brown (10YR 5/2) masses of iron depletion; common fine and medium prominent yellowish red (5YR 4/6 and 5/6) masses of iron accumulation; common fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; strongly acid.

Range in Characteristics

Thickness of the solum: 24 to 40 inches
Thickness of the sandy mantle: 40 to 60 inches
Content of gravel: 0 to 15 percent in the sandy mantle and 0 to 5 percent in the underlying sediment
Content of cobbles: 0 to 2 percent in the sandy mantle
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy sand

AB horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3
Chroma—3
Texture—fine sand, loamy fine sand, sand, or loamy sand

Bw horizon:
Hue—7.5YR or 10YR
Value—3 or 4
Chroma—4 to 6
Texture—fine sand, loamy fine sand, sand, or loamy sand

BC horizon:
Hue—7.5YR or 10YR
Value—5
Chroma—4 to 6
Texture—fine sand or sand

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—fine sand, sand, or coarse sand

2C horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—dominantly silt loam, very fine sandy

loam, loamy very fine sand, or very fine sand; thin strata of silty clay loam, loam, fine sandy loam, loamy fine sand, fine sand, or sand in many pedons

Vilas Series

Depth class: Very deep
Drainage class: Excessively drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 35 percent

Taxonomic classification: Sandy, mixed, frigid Entic Haplorthods

Typical Pedon

Vilas loamy sand, 0 to 6 percent slopes, approximately 735 feet west and 575 feet north of the southeast corner of sec. 22, T. 30 N., R. 14 E.

Oa—0 to 1 inch; black (10YR 2/1), highly decomposed plant material; weak fine granular structure; very friable; many fine roots; about 20 percent sand grains; very strongly acid; abrupt wavy boundary.
E—1 to 4 inches; brown (7.5YR 4/2) loamy sand, pinkish gray (7.5YR 6/2) dry; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.
Bs1—4 to 6 inches; dark reddish brown (5YR 3/4) loamy sand; weak fine subangular blocky structure; very friable; common fine roots; about 1 percent gravel; very strongly acid; abrupt broken boundary.
Bs2—6 to 10 inches; dark brown (7.5YR 3/4) loamy sand; weak medium subangular blocky structure; very friable; common fine roots; about 1 percent gravel; very strongly acid; clear wavy boundary.
Bs3—10 to 16 inches; brown (7.5YR 4/4) loamy sand; weak medium subangular blocky structure; very friable; common fine roots; about 2 percent gravel; strongly acid; clear wavy boundary.
BC—16 to 30 inches; yellowish brown (10YR 5/6) sand; single grain; loose; few fine roots; about 2 percent gravel; moderately acid; gradual wavy boundary.
C—30 to 61 inches; light yellowish brown (10YR 6/4) sand; single grain; loose; few fine roots; about 2 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 18 to 45 inches
Content of gravel: 0 to 15 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—loamy sand or sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—loamy sand or sand

BC horizon:
Hue—7.5YR or 10YR
Value—5
Chroma—4 to 6
Texture—sand

C horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4
Texture—sand

Wainola Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, and lake plains
Parent material: Sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Sandy, mixed, frigid Typic Endoaquods

Typical Pedon

Wainola loamy fine sand, 0 to 3 percent slopes, approximately 1,770 feet east and 290 feet north of the southwest corner of sec. 27, T. 28 N., R. 16 E.

Oa—0 to 1 inch; very dark brown (10YR 2/2), highly decomposed plant material; weak very fine subangular blocky structure; very friable; many fine roots; about 10 percent sand grains; very strongly acid; abrupt wavy boundary.

A—1 to 3 inches; black (10YR 2/1) loamy fine sand, dark gray (10YR 4/1) dry; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

E—3 to 7 inches; dark grayish brown (10YR 4/2) loamy fine sand, light brownish gray (10YR 6/2) dry; weak medium platy structure; very friable; many fine roots; about 1 percent gravel; strongly acid; abrupt wavy boundary.

Bhs—7 to 10 inches; dark reddish brown (5YR 3/2) loamy fine sand; weak medium subangular blocky structure; very friable; many fine roots; about 1 percent gravel; very strongly acid; abrupt wavy boundary.

Bs1—10 to 17 inches; brown (7.5YR 4/4) fine sand; weak medium subangular blocky structure; very friable; common fine roots; common medium prominent dark red (2.5YR 3/6) masses of iron accumulation; common medium prominent dark reddish brown (5YR 3/2) iron-manganese concretions; about 1 percent gravel; moderately acid; clear broken boundary.

Bs2—17 to 26 inches; strong brown (7.5YR 4/6) fine sand; weak coarse subangular blocky structure; very friable; few fine roots; few fine prominent dark red (2.5YR 3/6), common fine distinct yellowish red (5YR 4/6), and common medium prominent red (2.5YR 4/8) masses of iron accumulation; common fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; moderately acid; gradual wavy boundary.

BC—26 to 37 inches; strong brown (7.5YR 5/6) fine sand; single grain; loose; few fine roots; common coarse distinct brown (7.5YR 5/3) masses of iron depletion; common fine prominent dark red (2.5YR 3/6) and common medium distinct yellowish red (5YR 4/6) masses of iron accumulation; moderately acid; gradual wavy boundary.

C—37 to 61 inches; light brown (7.5YR 6/4) fine sand; single grain; loose; few medium distinct reddish brown (5YR 4/4) masses of iron accumulation; moderately acid.

Range in Characteristics

Thickness of the solum: 18 to 42 inches
Content of gravel: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—loamy fine sand

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—fine sand or loamy fine sand

Bhs horizon:
Hue—5YR or 7.5YR
Value—2 or 3
Chroma—2 or 3
Texture—fine sand or loamy fine sand

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—fine sand or loamy fine sand

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—fine sand or loamy fine sand

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—typically fine sand; sand or loamy fine sand in some pedons

Wayka Series

Depth class: Moderately deep to igneous bedrock
Drainage class: Somewhat poorly drained
Permeability: Moderate
Landform: Outwash plains and stream terraces
Parent material: Loamy deposits over bedrock
Slope range: 0 to 4 percent

Taxonomic classification: Coarse-loamy, isotic, frigid Typic Epiaquods

Typical Pedon

Wayka sandy loam, in an area of Wayka-Rock outcrop complex, 0 to 4 percent slopes, approximately 1,810 feet west and 1,150 feet south of the northeast corner of sec. 25, T. 30 N., R. 14 E.

Oa—0 to 1 inch; black (7.5YR 2/1), highly decomposed plant material; weak fine granular structure; very friable; many fine roots; extremely acid; abrupt wavy boundary.

E—1 to 3 inches; grayish brown (10YR 5/2) sandy loam, light gray (10YR 7/1) dry; weak fine subangular blocky structure; friable; many fine roots; 1 percent gravel; very strongly acid; abrupt wavy boundary.

Bs1—3 to 5 inches; dark brown (7.5YR 3/4) sandy loam; weak fine subangular blocky structure; friable; many fine roots; 1 percent gravel; strongly acid; abrupt wavy boundary.

Bs2—5 to 11 inches; strong brown (7.5YR 4/6) sandy loam; weak fine subangular blocky structure; friable; common fine roots; 1 percent gravel; strongly acid; clear wavy boundary.

Bs3—11 to 17 inches; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; common fine roots; few medium strong brown (7.5YR 5/8) masses of iron accumulation; 1 percent gravel; strongly acid; clear wavy boundary.

E/B—17 to 21 inches; 85 percent yellowish brown (10YR 5/4) fine sandy loam, light yellowish brown (10YR 6/4) dry (E); weak medium subangular blocky structure; friable; surrounds remnants of brown (7.5YR 4/4) sandy loam (Bt); weak medium subangular blocky structure; friable; few fine roots; few distinct dark reddish brown (7.5YR 3/4) clay films on faces of peds; few medium strong brown (7.5YR 5/8) masses of iron accumulation; 2 percent gravel; moderately acid; clear wavy boundary.

2BC—21 to 27 inches; yellowish brown (10YR 5/4) very gravelly loamy coarse sand; weak fine subangular blocky structure; friable; few fine roots; 40 percent gravel; moderately acid; clear wavy boundary.

2R—27 inches; unweathered igneous bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches
Thickness of the solum: 20 to 40 inches
Content of gravel: 0 to 15 percent in the upper part of the solum and 2 to 35 percent in the lower part
Content of cobbles: 0 to 15 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bhs horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—loamy sand, sandy loam, fine sandy loam, loam, or the gravelly analogs of these textures

Bt horizon or Bt part of glossic horizon:
Hue—5YR, 7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6

Chroma—2 to 6
Texture—sandy loam, fine sandy loam, loam, or the gravelly analogs of these textures

BC horizon:
Hue—5YR, 7.5YR, 10YR, 2.5Y, or 5Y
Value—4 to 6
Chroma—2 to 6
Texture—sandy loam, fine sandy loam, loam, or the gravelly analogs of these textures

2R layer:
Kind of bedrock—hard, fractured igneous or metamorphic bedrock

Worcester Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains and stream terraces
Parent material: Loamy alluvium over sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Coarse-loamy, mixed, superactive, frigid Argic Endoaquods

Typical Pedon

Worcester fine sandy loam, 0 to 3 percent slopes, approximately 110 feet west and 2,070 feet north of the southeast corner of sec. 26, T. 30 N., R. 13 E.

Oe—0 to 2 inches; dark reddish brown (5YR 3/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

Oa—2 to 3 inches; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; very strongly acid; abrupt wavy boundary.

E—3 to 6 inches; brown (7.5YR 5/2) fine sandy loam, light gray (10YR 7/2) dry; weak medium platy structure; very friable; many fine roots; about 4 percent gravel; strongly acid; abrupt wavy boundary.

Bhs—6 to 8 inches; dark reddish brown (5YR 3/2) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 6 percent gravel; strongly acid; abrupt broken boundary.

Bs1—8 to 13 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; few fine prominent dark red (2.5YR 3/6) masses of iron accumulation; about 6 percent gravel; moderately acid; clear wavy boundary.

Bs2—13 to 17 inches; brown (7.5YR 4/4) sandy loam; weak medium subangular blocky structure; friable; common fine roots; few fine prominent grayish brown (10YR 5/2) masses of iron depletion; few fine prominent dark red (2.5YR 3/6) and common fine prominent yellowish red (5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 5 percent gravel; moderately acid; clear wavy boundary.

B/E—17 to 23 inches; 60 percent dark yellowish brown (10YR 4/4) sandy loam (Bt); moderate fine subangular blocky structure; friable; few distinct dark brown (7.5YR 3/4) clay films on faces of peds; penetrated by tongues of brown (10YR 5/3) sandy loam (E), very pale brown (10YR 7/3) dry; weak medium platy structure; friable; few fine roots; few medium distinct and prominent grayish brown (2.5Y 5/2) masses of iron depletion; common fine prominent dark red (2.5YR 3/6) and yellowish red (5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel; strongly acid; clear wavy boundary.

Bt—23 to 29 inches; brown (7.5YR 4/4) sandy loam; moderate medium subangular blocky structure (weak medium and thick plates inherited from the parent material); friable; few fine roots; common distinct dark brown (7.5YR 3/4) clay films on faces of peds; many coarse prominent grayish brown (2.5Y 5/2) masses of iron depletion; common fine prominent dark red (2.5YR 3/6) and many medium prominent yellowish red (5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 4 percent gravel; very strongly acid; abrupt wavy boundary.

2C1—29 to 35 inches; brown (7.5YR 5/4) sand; single grain; loose; few fine roots; common coarse distinct brown (10YR 5/3) masses of iron depletion; many medium prominent yellowish red (5YR 4/6) and many coarse prominent red (2.5YR 4/6) masses of iron accumulation; few fine prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 3 percent gravel; moderately acid; abrupt wavy boundary.

2C2—35 to 63 inches; brown (10YR 5/3), stratified sand and gravelly sand; single grain; loose; few fine prominent yellowish red (5YR 4/6) and few coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; about 9 percent gravel as an average; moderately acid.

Range in Characteristics

Thickness of the solum and thickness of the loamy mantle: 24 to 40 inches
Content of gravel: 0 to 35 percent in the loamy mantle (typically less than 15 percent); 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—5YR, 7.5YR, or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—sandy loam, fine sandy loam, or loam

Bhs horizon:
Hue—5YR or 7.5YR
Value—3
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam, fine sandy loam, or loam

Bw horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—4 to 6
Texture—sandy loam, fine sandy loam, or loam

E´ horizon (if it occurs) or E´ part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2 or 3
Texture—typically sandy loam, fine sandy loam, or loam; loamy sand, gravelly loamy sand, gravelly sandy loam, or gravelly fine sandy loam in some pedons

Bt horizon or Bt part of glossic horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—typically sandy loam, fine sandy loam, or loam; gravelly sandy loam or gravelly fine sandy loam in some pedons

2Bt horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—typically sand, loamy sand, gravelly sand, or gravelly loamy sand; thin subhorizons of very gravelly sand or very gravelly loamy sand in some pedons

2C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—typically strata of coarse sand, sand, gravelly coarse sand, or gravelly sand; thin strata of very gravelly coarse sand or very gravelly sand in some pedons

Wormet Series

Depth class: Very deep
Drainage class: Somewhat poorly drained
Permeability: Moderate or moderately rapid in the upper part of the profile and rapid or very rapid in the lower part
Landform: Outwash plains and stream terraces
Parent material: Loamy alluvium over sandy or gravelly outwash
Slope range: 0 to 3 percent

Taxonomic classification: Sandy, mixed, frigid Typic Endoaquods

Typical Pedon

Wormet fine sandy loam, 0 to 3 percent slopes, approximately 2,030 feet south and 1,830 feet east of the northwest corner of sec. 34, T. 30 N., R. 13 E.

Oe—0 to 1 inch; very dark brown (10YR 2/2), moderately decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; extremely acid; abrupt wavy boundary.

Oa—1 to 3 inches; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 5 percent dark reddish brown (2.5YR 3/4) wood fragments; few black (7.5YR 2/1) wood charcoal fragments; extremely acid; abrupt wavy boundary.

E—3 to 7 inches; grayish brown (10YR 5/2) fine sandy loam, light gray (10YR 7/2) dry; weak medium platy structure; very friable; many fine roots; about 2 percent gravel; very strongly acid; abrupt irregular boundary.

Bhs—7 to 9 inches; dark reddish brown (5YR 3/2) fine sandy loam; weak very fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; very strongly acid; abrupt broken boundary.

Bs1—9 to 16 inches; dark brown (7.5YR 3/4) fine sandy loam; weak fine subangular blocky structure; very friable; many fine roots; about 2 percent gravel; very strongly acid; clear wavy boundary.

2Bs2—16 to 23 inches; brown (7.5YR 4/4) loamy fine sand; weak medium subangular blocky structure (weak thick and very thick plates inherited from the parent material); very friable; common fine roots; common fine distinct yellowish red (5YR 4/6) masses of iron accumulation; common fine and medium prominent dark reddish brown (5YR 2/2) iron-manganese concretions; about 1 percent gravel; strongly acid; clear wavy boundary.

2BC—23 to 28 inches; strong brown (7.5YR 4/6) fine sand; weak coarse subangular blocky structure (weak thick and very thick plates inherited from the parent material); very friable; few fine roots; few medium prominent brown (10YR 5/3) masses of iron depletion; common medium prominent dark red (2.5YR 3/6) and many medium prominent red (2.5YR 4/6) masses of iron accumulation; strongly acid; clear wavy boundary.

2C1—28 to 47 inches; yellowish brown (10YR 5/4) fine sand; single grain; loose; few fine roots; few coarse faint pale brown (10YR 6/3) masses of iron depletion; few fine prominent dark reddish brown (2.5YR 3/4) and many coarse prominent strong brown (7.5YR 5/6) masses of iron accumulation; moderately acid; gradual wavy boundary.

2C2—47 to 63 inches; brown (10YR 5/3) fine sand; single grain; loose; few fine roots; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 36 inches
Thickness of the loamy mantle: 10 to 20 inches
Content of gravel: 0 to 15 percent in the loamy mantle; 0 to 35 percent as a weighted average in the sandy outwash; 0 to 60 percent in individual strata
Content of cobbles: 0 to 5 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon (if it occurs):
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—fine sandy loam

E horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—2
Texture—fine sandy loam

Bhs horizon:
Hue—5YR or 7.5YR
Value—2 or 3
Chroma—2 or 3
Texture—sandy loam, fine sandy loam, or loam

Bs horizon:
Hue—5YR or 7.5YR
Value—3 or 4
Chroma—4
Texture—sandy loam, fine sandy loam, or loam

2Bs horizon:
Hue—5YR or 7.5YR
Value—4
Chroma—4 to 6
Texture—fine sand, loamy fine sand, sand, gravelly sand, loamy sand, or gravelly loamy sand

2BC horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—4 to 8
Texture—fine sand, sand, gravelly sand, coarse sand, or gravelly coarse sand

2C horizon:
Hue—5YR, 7.5YR, or 10YR
Value—4 to 6
Chroma—3 to 6

Texture—typically strata of fine sand, sand, gravelly sand, coarse sand, or gravelly coarse sand; thin strata of very gravelly sand or very gravelly coarse sand in some pedons

Wurtsmith Series

Depth class: Very deep
Drainage class: Moderately well drained
Permeability: Rapid
Landform: Outwash plains, stream terraces, and outwash fans
Parent material: Sandy outwash
Slope range: 0 to 3 percent

Taxonomic classification: Mixed, frigid Oxyaquic Udipsamments

Typical Pedon

Wurtsmith sand, 0 to 3 percent slopes, approximately 1,480 feet south and 90 feet west of the northeast corner of sec. 36, T. 28 N., R. 16 E.

Oa—0 to 2 inches; black (10YR 2/1), highly decomposed plant material; weak fine subangular blocky structure; very friable; many fine roots; about 20 percent sand grains; very strongly acid; abrupt wavy boundary.
A—2 to 5 inches; dark brown (7.5YR 3/2) sand, dark brown (10YR 3/3) dry; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.
Bw1—5 to 9 inches; dark brown (7.5YR 3/4) sand; weak fine subangular blocky structure; very friable; many fine roots; about 1 percent gravel; strongly acid; clear wavy boundary.
Bw2—9 to 20 inches; brown (7.5YR 4/4) sand; weak medium subangular blocky structure; very friable; common fine roots; about 1 percent gravel; strongly acid; gradual wavy boundary.
Bw3—20 to 26 inches; strong brown (7.5YR 4/6) sand; weak medium subangular blocky structure; very friable; common fine roots; few fine prominent dark red (2.5YR 3/6) and common fine distinct yellowish red (5YR 4/6) masses of iron accumulation; about 2 percent gravel; moderately acid; clear wavy boundary.
BC1—26 to 32 inches; strong brown (7.5YR 5/6) sand; single grain; loose; few fine roots; few fine distinct yellowish red (5YR 5/6) and few medium distinct strong brown (7.5YR 5/8) masses of iron accumulation; about 1 percent gravel; moderately acid; clear wavy boundary.
BC2—32 to 44 inches; brown (7.5YR 5/4) sand; single grain; loose; few fine roots; few fine prominent yellowish red (5YR 4/6) and common coarse distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 1 percent gravel; moderately acid; gradual wavy boundary.
C—44 to 62 inches; brown (7.5YR 5/3) sand; single grain; loose; few fine prominent red (2.5YR 4/6) and few medium distinct strong brown (7.5YR 5/6) masses of iron accumulation; about 1 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 25 to 50 inches
Content of gravel: 0 to 10 percent throughout the profile
Note: Unless otherwise indicated, depths and thicknesses are measured from the top of the mineral soil.

O horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—moderately or highly decomposed plant material

A horizon:
Hue—7.5YR or 10YR
Value—2 or 3
Chroma—1 or 2
Texture—sand

AB horizon (if it occurs):
Hue—7.5YR or 10YR
Value—3
Chroma—3
Texture—sand

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

BC horizon:
Hue—7.5YR or 10YR
Value—5 or 6
Chroma—4 to 6
Texture—sand

C horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—sand

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 main processes of soil formation.

Factors of Soil Formation

The factors that determine the kind of soil that forms at any given point are composition of the parent material; the climate under which the soil material has accumulated and weathered; the plant and animal life on and in the soil; the relief, or topography; and the length of time that the forces of soil formation have acted on the soil material (Jenny, 1941). Each of these factors affects the formation of every soil, but the relative importance of each differs from place to place. One factor, for example, may dominate the formation of a soil and determine most of its properties. In general, however, the effect of each of these factors is modified by the effects of the others.

Parent Material

Parent material is the unweathered material in which a soil forms. It largely determines the chemical and mineralogical composition of the soil. Parent material in Menominee County consists mostly of glacial till, glacial outwash, or glaciolacustrine deposits, which in many places are covered by a thin layer of silty or loamy deposits. Some of the soils formed in more recent deposits of organic material or alluvium.

Glacial till is unstratified, unsorted glacial debris made up of clay, silt, sand, gravel, stones, and boulders. Many soils in the county formed entirely or partly in glacial till. Frechette and Lablatz soils formed in areas where the till is dominantly loamy and friable. Ishpeming and Mequithy soils formed on till landscapes where bedrock is close to the surface. Rabe soils formed in areas where the till is covered by deep deposits of sandy outwash.

Glacial outwash is material deposited by glacial meltwater. It is dominantly sand and gravel. Antigo and Minocqua soils formed in areas where sand and gravel are mantled with silty and loamy deposits. Padus, Padwet, Pence, and Worcester soils formed in areas where sand and gravel are mantled with loamy deposits. Au Gres, Croswell, and Vilas soils formed in areas where most of the outwash is sandy. Mahtomedi soils formed in areas where the parent material is exclusively sand and gravel outwash.

Glaciolacustrine deposits were laid down in former glacial lake basins by ponded glacial meltwater. They commonly are interbedded or laminated. Aftad soils formed in areas where these deposits are dominantly loamy. Tourtillotte soils formed in areas where the glaciolacustrine deposits are covered by deep deposits of glacial outwash.

Cathro, Loxley, Lupton, and Markey soils formed in postglacial deposits of organic material in bogs and other depressional areas.

Climate

Climate has affected the formation of soils in Menominee County in several ways. The parent materials of the soils in the survey area originated during a period that produced the continental glaciers. After that period, the climate began to warm; it stabilized to its present temperatures about 5,000 years ago.

As a soil-forming factor, climate affects the physical, chemical, and biological characteristics of the soil and influences the types of plants and animals in and on the soil and their growth rates. Menominee County has a cool, humid climate characterized by wide variations in temperature from summer to winter. The physical shrinking and swelling associated with freezing and thawing act to break up the parent material and help to develop soil structure. Warmer temperatures increase the biological activity in the soil, which accelerates soil development. Precipitation provides a means for transportation and deposition of particles both across the soil surface and down through the soil profile. The influences of climate on soil formation are most pronounced during the growing season, and the length of the growing season affects the type and quantity of native plants on the soil.

Climate directly affects soil formation through the weathering of rocks. It also alters the parent material through the mechanical action of freezing and thawing.

It indirectly affects the accumulation of organic matter by supplying energy and a suitable environment for the growth of both plant and animal organisms.

Precipitation and temperature are the chief elements of climate responsible for soil features. These elements determine the amount of water available for percolation and the formation and decomposition of organic matter, the major processes in the formation of soils.

Percolating water from rainfall and snowmelt affects both the solution and hydration of mineral material and the organic substances. The movement of this water also controls the distribution of substances throughout the soil.

The soils in Menominee County typically have a frozen layer in winter. This layer restricts the percolation of water. Consequently, the processes of soil formation are very slow or are suspended in winter. The physical action of frost heave also affects profile development. The high temperature in summer increases the evaporation and transpiration of moisture, thus limiting formation. Temperature also affects the growth and decomposition of organic matter. Decomposition is much slower in cooler climates than in warmer ones.

Wind indirectly affects the moisture content of soils by influencing the rate of evaporation. Also, the wind often blows away fine particles of soil and organic material, thereby eroding the surface layer. These particles are deposited elsewhere as new parent material.

Climate is modified by variations in slope aspect. The soils on slopes facing south or west are warmed and dried by the sun and wind more thoroughly than those on slopes facing north or east. The soils on the cooler, more humid slopes facing north or east generally contain more moisture and are frozen for a longer period.

Living Organisms

Living organisms, such as plants, bacteria, fungi, insects, earthworms, and rodents, influence the formation of soils. Plants generally have the greatest influence on soil formation. Plant roots penetrate the soil body, thereby creating channels for percolating water. The roots excrete a number of acid substances that act on rocks and minerals and bring nutrients or mineral substances into solution. These nutrients are absorbed and translocated upward to stems and leaves. When the plants die, the translocated minerals are released to the upper soil layers. The organic acids formed from the decaying plant residue accelerate soil formation by reacting with rock and mineral constituents.

Plants indirectly affect soil formation by modifying the effects of climate. For example, some plants reduce the force of the wind, thereby influencing the evaporation rate of percolating water and the deposition of windblown parent material.

Animals burrow into the soil and mix the material of the different layers. Roots and percolating water follow the channels created by the animals. Animal life affects soil structure, helps to decompose organic matter, and carries nutrients upward in the soil profile. When the animals die, they contribute to the supply of organic material in the soil.

Human activities recently have had important effects on the soils in the county. The original condition of some soils has been altered by these activities, which include removing the native vegetation, mixing the upper layers through cultivation, and planting crops that are different from the native vegetation. Removal of the native vegetation has accelerated erosion on sloping soils. Heavy tillage and harvesting equipment has compacted the soil. Applications of lime and fertilizer have altered the pH value and fertility of soils. Some cropping practices have reduced the content of organic matter. The amount of soil moisture has been altered by artificial drainage. Some of the effects of human activities, including the addition of fertilizer, pesticide, herbicide, and fungicide, may not be known for many years.

Topography

The topography of the land has an influence on the amount of precipitation absorbed by the soil, on the rate of erosion, and on the translocation of material in suspension or solution from one part of the profile to another.

The steeper soils absorb less water than the less sloping soils because of a higher rate of runoff. Consequently, they are typically well drained, tend to have a thinner solum and less horizon development than the less sloping soils, and are more susceptible to erosion.

Au Gres and other somewhat poorly drained soils are mottled in the subsoil because of prolonged wetness. They commonly are less sloping than the well drained soils and are affected by a slower runoff rate, or they are lower on the landscape. They typically receive runoff from the adjacent uplands.

Minocqua and other very poorly drained soils are in the lowest positions on the landscape, where runoff is very slow or ponded. They have a grayish subsoil as a result of excessive moisture and poor aeration. The surface layer generally is darker and thicker than that of the upland soils because the moisture content is more favorable for plant growth and for the accumulation of organic matter. Organic soils form in wet depressions where decomposing plant residue accumulates to a depth of several feet.

Time

The effects of the soil-forming factors are modified by time. The longer the other soil-forming factors have interacted, the more highly developed or mature the soils can become. Roscommon soils, for example, are immature soils in Menominee County. These soils have few or no genetic differences between horizons because they have not been in place long enough for the soil-forming processes to take full effect. Tilleda soils, on the other hand, are considered mature because they have well defined horizons. The soil-forming processes have been active in these soils for thousands of years.

Processes of Soil Formation

Physical, chemical, and biological reactions result from the interaction of the factors of soil formation. These reactions occur as soil-forming processes, such as the accumulation of organic matter in the surface layer; the transformation of soil material; and the removal, transfer, and deposition of soil components from one part of the soil profile to another.

The soil-forming processes are active in all soils to varying degrees. In Menominee County, the kinds of parent material and the relief have largely determined the processes that have been dominant in the formation of the soils.

Tilleda soils illustrate how the soil-forming processes affect soil formation. These soils formed in sandy loam deposits and in the underlying glacial till of calcareous, compacted loam. The relief, or topography, influenced the other factors of soil formation by affecting the amount of water available for percolation. A large amount of the rainfall and snowmelt infiltrated these soils because of the nearly level and gently sloping or undulating topography. This infiltration contributed to the characteristics that made the soils somewhat poorly drained. The climate and living organisms affected the accumulation of organic matter and organic acids and were conducive to the downward movement of water in the profile. In time, the changes caused by the factors and processes of soil formation accelerated.

Organic matter accumulated in the surface layer of Kennan soils as the forest litter decomposed. The surface layer became darker than it had been originally. Organic acids produced during the decomposition acted on the parent material, separating minerals or altering them chemically. The iron, aluminum, and silicated clay minerals became more soluble and, along with organic matter, were subsequently moved downward in the profile by percolating water. The result is a lower base saturation status, a more acid solum, and a substantial loss of clay and other material from the leached subsurface layer. The bleached color of this layer is primarily the color of the remaining mineral separates, such as quartz.

The translocated material was deposited in the subsoil on the faces of peds, in cracks, and in openings left by plant roots, worms, and insects. As a result, the subsoil of Tilleda soils has a higher content of clay than other parts of the profile. A subsoil of clay accumulation formed and later was partly destroyed. The degradation or destruction of the subsoil resulted when clay films were stripped from the faces of peds and flushed downward or horizontally by percolating water, leaving behind skeletal frameworks of uncoated silt or sand. This destruction resulted in an intermingling of the subsurface layer and the subsoil.

The downward movement of water in Tilleda soils is restricted because the upper part of the glacial till is compacted. The result is a perched seasonal high water table. These soils are mottled because of the seasonally alternating reduction and oxidation of the iron compounds in the soils.

As a result of these soil-forming processes, Keshena soils have a very dark gray surface layer, a mottled and clay-depleted subsurface layer that penetrates into the subsoil, and a mottled and clay-enriched subsoil that is more acid than the substratum. At a depth of about 75 inches, these soils are underlain by unweathered glacial till that has changed little since it was deposited by a glacier.

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Glossary

Ablation till. Loose, permeable till deposited during the final downwasting of glacial ice. Lenses of crudely sorted sand and gravel are common.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal till. Compact glacial till deposited beneath the 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.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Beach deposits. Material, such as sand and gravel, that is generally laid down parallel to an active or relict shoreline of a postglacial or glacial lake.

Beach ridge. A low, essentially continuous mound of beach or beach-and-dune material accumulated by the action of waves and currents on the backshore of a beach, beyond the present limit of storm waves or the reach of ordinary tides, and occurring singly or as one of a series of approximately parallel deposits. The ridges are roughly parallel to the shoreline and represent successive positions of an advancing shoreline.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace. A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind.

A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Board foot. A unit of measurement represented by a board 1 foot wide, 1 foot long, and 1 inch thick.

Bog. Waterlogged, spongy ground, consisting primarily of mosses, containing acidic, decaying vegetation, such as sphagnum, sedges, and heaths, that develops into peat.

Bottom land. The normal flood plain of a stream, subject to flooding.

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.

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 but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

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. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

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.

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.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat). Fecal material deposited in water by aquatic organisms.

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. 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.

Cradle-knoll. A small mound made up of soil material that temporarily clung to the roots when a tree was uprooted.

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.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Delta. A body of alluvium having a surface that is nearly flat and fan shaped; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

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.

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 relatively small, linear depression that, at some time, moves concentrated water and either does not have a defined channel or has only a small defined channel.

Drumlin. A low, smooth, elongated oval hill, mound, or ridge of compact glacial till. The longer axis is parallel to the path of the glacier and commonly has a blunt nose pointing in the direction from which the ice approached.

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.

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 that is being or was 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 soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

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.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Esker. A narrow, winding ridge of stratified gravelly and sandy drift deposited by a stream flowing in a tunnel beneath a glacier.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

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.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest habitat type. An association of dominant tree and ground flora species in a climax community.

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.

Frost action (in tables). Freezing and thawing of soil moisture. Frost action can damage roads, buildings and other structures, and plant roots.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geomorphology. The science that treats the general configuration of the earth's surface; specifically the study of the classification, description, nature, origin, and development of landforms and their relationships to underlying structures, and the history of geologic changes as recorded by these surface features. The term is especially applied to the genetic interpretation of landforms.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Glacial outwash. Gravel, sand, and silt, commonly stratified, deposited by glacial meltwater.

Glacial till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial 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 as kames, eskers, deltas, and outwash plains.

Glaciolacustrine deposits. Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are interbedded or laminated.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

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.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Herbaceous peat. An accumulation of organic material, decomposed to some degree, that is predominantly the remains of sedges, reeds, cattails, and other herbaceous plants.

High-chroma zones. Zones having chroma of 3 or more. Typical color in areas of iron concentrations.

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 natural elevation 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; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Ice-walled lake plain. A relict surface marking the floor of an extinct lake basin that was formed on solid ground and surrounded by stagnant ice in a stable or unstable superglacial environment on stagnation moraines. As the ice melted, the lake plain became perched above the adjacent landscape. The lake plain is well sorted, generally fine textured, stratified deposits.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

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.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron concentrations. High-chroma zones having a high content of iron and manganese oxide because of chemical oxidation and accumulation but having a clay content similar to that of the adjacent matrix. A type of redoximorphic concentration.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. 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. An irregular, short ridge or hill of stratified glacial drift.

Kame moraine. An end moraine that contains numerous kames. A group of kames along the front of a stagnant glacier, commonly comprising the slumped remnants of a formerly continuous outwash plain built up over the foot of rapidly wasting or stagnant ice.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. 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.

Lake bed. The bottom of a lake; a lake basin.

Lake plain. A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace. A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Lakeshore. A narrow strip of land in contact with or bordering a lake; especially the beach of a lake.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. 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.

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.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Low-chroma zones. Zones having chroma of 2 or less. Typical color in areas of iron depletions.

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. An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal amounts.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

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.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine. An accumulation of earth, stones, and other debris deposited by a glacier. Some types are terminal, lateral, medial, and ground.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat. Unconsolidated soil material consisting primarily of organic matter that is in an intermediate stage of decomposition such that a significant part of the material can be recognized and a significant part of the material cannot be recognized.

Mudstone. Sedimentary rock formed by induration of silt and clay in approximately equal amounts.

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Outwash plain. A landform of mainly sandy or coarse textured material of glaciofluvial origin. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

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 thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitted outwash plain. An outwash plain marked by many irregular depressions, such as kettles, shallow pits, and potholes, which formed by melting of incorporated ice masses. Common in Wisconsin and Minnesota.

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.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Poletimber. Hardwood trees ranging from 5 to 11 inches and conifers ranging from 5 to 9 inches in diameter at breast height.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential 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.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth’s surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rise. A slight increase in elevation of the land surface, typically with a broad summit and gently sloping sides.

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.

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.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

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.

Sapling. A tree ranging from 1 to 5 inches in diameter at breast height.

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.

Saprolite. Unconsolidated residual material underlying the soil and grading to hard bedrock below.

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.

Sawtimber. Hardwood trees more than 11 inches and conifers more than 9 inches in diameter at breast height.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seedling. A tree less than 1 inch in diameter at breast height.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

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.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Sloughed till. Water-saturated till that has flowed slowly downhill from its original place of deposit by glacial ice. It may rest on other till, on glacial outwash, or on a glaciolacustrine deposit.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stagnation moraine. A body of drift released by the melting of a glacier that ceased flowing. Commonly, but not always, occurs near ice margins; composed of till, ice-contact stratified drift, and small areas of glacial lake sediment. Typical landforms are knob-and-kettle topography, locally including ice-walled lake plains.

Stone line. A concentration of rock fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

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.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. 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 resulting from uneven glacial deposition.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine. A belt of thick glacial drift that generally marks the termination of important glacial advances.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Till. Unsorted, nonstratified glacial drift consisting of clay, silt, sand, and boulders transported and deposited by glacial ice.

Till plain. An extensive area of nearly level to undulating soils underlain by glacial till.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve. A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

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.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Woody peat. An accumulation of organic material that is predominantly composed of trees, shrubs, and other woody plants.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Breed, Wisconsin)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January----	24.9	1.9	13.4	46	-32	0	1.23	0.60	1.76	3	12.0
February---	29.8	4.9	17.4	51	-30	1	1.05	.31	1.71	3	9.3
March------	40.6	17.2	28.9	66	-19	20	2.06	.84	3.24	5	9.7
April------	56.4	29.7	43.0	83	6	161	2.86	1.57	4.11	6	3.3
May--------	69.8	39.6	54.7	89	19	461	3.64	1.94	5.30	7	.6
June-------	78.3	49.2	63.7	95	29	712	3.87	2.11	5.40	7	.0
July-------	83.2	54.5	68.8	97	35	894	3.35	2.28	4.28	6	.0
August-----	80.1	52.2	66.2	95	32	811	3.73	2.14	5.06	6	.0
September--	70.9	44.3	57.6	88	23	529	3.91	1.98	5.73	7	.0
October----	59.4	34.8	47.1	82	14	252	2.51	1.40	3.60	5	.3
November---	42.6	24.0	33.3	66	-3	37	2.28	1.18	3.32	5	5.0
December---	28.7	9.9	19.3	51	-24	2	1.70	1.02	2.34	4	13.5
Yearly:											
Average---	55.4	30.2	42.8	---	---	---	---	---	---	---	---
Extreme---	101	-41	---	98	-34	---	---	---	---	---	---
Total-----	---	---	---	---	---	3,880	32.19	26.43	36.60	64	53.7

* 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 1961-90 at Breed, Wisconsin)

Probability	Temperature		
	24 ^{o}F or lower	28 ^{o}F or lower	32 ^{o}F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	May 21	June 12	June 23
2 years in 10 later than--	May 15	June 4	June 17
5 years in 10 later than--	May 3	May 20	June 4
First freezing temperature in fall:			
1 year in 10 earlier than--	Sept. 23	Sept. 12	Aug. 22
2 years in 10 earlier than--	Sept. 29	Sept. 17	Aug. 29
5 years in 10 earlier than--	Oct. 10	Sept. 27	Sept. 12

Table 3.--Growing Season

(Recorded in the period 1961-90 at Breed, Wisconsin)

Probability	Daily minimum temperature during growing season		
	Higher than 24 ^{o}F	Higher than 28 ^{o}F	Higher than 32 ^{o}F
	Days	Days	Days
9 years in 10	143	111	88
8 years in 10	152	120	98
5 years in 10	169	138	117
2 years in 10	187	156	135
1 year in 10	195	166	145

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AfB	Aftad loam, 0 to 6 percent slopes	271	0.1
AnB	Annalake fine sandy loam, 0 to 6 percent slopes	215	*
AtB	Antigo silt loam, 0 to 6 percent slopes	2,491	1.1
AuA	Au Gres loamy sand, 0 to 3 percent slopes	1,647	0.7
CeB	Cress sandy loam, 0 to 6 percent slopes	1,007	0.4
CeC	Cress sandy loam, 6 to 15 percent slopes	760	0.3
CeD	Cress sandy loam, 15 to 35 percent slopes	907	0.4
CmA	Crex fine sand, 0 to 3 percent slopes	1,148	0.5
CrB	Cromwell sandy loam, 0 to 6 percent slopes	3,461	1.5
CrC	Cromwell sandy loam, 6 to 15 percent slopes	3,159	1.4
CrD	Cromwell sandy loam, 15 to 35 percent slopes	2,033	0.9
CsA	Croswell loamy sand, 0 to 3 percent slopes	1,618	0.7
FeB	Frechette fine sandy loam, 2 to 6 percent slopes	6,231	2.7
FeC	Frechette fine sandy loam, 6 to 15 percent slopes	8,750	3.7
FeD	Frechette fine sandy loam, 15 to 35 percent slopes	1,938	0.8
FrB	Frechette sandy loam, 2 to 6 percent slopes	745	0.3
FrC	Frechette sandy loam, 6 to 15 percent slopes	726	0.3
FrD	Frechette sandy loam, 15 to 35 percent slopes	205	*
GaB	Grayling loamy sand, 0 to 6 percent slopes	8,104	3.5
GaC	Grayling loamy sand, 6 to 15 percent slopes	5,985	2.6
GaD	Grayling loamy sand, 15 to 35 percent slopes	3,374	1.4
GyB	Grayling sand, 0 to 6 percent slopes	5,508	2.4
GyC	Grayling sand, 6 to 15 percent slopes	1,953	0.8
GyD	Grayling sand, 15 to 35 percent slopes	392	0.2
IgA	Ingalls loamy sand, 0 to 3 percent slopes	142	*
IsB	Iosco loamy sand, 0 to 4 percent slopes	404	0.2
IxB	Ishpeming-Rock outcrop complex, 0 to 6 percent slopes	143	*
IxC	Ishpeming-Rock outcrop complex, 6 to 15 percent slopes	380	0.2
KaB	Karlin sandy loam, 0 to 6 percent slopes	3,646	1.6
KaC	Karlin sandy loam, 6 to 15 percent slopes	3,135	1.3
KaD	Karlin sandy loam, 15 to 35 percent slopes	3,256	1.4
KeC	Kennan fine sandy loam, 6 to 15 percent slopes, very bouldery	2,860	1.2
KeD	Kennan fine sandy loam, 15 to 35 percent slopes, very bouldery	844	0.4
KoC	Kennan silt loam, 6 to 15 percent slopes, very bouldery	7,372	3.2
KoD	Kennan silt loam, 15 to 35 percent slopes, very bouldery	2,741	1.2
KxB	Keshena fine sandy loam, 2 to 6 percent slopes	4,622	2.0
LaB	Lablatz sandy loam, 0 to 4 percent slopes	146	*
LDF	Landfill	22	*
LoA	Loxley peat, 0 to 1 percent slopes	1,249	0.5
LuA	Lupton, Markey, and Cathro mucks, 0 to 1 percent slopes	26,145	11.2
M-W	Miscellaneous water	58	*
MaB	Mahtomedi loamy sand, 0 to 6 percent slopes	766	0.3
MaC	Mahtomedi loamy sand, 6 to 15 percent slopes	437	0.2
MaD	Mahtomedi loamy sand, 15 to 35 percent slopes	383	0.2
MoC	Menominee loamy fine sand, 6 to 15 percent slopes	477	0.2
MoD	Menominee loamy fine sand, 15 to 35 percent slopes	70	*
MqB	Mequithy-Rock outcrop complex, 0 to 6 percent slopes	1,111	0.5
MqC	Mequithy-Rock outcrop complex, 6 to 15 percent slopes	2,053	0.9
MuA	Minocqua muck, 0 to 2 percent slopes	4,215	1.8
MwB	Moodig fine sandy loam, 0 to 4 percent slopes, very bouldery	129	*
MxB	Morganlake loamy fine sand, 0 to 6 percent slopes	2,091	0.9
MzB	Moshawquit loamy sand, 2 to 6 percent slopes	381	0.2
MzC	Moshawquit loamy sand, 6 to 15 percent slopes	206	*
NeA	Neconish fine sand, 0 to 3 percent slopes	264	0.1
NoB	Neopit fine sandy loam, 2 to 6 percent slopes, very bouldery	1,827	0.8
NpB	Neopit silt loam, 2 to 6 percent slopes, very bouldery	4,768	2.0
NsA	Noseum fine sandy loam, 0 to 3 percent slopes	1,523	0.7
PaB	Padus fine sandy loam, 0 to 6 percent slopes	18,644	8.0
PaC	Padus fine sandy loam, 6 to 15 percent slopes	13,415	5.7
PaD	Padus fine sandy loam, 15 to 35 percent slopes	5,232	2.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
PbB	Padwet fine sandy loam, 0 to 6 percent slopes	2,327	1.0
PeB	Pecore loam, 2 to 6 percent slopes	251	0.1
PeC	Pecore loam, 6 to 15 percent slopes	263	0.1
PeD	Pecore loam, 15 to 35 percent slopes	226	*
PnB	Pence sandy loam, 0 to 6 percent slopes	124	*
PnC	Pence sandy loam, 6 to 15 percent slopes	313	0.1
PnD	Pence sandy loam, 15 to 35 percent slopes	2,751	1.2
PrB	Perote fine sandy loam, 2 to 6 percent slopes	1,550	0.7
PrC	Perote fine sandy loam, 6 to 15 percent slopes	1,877	0.8
PrD	Perote fine sandy loam, 15 to 35 percent slopes	1,693	0.7
PsB	Peshtigo loam, 0 to 4 percent slopes	575	0.2
Pt	Pits, gravel	45	*
RaB	Rabe loamy sand, 2 to 6 percent slopes	1,222	0.5
RaC	Rabe loamy sand, 6 to 15 percent slopes	1,279	0.5
RaD	Rabe loamy sand, 15 to 35 percent slopes	374	0.2
RbA	Robago fine sandy loam, 0 to 3 percent slopes	124	*
RcA	Roscommon muck, 0 to 2 percent slopes	1,537	0.7
RoB	Rosholt fine sandy loam, 0 to 6 percent slopes	3,542	1.5
RoC	Rosholt fine sandy loam, 6 to 15 percent slopes	2,654	1.1
RoD	Rosholt fine sandy loam, 15 to 35 percent slopes	1,119	0.5
RsB	Rousseau fine sand, 0 to 6 percent slopes	106	*
RsC	Rousseau fine sand, 6 to 15 percent slopes	171	*
RsD	Rousseau fine sand, 15 to 35 percent slopes	54	*
ScA	Scott Lake fine sandy loam, 0 to 3 percent slopes	192	*
SfB	Shawano fine sand, 0 to 6 percent slopes	1,180	0.5
SfC	Shawano fine sand, 6 to 15 percent slopes	1,071	0.5
SfD	Shawano fine sand, 15 to 35 percent slopes	447	0.2
SuA	Sunia sandy loam, 0 to 3 percent slopes	741	0.3
TlC	Tilleda sandy loam, 6 to 15 percent slopes	662	0.3
TlD	Tilleda sandy loam, 15 to 35 percent slopes	159	*
TmA	Tipler fine sandy loam, 0 to 3 percent slopes	5,883	2.5
ToB	Tourtillotte loamy sand, 0 to 6 percent slopes	698	0.3
ToC	Tourtillotte loamy sand, 6 to 15 percent slopes	178	*
UdD	Udipsamments, moderately steep or steep (earthen dam)	5	*
VsB	Vilas loamy sand, 0 to 6 percent slopes	3,440	1.5
VsC	Vilas loamy sand, 6 to 15 percent slopes	2,994	1.3
VsD	Vilas loamy sand, 15 to 35 percent slopes	1,081	0.5
W	Water	5,033	2.2
WaA	Wainola loamy fine sand, 0 to 3 percent slopes	390	0.2
WkB	Wayka-Rock outcrop complex, 0 to 4 percent slopes	708	0.3
WrA	Worcester fine sandy loam, 0 to 3 percent slopes	1,813	0.8
WtA	Wormet fine sandy loam, 0 to 3 percent slopes	799	0.3
WuA	Wurtsmith sand, 0 to 3 percent slopes	4,228	1.8
	Total	233,664	100.0

* Less than 0.1 percent.

Table 5.--Forest Land Harvest Equipment Considerations

(See text for a description of the considerations listed in this table)

Map symbol and component name	Forest land harvest equipment considerations
AfB:	
Aftad	Wetness
AnB:	
Annalake	Wetness
AtB:	
Antigo	No major considerations
AuA:	
Au Gres	Wetness Poor traction (loose sandy material)
CeB:	
Cress	No major considerations
CeC:	
Cress	No major considerations
CeD:	
Cress	Slope
CmA:	
Crex	Poor traction (loose sandy material)
CrB:	
Cromwell	No major considerations
CrC:	
Cromwell	No major considerations
CrD:	
Cromwell	Slope
CsA:	
Croswell	Poor traction (loose sandy material)
FeB:	
Frechette	No major considerations
FeC:	
Frechette	No major considerations
FeD:	
Frechette	Slope
FrB:	
Frechette	No major considerations
FrC:	
Frechette	No major considerations
FrD:	
Frechette	Slope
GaB:	
Grayling	Poor traction (loose sandy material)
GaC:	
Grayling	Poor traction (loose sandy material)

Table 5.--Forest Land Harvest Equipment Considerations--Continued

Map symbol and component name	Forest land harvest equipment considerations
GaD:	
Grayling	Slope Poor traction (loose sandy material)
GyB:	
Grayling	Poor traction (loose sandy material)
GyC:	
Grayling	Poor traction (loose sandy material)
GyD:	
Grayling	Slope Poor traction (loose sandy material)
IgA:	
Ingalls	Wetness Poor traction (loose sandy material)
IsB:	
Iosco	Wetness Poor traction (loose sandy material)
IxB:	
Ishpeming	Areas of rock outcrop Poor traction (loose sandy material)
Rock outcrop.	
IxC:	
Ishpeming	Areas of rock outcrop Poor traction (loose sandy material)
Rock outcrop.	
KaB:	
Karlin	No major considerations
KaC:	
Karlin	No major considerations
KaD:	
Karlin	Slope
KeC:	
Kennan	No major considerations
KeD:	
Kennan	Slope
KoC:	
Kennan	No major considerations
KoD:	
Kennan	Slope
KxB:	
Keshena	Wetness Susceptible to rutting and wheel slippage
LaB:	
Lablatz	Wetness
LoA:	
Loxley	Wetness Susceptible to rutting and wheel slippage

Table 5.--Forest Land Harvest Equipment Considerations--Continued

Map symbol and component name	Forest land harvest equipment considerations
LuA:	
Lupton	Flooding Wetness Susceptible to rutting and wheel slippage
Markey	Flooding Wetness Susceptible to rutting and wheel slippage
Cathro	Flooding Wetness Susceptible to rutting and wheel slippage
MaB:	
Mahtomedi	Poor traction (loose sandy material)
MaC:	
Mahtomedi	Poor traction (loose sandy material)
MaD:	
Mahtomedi	Slope Poor traction (loose sandy material)
MoC:	
Menominee	Poor traction (loose sandy material)
MoD:	
Menominee	Slope Poor traction (loose sandy material)
MqB:	
Mequithy	Areas of rock outcrop
Rock outcrop.	
MqC:	
Mequithy	Areas of rock outcrop
Rock outcrop.	
MuA:	
Minocqua	Flooding Wetness Susceptible to rutting and wheel slippage
MwB:	
Moodig	Wetness
MxB:	
Morganlake	Wetness Poor traction (loose sandy material)
MzB:	
Moshawquit	Poor traction (loose sandy material)
MzC:	
Moshawquit	Poor traction (loose sandy material)
NeA:	
Neconish	Poor traction (loose sandy material)
NoB:	
Neopit	Wetness

Table 5.--Forest Land Harvest Equipment Considerations--Continued

Map symbol and component name	Forest land harvest equipment considerations
NpB:	
Neopit	Wetness
NsA:	
Noseum	No major considerations
PaB:	
Padus	No major considerations
PaC:	
Padus	No major considerations
PaD:	
Padus	Slope
PbB:	
Padwet	Wetness
PeB:	
Pecore	Susceptible to rutting and wheel slippage
PeC:	
Pecore	Susceptible to rutting and wheel slippage
PeD:	
Pecore	Slope Susceptible to rutting and wheel slippage
PnB:	
Pence	No major considerations
PnC:	
Pence	No major considerations
PnD:	
Pence	Slope
PrB:	
Perote	No major considerations
PrC:	
Perote	No major considerations
PrD:	
Perote	Slope
PsB:	
Peshtigo	Wetness Susceptible to rutting and wheel slippage
RaB:	
Rabe	Poor traction (loose sandy material)
RaC:	
Rabe	Poor traction (loose sandy material)
RaD:	
Rabe	Slope Poor traction (loose sandy material)
RbA:	
Robago	Wetness

Table 5.--Forest Land Harvest Equipment Considerations--Continued

Map symbol and component name	Forest land harvest equipment considerations
RcA:	
Roscommon	Flooding Wetness Susceptible to rutting and wheel slippage Poor traction (loose sandy material)
RoB:	
Rosholt	No major considerations
RoC:	
Rosholt	No major considerations
RoD:	
Rosholt	Slope
RsB:	
Rousseau	Poor traction (loose sandy material)
RsC:	
Rousseau	Poor traction (loose sandy material)
RsD:	
Rousseau	Slope Poor traction (loose sandy material)
ScA:	
Scott Lake	No major considerations
SfB:	
Shawano	Poor traction (loose sandy material)
SfC:	
Shawano	Poor traction (loose sandy material)
SfD:	
Shawano	Slope Poor traction (loose sandy material)
SuA:	
Sunia	Poor traction (loose sandy material)
TlC:	
Tilleda	Susceptible to rutting and wheel slippage
TlD:	
Tilleda	Slope Susceptible to rutting and wheel slippage
TmA:	
Tipler	No major considerations
ToB:	
Tourtillotte	Wetness Poor traction (loose sandy material)
ToC:	
Tourtillotte	Wetness Poor traction (loose sandy material)
UdD:	
Udipsamments (earthen dam)	Slope Poor traction (loose sandy material)

Table 5.--Forest Land Harvest Equipment Considerations--Continued

Map symbol and component name	Forest land harvest equipment considerations
VsB:	
Vilas	Poor traction (loose sandy material)
VsC:	
Vilas	Poor traction (loose sandy material)
VsD:	
Vilas	Slope Poor traction (loose sandy material)
WaA:	
Wainola	Wetness Poor traction (loose sandy material)
WkB:	
Wayka	Wetness Areas of rock outcrop
Rock outcrop.	
WrA:	
Worcester	Wetness
WtA:	
Wormet	Wetness
WuA:	
Wurtsmith	Poor traction (loose sandy material)

Table 6.--Forest Haul Road Considerations

(See text for a description of the considerations listed in this table)

Map symbol and component name	Forest haul road considerations
AfB:	
Aftad	Wetness
AnB:	
Annalake	Wetness
AtB:	
Antigo	No major considerations
AuA:	
Au Gres	Wetness
CeB:	
Cress	No major considerations
CeC:	
Cress	Slope
CeD:	
Cress	Slope
CmA:	
Crex	No major considerations
CrB:	
Cromwell	No major considerations
CrC:	
Cromwell	Slope
CrD:	
Cromwell	Slope
CsA:	
Croswell	No major considerations
FeB:	
Frechette	No major considerations
FeC:	
Frechette	Slope
FeD:	
Frechette	Slope
FrB:	
Frechette	No major considerations
FrC:	
Frechette	Slope
FrD:	
Frechette	Slope
GaB:	
Grayling	No major considerations
GaC:	
Grayling	Slope
GaD:	
Grayling	Slope

Table 6.--Forest Haul Road Considerations--Continued

Map symbol and component name	Forest haul road considerations
GyB:	
Grayling	No major considerations
GyC:	
Grayling	Slope
GyD:	
Grayling	Slope
IgA:	
Ingalls	Wetness
IsB:	
Iosco	Wetness
IxB:	
Ishpeming	Areas of rock outcrop
Rock outcrop.	
IxC:	
Ishpeming	Slope Areas of rock outcrop
Rock outcrop.	
KaB:	
Karlin	No major considerations
KaC:	
Karlin	Slope
KaD:	
Karlin	Slope
KeC:	
Kennan	Slope
KeD:	
Kennan	Slope
KoC:	
Kennan	Slope
KoD:	
Kennan	Slope
KxB:	
Keshena	Wetness Low bearing strength
LaB:	
Lablatz	Wetness
LoA:	
Loxley	Wetness Low bearing strength
LuA:	
Lupton	Flooding Wetness Low bearing strength

Table 6.--Forest Haul Road Considerations--Continued

Map symbol and component name	Forest haul road considerations
LuA:	
Markey	Flooding Wetness Low bearing strength
Cathro	Flooding Wetness Low bearing strength
MaB:	
Mahtomedi	No major considerations
MaC:	
Mahtomedi	Slope
MaD:	
Mahtomedi	Slope
MoC:	
Menominee	Slope
MoD:	
Menominee	Slope
MqB:	
Mequithy	Areas of rock outcrop
Rock outcrop.	
MqC:	
Mequithy	Slope Areas of rock outcrop
Rock outcrop.	
MuA:	
Minocqua	Flooding Wetness Low bearing strength
MwB:	
Moodig	Wetness
MxB:	
Morganlake	Wetness
MzB:	
Moshawquit	No major considerations
MzC:	
Moshawquit	Slope
NeA:	
Neconish	No major considerations
NoB:	
Neopit	Wetness
NpB:	
Neopit	Wetness
NsA:	
Noseum	No major considerations

Table 6.--Forest Haul Road Considerations--Continued

Map symbol and component name	Forest haul road considerations
PaB:	
Padus	No major considerations
PaC:	
Padus	Slope
PaD:	
Padus	Slope
PbB:	
Padwet	Wetness
PeB:	
Pecore	Low bearing strength
PeC:	
Pecore	Slope Low bearing strength
PeD:	
Pecore	Slope Low bearing strength
PnB:	
Pence	No major considerations
PnC:	
Pence	Slope
PnD:	
Pence	Slope
PrB:	
Perote	No major considerations
PrC:	
Perote	Slope
PrD:	
Perote	Slope
PsB:	
Peshtigo	Wetness Low bearing strength
RaB:	
Rabe	No major considerations
RaC:	
Rabe	Slope
RaD:	
Rabe	Slope
RbA:	
Robago	Wetness
RcA:	
Roscommon	Flooding Wetness Low bearing strength
RoB:	
Rosholt	No major considerations

Table 6.--Forest Haul Road Considerations--Continued

Map symbol and component name	Forest haul road considerations
RoC:	
Rosholt	Slope
RoD:	
Rosholt	Slope
RsB:	
Rousseau	No major considerations
RsC:	
Rousseau	Slope
RsD:	
Rousseau	Slope
ScA:	
Scott Lake	No major considerations
SfB:	
Shawano	No major considerations
SfC:	
Shawano	Slope
SfD:	
Shawano	Slope
SuA:	
Sunia	No major considerations
TlC:	
Tilleda	Slope Low bearing strength
TlD:	
Tilleda	Slope Low bearing strength
TmA:	
Tipler	No major considerations
ToB:	
Tourtillotte	Wetness
ToC:	
Tourtillotte	Slope Wetness
UdD:	
Udipsamments (earthen dam)	Slope
VsB:	
Vilas	No major considerations
VsC:	
Vilas	Slope
VsD:	
Vilas	Slope
WaA:	
Wainola	Wetness

Table 6.--Forest Haul Road Considerations--Continued

Map symbol and component name	Forest haul road considerations
WkB:	
Wayka	Wetness Areas of rock outcrop
Rock outcrop.	
WrA:	
Worcester	Wetness
WtA:	
Wormet	Wetness
WuA:	
Wurtsmith	No major considerations

Table 7.--Forest Log Landing Considerations

(See text for a description of the considerations listed in this table)

Map symbol and component name	Forest log landing considerations
AfB:	
Aftad	Wetness
AnB:	
Annalake	Wetness
AtB:	
Antigo	No major considerations
AuA:	
Au Gres	Wetness
CeB:	
Cress	No major considerations
CeC:	
Cress	Slope
CeD:	
Cress	Slope
CmA:	
Crex	No major considerations
CrB:	
Cromwell	No major considerations
CrC:	
Cromwell	Slope
CrD:	
Cromwell	Slope
CsA:	
Croswell	No major considerations
FeB:	
Frechette	No major considerations
FeC:	
Frechette	Slope
FeD:	
Frechette	Slope
FrB:	
Frechette	No major considerations
FrC:	
Frechette	Slope
FrD:	
Frechette	Slope
GaB:	
Grayling	No major considerations
GaC:	
Grayling	Slope
GaD:	
Grayling	Slope

Table 7.--Forest Log Landing Considerations--Continued

Map symbol and component name	Forest log landing considerations
GyB:	
Grayling	No major considerations
GyC:	
Grayling	Slope
GyD:	
Grayling	Slope
IgA:	
Ingalls	Wetness
IsB:	
Iosco	Wetness
IxB:	
Ishpeming	Areas of rock outcrop
Rock outcrop.	
IxC:	
Ishpeming	Slope Areas of rock outcrop
Rock outcrop.	
KaB:	
Karlin	No major considerations
KaC:	
Karlin	Slope
KaD:	
Karlin	Slope
KeC:	
Kennan	Slope
KeD:	
Kennan	Slope
KoC:	
Kennan	Slope
KoD:	
Kennan	Slope
KxB:	
Keshena	Wetness Susceptible to rutting and wheel slippage
LaB:	
Lablatz	Wetness
LoA:	
Loxley	Wetness Susceptible to rutting and wheel slippage
LuA:	
Lupton	Flooding Wetness Susceptible to rutting and wheel slippage

Table 7.--Forest Log Landing Considerations--Continued

Map symbol and component name	Forest log landing considerations
LuA:	
Markey	Flooding Wetness Susceptible to rutting and wheel slippage
Cathro	Flooding Wetness Susceptible to rutting and wheel slippage
MaB:	
Mahtomedi	No major considerations
MaC:	
Mahtomedi	Slope
MaD:	
Mahtomedi	Slope
MoC:	
Menominee	Slope
MoD:	
Menominee	Slope
MqB:	
Mequithy	Areas of rock outcrop
Rock outcrop.	
MqC:	
Mequithy	Slope Areas of rock outcrop
Rock outcrop.	
MuA:	
Minocqua	Flooding Wetness Susceptible to rutting and wheel slippage
MwB:	
Moodig	Wetness
MxB:	
Morganlake	Wetness
MzB:	
Moshawquit	No major considerations
MzC:	
Moshawquit	Slope
NeA:	
Neconish	No major considerations
NoB:	
Neopit	Wetness
NpB:	
Neopit	Wetness
NsA:	
Noseum	No major considerations

Table 7.--Forest Log Landing Considerations--Continued

Map symbol and component name	Forest log landing considerations
PaB:	
Padus	No major considerations
PaC:	
Padus	Slope
PaD:	
Padus	Slope
PbB:	
Padwet	Wetness
PeB:	
Pecore	Susceptible to rutting and wheel slippage
PeC:	
Pecore	Slope Susceptible to rutting and wheel slippage
PeD:	
Pecore	Slope Susceptible to rutting and wheel slippage
PnB:	
Pence	No major considerations
PnC:	
Pence	Slope
PnD:	
Pence	Slope
PrB:	
Perote	No major considerations
PrC:	
Perote	Slope
PrD:	
Perote	Slope
PsB:	
Peshtigo	Wetness Susceptible to rutting and wheel slippage
RaB:	
Rabe	No major considerations
RaC:	
Rabe	Slope
RaD:	
Rabe	Slope
RbA:	
Robago	Wetness
RcA:	
Roscommon	Flooding Wetness Susceptible to rutting and wheel slippage
RoB:	
Rosholt	No major considerations

Table 7.--Forest Log Landing Considerations--Continued

Map symbol and component name	Forest log landing considerations
RoC:	
Rosholt	Slope
RoD:	
Rosholt	Slope
RsB:	
Rousseau	No major considerations
RsC:	
Rousseau	Slope
RsD:	
Rousseau	Slope
ScA:	
Scott Lake	No major considerations
SfB:	
Shawano	No major considerations
SfC:	
Shawano	Slope
SfD:	
Shawano	Slope
SuA:	
Sunia	No major considerations
TlC:	
Tilleda	Slope Susceptible to rutting and wheel slippage
TlD:	
Tilleda	Slope Susceptible to rutting and wheel slippage
TmA:	
Tipler	No major considerations
ToB:	
Tourtillotte	Wetness
ToC:	
Tourtillotte	Slope Wetness
UdD:	
Udipsamments (earthen dam)	Slope
VsB:	
Vilas	No major considerations
VsC:	
Vilas	Slope
VsD:	
Vilas	Slope
WaA:	
Wainola	Wetness

Table 7.--Forest Log Landing Considerations--Continued

Map symbol and component name	Forest log landing considerations
WkB:	
Wayka	Wetness Areas of rock outcrop
Rock outcrop.	
WrA:	
Worcester	Wetness
WtA:	
Wormet	Wetness
WuA:	
Wurtsmith	No major considerations

Table 8.--Forest Land Site Preparation and Planting Considerations

(See text for a description of the considerations listed in this table)

Map symbol and component name	Forest land site preparation and planting considerations
AfB:	
Aftad	Wetness
AnB:	
Annalake	Wetness
AtB:	
Antigo	No major considerations
AuA:	
Au Gres	Wetness
CeB:	
Cress	No major considerations
CeC:	
Cress	Water erosion
CeD:	
Cress	Slope Water erosion
CmA:	
Crex	No major considerations
CrB:	
Cromwell	No major considerations
CrC:	
Cromwell	Water erosion
CrD:	
Cromwell	Slope Water erosion
CsA:	
Croswell	No major considerations
FeB:	
Frechette	No major considerations
FeC:	
Frechette	Water erosion
FeD:	
Frechette	Slope Water erosion
FrB:	
Frechette	No major considerations
FrC:	
Frechette	Water erosion
FrD:	
Frechette	Slope Water erosion
GaB:	
Grayling	No major considerations

Table 8.--Forest Land Site Preparation and Planting Considerations--Continued

Map symbol and component name	Forest land site preparation and planting considerations
GaC:	
Grayling	Water erosion
GaD:	
Grayling	Slope Water erosion
GyB:	
Grayling	No major considerations
GyC:	
Grayling	Water erosion
GyD:	
Grayling	Slope Water erosion
IgA:	
Ingalls	Wetness
IsB:	
Iosco	Wetness
IxB:	
Ishpeming	Areas of rock outcrop
Rock outcrop.	
IxC:	
Ishpeming	Areas of rock outcrop Water erosion
Rock outcrop.	
KaB:	
Karlin	No major considerations
KaC:	
Karlin	Water erosion
KaD:	
Karlin	Slope Water erosion
KeC:	
Kennan	Water erosion
KeD:	
Kennan	Slope Water erosion
KoC:	
Kennan	Water erosion
KoD:	
Kennan	Slope Water erosion
KxB:	
Keshena	Wetness
LaB:	
Lablatz	Wetness

Table 8.--Forest Land Site Preparation and Planting Considerations--Continued

Map symbol and component name	Forest land site preparation and planting considerations
LoA:	
Loxley	Wetness
LuA:	
Lupton	Flooding Wetness
Markey	Flooding Wetness
Cathro	Flooding Wetness
MaB:	
Mahtomedi	No major considerations
MaC:	
Mahtomedi	Water erosion
MaD:	
Mahtomedi	Slope Water erosion
MoC:	
Menominee	Water erosion
MoD:	
Menominee	Slope Water erosion
MqB:	
Mequithy	Areas of rock outcrop
Rock outcrop.	
MqC:	
Mequithy	Areas of rock outcrop Water erosion
Rock outcrop.	
MuA:	
Minocqua	Flooding Wetness
MwB:	
Moodig	Wetness
MxB:	
Morganlake	Wetness
MzB:	
Moshawquit	No major considerations
MzC:	
Moshawquit	Water erosion
NeA:	
Neconish	No major considerations
NoB:	
Neopit	Wetness

Table 8.--Forest Land Site Preparation and Planting Considerations--Continued

Map symbol and component name	Forest land site preparation and planting considerations
NpB:	
Neopit	Wetness
NsA:	
Noseum	No major considerations
PaB:	
Padus	No major considerations
PaC:	
Padus	Water erosion
PaD:	
Padus	Slope Water erosion
PbB:	
Padwet	Wetness
PeB:	
Pecore	No major considerations
PeC:	
Pecore	Water erosion
PeD:	
Pecore	Slope Water erosion
PnB:	
Pence	No major considerations
PnC:	
Pence	Water erosion
PnD:	
Pence	Slope Water erosion
PrB:	
Perote	No major considerations
PrC:	
Perote	Water erosion
PrD:	
Perote	Slope Water erosion
PsB:	
Peshtigo	Wetness
RaB:	
Rabe	No major considerations
RaC:	
Rabe	Water erosion
RaD:	
Rabe	Slope Water erosion
RbA:	
Robago	Wetness

Table 8.--Forest Land Site Preparation and Planting Considerations--Continued

Map symbol and component name	Forest land site preparation and planting considerations
RcA:	
Roscommon	Flooding Wetness
RoB:	
Rosholt	No major considerations
RoC:	
Rosholt	Water erosion
RoD:	
Rosholt	Slope Water erosion
RsB:	
Rousseau	No major considerations
RsC:	
Rousseau	Water erosion
RsD:	
Rousseau	Slope Water erosion
ScA:	
Scott Lake	No major considerations
SfB:	
Shawano	No major considerations
SfC:	
Shawano	Water erosion
SfD:	
Shawano	Slope Water erosion
SuA:	
Sunia	No major considerations
TlC:	
Tilleda	Water erosion
TlD:	
Tilleda	Slope Water erosion
TmA:	
Tipler	No major considerations
ToB:	
Tourtillotte	Wetness
ToC:	
Tourtillotte	Wetness Water erosion
UdD:	
Udipsamments (earthen dam)	Slope Water erosion
VsB:	
Vilas	No major considerations

Table 8.--Forest Land Site Preparation and Planting Considerations--Continued

Map symbol and component name	Forest land site preparation and planting considerations
VsC:	
Vilas	Water erosion
VsD:	
Vilas	Slope Water erosion
WaA:	
Wainola	Wetness
WkB:	
Wayka	Wetness Areas of rock outcrop
Rock outcrop.	
WrA:	
Worcester	Wetness
WtA:	
Wormet	Wetness
WuA:	
Wurtsmith	No major considerations

Table 9.--Forest Land Productivity

(See text for definitions of terms used in this table)

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
AfB:				
Aftad	Sugar maple	60	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Paper birch	---	---	
	White ash	---	---	
	Northern red oak	---	---	
	American basswood	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
AnB:				
Annalake	Sugar maple	61	43	Eastern white pine, red pine, white spruce
	Black cherry	---	---	
	Eastern hophornbeam	---	---	
	Yellow birch	---	---	
	White ash	---	---	
	American basswood	---	---	
	Eastern hemlock	---	---	
AtB:				
Antigo	Sugar maple	66	43	Eastern white pine, red pine, white spruce
	Yellow birch	71	43	
	White ash	74	72	
	American basswood	69	57	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
	Black cherry	---	---	
AuA:				
Au Gres	Red pine	57	---	Eastern white pine, red maple, red pine, white spruce
	Red maple	65	43	
	Quaking aspen	70	86	
	Balsam fir	---	---	
	Yellow birch	---	---	
	Paper birch	---	---	
	Eastern hemlock	---	---	
	Eastern white pine	---	---	
CeB:				
Cress	Northern red oak	66	57	Eastern white pine, jack pine, red pine
	Sugar maple	60	43	
	Paper birch	68	72	
	Quaking aspen	78	86	
	American basswood	72	72	
	Eastern white pine	55	100	
	Red maple	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	White ash	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CeC:				
Cress	Northern red oak	66	57	Eastern white pine, jack pine, red pine
	Sugar maple	60	43	
	Paper birch	68	72	
	Quaking aspen	78	86	
	American basswood	72	72	
	Eastern white pine	55	100	
	Red maple	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	White ash	---	---	
CeD:				
Cress	Northern red oak	66	57	Eastern white pine, jack pine, red pine
	Sugar maple	60	43	
	Paper birch	68	72	
	Quaking aspen	78	86	
	American basswood	72	72	
	Eastern white pine	55	100	
	Red maple	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	White ash	---	---	
CmA:				
Crex	Red pine	55	---	Eastern white pine, jack pine, red pine
	Quaking aspen	76	86	
	Northern pin oak	48	29	
	Jack pine	56	86	
	Paper birch	---	---	
	Eastern white pine	---	---	
	Red maple	---	---	
CrB:				
Cromwell	Northern red oak	68	57	Eastern white pine, jack pine, red pine
	Sugar maple	60	43	
	Paper birch	68	72	
	Quaking aspen	78	86	
	American basswood	72	72	
	Eastern white pine	55	100	
	Red maple	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	White ash	---	---	
CrC:				
Cromwell	Northern red oak	68	57	Eastern white pine, jack pine, red pine
	Sugar maple	60	43	
	Paper birch	68	72	
	Quaking aspen	78	86	
	American basswood	72	72	
	Eastern white pine	55	100	
	White oak	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	White ash	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
CrD:				
Cromwell	Northern red oak	68	57	Eastern white pine, jack pine, red pine
	Sugar maple	60	43	
	Paper birch	68	72	
	Quaking aspen	78	86	
	American basswood	72	72	
	Eastern white pine	55	100	
	White oak	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	White ash	---	---	
CsA:				
Croswell	Red pine	57	86	Eastern white pine, jack pine, red pine
	Quaking aspen	68	72	
	Red maple	---	---	
	Balsam fir	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
FeB:				
Frechette	Sugar maple	70	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	American basswood	---	---	
	White ash	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
	Eastern white pine	---	---	
	Paper birch	---	---	
	Red pine	---	---	
FeC:				
Frechette	Sugar maple	70	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	American basswood	---	---	
	White ash	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
	Eastern white pine	---	---	
	Paper birch	---	---	
	Red pine	---	---	
FeD:				
Frechette	Sugar maple	70	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	American basswood	---	---	
	White ash	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
	Eastern white pine	---	---	
	Paper birch	---	---	
	Red pine	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
FrB:				
Frechette	Sugar maple	70	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	American basswood	---	---	
	White ash	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
	Eastern white pine	---	---	
	Paper birch	---	---	
	Red pine	---	---	
FrC:				
Frechette	Sugar maple	70	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	American basswood	---	---	
	White ash	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
	Eastern white pine	---	---	
	Paper birch	---	---	
	Red pine	---	---	
FrD:				
Frechette	Sugar maple	70	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	American basswood	---	---	
	White ash	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
	Eastern white pine	---	---	
	Paper birch	---	---	
	Red pine	---	---	
GaB:				
Grayling	Jack pine	48	57	Jack pine, red pine
	Northern red oak	---	---	
	Quaking aspen	---	---	
	Red maple	---	---	
	Red pine	---	---	
GaC:				
Grayling	Jack pine	48	57	Jack pine, red pine
	Quaking aspen	---	---	
	Red maple	---	---	
	Red pine	---	---	
GaD:				
Grayling	Jack pine	48	57	Jack pine, red pine
	Quaking aspen	---	---	
	Red maple	---	---	
	Red pine	---	---	
GyB:				
Grayling	Eastern white pine	61	---	Jack pine, red pine
	Jack pine	58	57	
	Northern pin oak	---	---	
	Quaking aspen	---	---	
	Red maple	---	---	
	Red pine	53	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
GyC:				
Grayling	Jack pine	48	57	Jack pine, red pine
	Quaking aspen	---	---	
	Red maple	---	---	
	Red pine	---	---	
GyD:				
Grayling	Jack pine	48	57	Jack pine, red pine
	Quaking aspen	---	---	
	Red maple	---	---	
	Red pine	---	---	
IgA:				
Ingalls	Red pine	59	---	Eastern white pine, red maple, red pine, white spruce
	Quaking aspen	60	57	
	Balsam fir	---	---	
	Red maple	---	---	
	Yellow birch	---	---	
	Paper birch	---	---	
	Eastern hemlock	---	---	
	Eastern white pine	---	---	
IsB:				
Iosco	Red pine	59	---	Eastern white pine, red maple, red pine, white spruce
	Balsam fir	55	114	
	Paper birch	58	57	
	Quaking aspen	65	72	
	Red maple	---	---	
	Yellow birch	---	---	
	Eastern hemlock	---	---	
	Eastern white pine	---	---	
IxB:				
Ishpeming	Red pine	57	---	Eastern white pine, red maple, red pine, white spruce
	Balsam fir	---	---	
	Red maple	---	---	
	Yellow birch	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
	Eastern white pine	---	---	
	Northern red oak	---	---	
Rock outcrop.				
IxC:				
Ishpeming	Red pine	57	---	Eastern white pine, red maple, red pine, white spruce
	Balsam fir	---	---	
	Red maple	---	---	
	Yellow birch	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
	Eastern white pine	---	---	
	Northern red oak	---	---	
Rock outcrop.				

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
KaB:				
Karlin	Sugar maple	61	43	Eastern white pine, red pine
	Yellow birch	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
	White ash	---	---	
	American basswood	---	---	
KaC:				
Karlin	Sugar maple	61	43	Eastern white pine, red pine
	Yellow birch	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
	White ash	---	---	
	American basswood	---	---	
KaD:				
Karlin	Sugar maple	61	43	Eastern white pine, red pine
	Yellow birch	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
	White ash	---	---	
	American basswood	---	---	
KeC:				
Kennan	Sugar maple	64	43	Eastern white pine, red pine, white spruce
	White ash	77	72	
	Northern red oak	76	72	
	American basswood	72	72	
	Red maple	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
KeD:				
Kennan	Sugar maple	64	43	Eastern white pine, red pine, white spruce
	White ash	77	72	
	Northern red oak	76	72	
	American basswood	72	72	
	Red maple	---	---	
	American beech	---	---	
	Eastern hophornbeam	---	---	
KoC:				
Kennan	Sugar maple	69	43	Eastern white pine, red pine, white spruce
	White ash	77	72	
	American basswood	72	72	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
	Yellow birch	---	---	
KoD:				
Kennan	Sugar maple	69	43	Eastern white pine, red pine, white spruce
	White ash	77	72	
	American basswood	72	72	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
	Yellow birch	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to manage
			cu ft/ac	
KxB:				
Keshena	Sugar maple	71	43	Eastern white pine, red pine, white spruce
	Northern red oak	73	72	
	Red maple	---	---	
	Eastern white pine	---	---	
	American basswood	---	---	
	White ash	---	---	
	Eastern hophornbeam	---	---	
	American hornbeam	---	---	
	American beech	---	---	
	White oak	---	---	
LaB:				
Lablatz	Red maple	63	43	Eastern white pine, red maple, red pine, white ash, white spruce
	Sugar maple	---	---	
	Northern red oak	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	White ash	---	---	
	American beech	---	---	
	Quaking aspen	---	---	
	Eastern white pine	---	---	
LoA:				
Loxley	Black spruce	15	29	---
	Tamarack	---	---	
LuA:				
Lupton	Balsam fir	53	86	Black spruce, red maple
	Black spruce	20	29	
	Red maple	---	---	
	Paper birch	---	---	
	Black ash	---	---	
	Tamarack	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	Eastern arborvitae	---	---	
Markey	Balsam fir	53	100	Black spruce, red maple
	Eastern arborvitae	41	57	
	Tamarack	---	---	
	Paper birch	---	---	
	Black spruce	---	---	
	Red maple	---	---	
	Black ash	---	---	
	Yellow birch	---	---	
	Eastern hemlock	---	---	
Cathro	Balsam fir	52	100	Black spruce, red maple
	Eastern arborvitae	33	43	
	Paper birch	---	---	
	Tamarack	---	---	
	Black spruce	---	---	
	Red maple	---	---	
	Black ash	---	---	
	Yellow birch	---	---	
	Eastern hemlock	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
MaB:				
Mahtomedi	Red pine	50	114	Eastern white pine, jack pine, red pine
	Eastern white pine	59	114	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Red maple	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	Northern red oak	---	---	
MaC:				
Mahtomedi	Red pine	50	114	Eastern white pine, jack pine, red pine
	Eastern white pine	59	114	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Red maple	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	Northern red oak	---	---	
MaD:				
Mahtomedi	Red pine	50	114	Eastern white pine, jack pine, red pine
	Eastern white pine	59	114	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Red maple	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	Northern red oak	---	---	
MoC:				
Menominee	Red pine	61	114	Eastern white pine, jack pine, red pine
	White ash	77	72	
	White oak	77	72	
	Northern red oak	63	57	
	Sugar maple	---	---	
	Red maple	---	---	
	Eastern white pine	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American beech	---	---	
	American basswood	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
MoD:				
Menominee	Red pine	61	114	Eastern white pine, jack pine, red pine
	White ash	77	72	
	White oak	77	72	
	Northern red oak	63	57	
	Sugar maple	---	---	
	Red maple	---	---	
	Eastern white pine	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American beech	---	---	
	American basswood	---	---	
MqB:				
Mequithy	Sugar maple	59	43	Eastern white pine, red pine, white spruce
	Yellow birch	---	---	
	White ash	---	---	
	Eastern hemlock	---	---	
	Red maple	---	---	
	Balsam fir	---	---	
	American basswood	---	---	
Rock outcrop.				
MqC:				
Mequithy	Sugar maple	59	43	Eastern white pine, red pine, white spruce
	Yellow birch	---	---	
	White ash	---	---	
	Eastern hemlock	---	---	
	Red maple	---	---	
	Balsam fir	---	---	
	American basswood	---	---	
Rock outcrop.				
MuA:				
Minocqua	Balsam fir	54	100	Black spruce, red maple, white ash, white spruce
	Red maple	55	29	
	Black ash	---	---	
	Yellow birch	---	---	
	Eastern arborvitae	---	---	
	Eastern hemlock	---	---	
MwB:				
Moodig	Red maple	63	43	Eastern white pine, red maple, red pine, white ash, white spruce
	Balsam fir	---	---	
	American basswood	---	---	
	Sugar maple	---	---	
	Yellow birch	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
	White ash	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
MxB:				
Morganlake	Red pine	61	114	Eastern white pine, jack pine, red pine
	White ash	77	72	
	Northern red oak	63	57	
	Sugar maple	---	---	
	Red maple	---	---	
	Eastern white pine	---	---	
	White oak	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American beech	---	---	
	American basswood	---	---	
MzB:				
Moshawquit	Red pine	55	86	Eastern white pine, jack pine, red pine
	Red maple	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
MzC:				
Moshawquit	Red pine	55	86	Eastern white pine, red pine
	Red maple	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Black cherry	---	---	
NeA:				
Neconish	Red pine	56	86	Eastern white pine, jack pine, red pine
	Northern red oak	---	---	
	Quaking aspen	---	---	
	Red maple	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	Balsam fir	---	---	
	Eastern white pine	---	---	
NoB:				
Neopit	Sugar maple	69	43	Eastern white pine, red pine, white spruce
	American basswood	72	72	
	White ash	77	72	
	Yellow birch	---	---	
	Eastern hophornbeam	---	---	
	Eastern hemlock	---	---	
	Black cherry	---	---	
	American hornbeam	---	---	
	Northern red oak	76	72	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
NpB:				
Neopit	Sugar maple	69	43	Eastern white pine, red pine, white spruce
	American basswood	72	72	
	White ash	77	72	
	Yellow birch	---	---	
	Eastern hophornbeam	---	---	
	Eastern hemlock	---	---	
	Black cherry	---	---	
	American hornbeam	---	---	
	Northern red oak	76	72	
NsA:				
Noseum	Sugar maple	62	43	Eastern white pine, jack pine, red pine
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	Black cherry	---	---	
	White ash	---	---	
	Eastern hophornbeam	---	---	
	Balsam fir	---	---	
PaB:				
Padus	Sugar maple	67	43	Eastern white pine, red pine, white spruce
	White ash	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
PaC:				
Padus	Sugar maple	67	43	Eastern white pine, red pine, white spruce
	White ash	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
PaD:				
Padus	Sugar maple	67	43	Eastern white pine, red pine, white spruce
	White ash	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
PbB:				
Padwet	Sugar maple	67	43	Eastern white pine, red pine, white spruce
	White ash	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
PeB:				
Pecore	Sugar maple	68	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	72	---	
	Eastern white pine	---	---	
	American basswood	---	---	
	Red pine	---	---	
	White ash	---	---	
	Eastern hophornbeam	---	---	
	American hornbeam	---	---	
	American beech	---	---	
	White oak	---	---	
PeC:				
Pecore	Sugar maple	68	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	72	---	
	Eastern white pine	---	---	
	American basswood	---	---	
	Red pine	---	---	
	White ash	---	---	
	Eastern hophornbeam	---	---	
	American hornbeam	---	---	
	American beech	---	---	
	White oak	---	---	
PeD:				
Pecore	Sugar maple	68	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	72	---	
	Eastern white pine	---	---	
	American basswood	---	---	
	Red pine	---	---	
	White ash	---	---	
	Eastern hophornbeam	---	---	
	American hornbeam	---	---	
	American beech	---	---	
	White oak	---	---	
PnB:				
Pence	Sugar maple	59	43	Eastern white pine, red pine
	Balsam fir	---	---	
	Red maple	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	White ash	---	---	
	American basswood	---	---	
PnC:				
Pence	Sugar maple	59	43	Eastern white pine, red pine
	Balsam fir	---	---	
	Red maple	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	White ash	---	---	
	American basswood	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
PnD:				
Pence	Sugar maple	59	43	Eastern white pine, red pine
	Balsam fir	---	---	
	Red maple	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	White ash	---	---	
	American basswood	---	---	
PrB:				
Perote	Sugar maple	66	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	American basswood	---	---	
	Red pine	---	---	
	Black cherry	---	---	
PrC:				
Perote	Sugar maple	66	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	American basswood	---	---	
	Red pine	---	---	
	Black cherry	---	---	
PrD:				
Perote	Sugar maple	66	43	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	American basswood	---	---	
	Red pine	---	---	
	Black cherry	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to manage
			cu ft/ac	
PsB:				
Peshtigo	Red maple	63	43	Eastern white pine, red maple, red pine, white ash, white spruce
	Northern red oak	73	72	
	Eastern white pine	---	---	
	Sugar maple	61	43	
	American basswood	---	---	
	White ash	---	---	
	American hornbeam	---	---	
	American beech	---	---	
	Paper birch	---	---	
	Quaking aspen	---	---	
RaB:				
Rabe	Red pine	59	100	Eastern white pine, jack pine, red pine
	Red maple	---	---	
	Sugar maple	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	American beech	---	---	
	American basswood	---	---	
	Paper birch	---	---	
	White ash	---	---	
	Northern red oak	---	---	
RaC:				
Rabe	Red pine	59	100	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Black cherry	---	---	
RaD:				
Rabe	Red pine	59	100	Eastern white pine, red pine, white spruce
	Red maple	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Black cherry	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
RbA:				
Robago	Red maple	61	---	Eastern white pine, red maple, red pine, white ash, white spruce
	Sugar maple	61	43	
	Balsam fir	---	---	
	American basswood	---	---	
	White ash	---	---	
	Yellow birch	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
RcA:				
Roscommon	Quaking aspen	74	86	Black spruce, red maple, white ash, white spruce
	Balsam fir	---	---	
	Red maple	---	---	
	Eastern hemlock	---	---	
	Paper birch	---	---	
	Eastern arborvitae	---	---	
RoB:				
Rosholt	Sugar maple	65	43	Eastern white pine, red pine, white spruce
	White ash	77	72	
	Northern red oak	69	57	
	Paper birch	---	---	
	American basswood	---	---	
	Red maple	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
RoC:				
Rosholt	Sugar maple	65	43	Eastern white pine, red pine, white spruce
	White ash	77	72	
	Northern red oak	69	57	
	Paper birch	---	---	
	Red maple	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American basswood	---	---	
RoD:				
Rosholt	Sugar maple	65	43	Eastern white pine, red pine, white spruce
	White ash	77	72	
	Northern red oak	69	57	
	Paper birch	---	---	
	Red maple	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American basswood	---	---	
RsB:				
Rousseau	Red pine	56	---	Eastern white pine, jack pine, red pine
	Red maple	60	43	
	Quaking aspen	65	72	
	Balsam fir	---	---	
	Yellow birch	---	---	
	Northern red oak	---	---	
	Eastern hemlock	---	---	
	Eastern white pine	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
RsC:				
Rousseau	Red pine	56	---	Eastern white pine, jack pine, red pine
	Red maple	60	43	
	Quaking aspen	65	72	
	Balsam fir	---	---	
	Yellow birch	---	---	
	Eastern white pine	---	---	
	Northern red oak	---	---	
	Eastern hemlock	---	---	
RsD:				
Rousseau	Red pine	56	---	Eastern white pine, jack pine, red pine
	Red maple	60	43	
	Quaking aspen	65	72	
	Balsam fir	---	---	
	Yellow birch	---	---	
	Eastern white pine	---	---	
	Northern red oak	---	---	
	Eastern hemlock	---	---	
ScA:				
Scott Lake	Sugar maple	61	43	Eastern white pine, red pine, white spruce
	Northern red oak	65	57	
	Red maple	---	---	
	White ash	---	---	
	Paper birch	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American basswood	---	---	
SfB:				
Shawano	Red pine	54	---	Eastern white pine, jack pine, red pine
	Northern pin oak	62	57	
	Paper birch	---	---	
	Jack pine	---	---	
	Eastern white pine	---	---	
	Red maple	---	---	
	Quaking aspen	---	---	
SfC:				
Shawano	Red pine	54	---	Eastern white pine, jack pine, red pine
	Northern pin oak	62	57	
	Paper birch	---	---	
	Jack pine	---	---	
	Quaking aspen	---	---	
	Red maple	---	---	
	Eastern white pine	---	---	
SfD:				
Shawano	Red pine	54	---	Eastern white pine, jack pine, red pine
	Northern pin oak	62	57	
	Paper birch	---	---	
	Jack pine	---	---	
	Quaking aspen	---	---	
	Red maple	---	---	
	Eastern white pine	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
SuA:				
Sunia	Northern red oak	69	57	Eastern white pine, jack pine, red pine
	Red maple	---	---	
	Eastern white pine	---	---	
	Quaking aspen	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Paper birch	---	---	
	Red pine	---	---	
	Black cherry	---	---	
TlC:				
Tilleda	Sugar maple	71	43	Eastern white pine, red pine, white spruce
	Northern red oak	73	72	
	Red maple	---	---	
	American basswood	---	---	
	White ash	---	---	
	White oak	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American beech	---	---	
	Eastern white pine	---	---	
TlD:				
Tilleda	Sugar maple	71	43	Eastern white pine, red pine, white spruce
	Northern red oak	73	72	
	Red maple	---	---	
	Eastern white pine	---	---	
	White ash	---	---	
	White oak	---	---	
	American hornbeam	---	---	
	Eastern hophornbeam	---	---	
	American beech	---	---	
TmA:				
Tipler	Sugar maple	67	43	Eastern white pine, red pine, white spruce
	White ash	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	Eastern hemlock	---	---	
	Eastern hophornbeam	---	---	
ToB:				
Tourtillotte	Red pine	59	100	Eastern white pine, jack pine, red pine
	Red maple	---	---	
	Paper birch	---	---	
	Quaking aspen	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
	White oak	---	---	
	Northern pin oak	---	---	
	Sugar maple	---	---	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Potential productivity: Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
ToC:				
Tourtillotte	Red pine	59	86	Eastern white pine, jack pine, red pine
	Red maple	---	---	
	Paper birch	---	57	
	Quaking aspen	---	72	
	Northern pin oak	---	---	
	White oak	---	---	
	Sugar maple	---	---	
	American beech	---	---	
	American basswood	---	---	
	White ash	---	---	
	Northern red oak	---	---	
	Eastern white pine	---	---	
UdD:				
Udipsamments (earthen dam)	Jack pine	48	57	Jack pine, red pine
	Quaking aspen	---	---	
	Red maple	---	---	
	Red pine	---	---	
VsB:				
Vilas	Red pine	57	86	Eastern white pine, jack pine, red pine
	Eastern white pine	56	114	
	Balsam fir	---	---	
	Red maple	---	---	
	Yellow birch	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
	Northern red oak	---	---	
VsC:				
Vilas	Red pine	57	86	Eastern white pine, jack pine, red pine
	Eastern white pine	56	114	
	Balsam fir	---	---	
	Red maple	---	---	
	Yellow birch	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
	Northern red oak	---	---	
VsD:				
Vilas	Red pine	57	86	Eastern white pine, jack pine, red pine
	Eastern white pine	56	114	
	Balsam fir	---	---	
	Red maple	---	---	
	Yellow birch	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
	Northern red oak	---	---	
WaA:				
Wainola	Red pine	57	---	Eastern white pine, red maple, red pine, white spruce
	Paper birch	63	72	
	Red maple	72	43	
	Quaking aspen	75	86	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	Eastern white pine	---	---	
	Balsam fir	---	---	

Table 9.--Forest Land Productivity--Continued

Map symbol and component name	Common trees	Site index	Volume of wood fiber	Trees to manage
			cu ft/ac	
WkB:				
Wayka	Red maple	60	43	Eastern white pine, red maple, red pine, white ash, white spruce
	Sugar maple	---	---	
	Eastern hemlock	---	---	
	Yellow birch	---	---	
	American basswood	---	---	
	Eastern white pine	---	---	
	Balsam fir	---	---	
	Quaking aspen	---	---	
	White ash	---	---	
	Red pine	---	---	
Rock outcrop.				
WrA:				
Worcester	Red maple	55	29	Eastern white pine, red maple, red pine, white ash, white spruce
	Balsam fir	---	---	
	Sugar maple	---	---	
	Yellow birch	---	---	
	Eastern white pine	---	---	
	American basswood	---	---	
	Quaking aspen	---	---	
	Eastern hemlock	---	---	
	White ash	---	---	
WtA:				
Wormet	Red maple	55	29	Eastern white pine, red maple, red pine, white ash, white spruce
	Balsam fir	---	---	
	Sugar maple	---	---	
	Yellow birch	---	---	
	Eastern hemlock	---	---	
	White ash	---	---	
	American basswood	---	---	
	Quaking aspen	---	---	
	Eastern white pine	---	---	
WuA:				
Wurtsmith	Red pine	56	86	Eastern white pine, jack pine, red pine
	Jack pine	56	86	
	Northern pin oak	---	---	
	Quaking aspen	---	---	
	Paper birch	---	---	
	Red maple	---	---	
	Eastern white pine	---	---	

Table 10.--Forest Habitat Types

(A single habitat type under either guide represents a dominant condition where the assigned habitat type is expected to occur at least 60 percent of the time. Two habitat types, separated by a hyphen, under either guide represent a codominant condition where the combined habitat types are expected to occur at least 70 percent of the time. See text for descriptions of the habitat types listed in this table)

Map symbol and component name	Habitat type (Menominee guide*)	Habitat type (northern Wisconsin guide**)	Other vegetative communities
AfB: Aftad	AQVib(Ha)	AVb-AFVb	---
AnB: Annalake	AH-ATDH	AH-ATDH	---
AtB: Antigo	AH	AH	---
AuA: Au Gres	TMC	ArAbVC	---
CeB, CeC, CeD: Cress	AQVib	AVb	---
CmA: Crex	PMV(Q)	PArVPo	---
CrB, CrC, CrD: Cromwell	AQVib	AVb	---
CsA: Croswell	ATFD	ATFD	---
FeB, FeC, FeD: Frechette	AQVib(Ha)-AFVib	AVb-AFVb	---
FrB, FrC, FrD: Frechette	AFAd	AFAd	---
GaB, GaC, GaD: Grayling	PMV(Q)-QV	PArVPo-PArVAo	---
GyB, GyC, GyD: Grayling	QV	PArVAo	---
IgA: Ingalls	TMC	TMC	---
IsB: Iosco	TMC	ArAbVC	---
IxB, IxC:			
Ishpeming	ATM	ATM	---
Rock outcrop.			
KaB, KaC, KaD: Karlin	ATDH-ATM	ATDH-ATM	---
KeC, KeD: Kennan	AFVib-AFAd	AFVb-AFAd	---
KoC, KoD: Kennan	AH	AH	---

See footnotes at end of table.

Table 10.--Forest Habitat Types--Continued

Map symbol and component name	Habitat type (Menominee guide*)	Habitat type (northern Wisconsin guide**)	Other vegetative communities
KxB------------------ Keshena	AQVib(Ha)	AVb-AFVb	---
LaB------------------ Lablatz	TMC-ATFD	TMC-ATFD	---
LoA------------------ Loxley	---	---	Laor
LuA------------------ Lupton, Markey, and Cathro	---	---	Lnor
MaB, MaC, MaD-------- Mahtomedi	PMV(Q)-AQVib	PArVPo-AVb	---
MoC, MoD------------- Menominee	AQVib(Ha)	AVb-AFVb	---
MqB, MqC:			
Mequithy------------	ATM	ATM	---
Rock outcrop.			
MuA------------------ Minocqua	---	---	Llmin
MwB------------------ Moodig	TMC-ATDH	TMC-ATDH	---
MxB------------------ Morganlake	AQVib(Ha)	AVb-AFVb	---
MzB, MzC------------- Moshawquit	AQVib	AVb	---
NeA------------------ Neconish	ATFD	ATFD	---
NoB------------------ Neopit	AFVib-AFAd	AFvb-AFAd	---
NpB------------------ Neopit	AH	AH	---
NsA------------------ Noseum	ATDH	ATDH	---
PaB, PaC, PaD-------- Padus	ATDH	ATDH	---
PbB------------------ Padwet	ATDH	ATDH	---
PeB, PeC, PeD-------- Pecore	AQVib(Ha)	AVb-AFVb	---
PnB, PnC, PnD-------- Pence	ATM	ATM	---
PrB, PrC, PrD-------- Perote	AQVib(Ha)-AQVib	AVb-AFVb	---

See footnotes at end of table.

Table 10.--Forest Habitat Types--Continued

Map symbol and component name	Habitat type (Menominee guide*)	Habitat type (northern Wisconsin guide**)	Other vegetative communities
PsB------------------ Peshtigo	---	ATAtOn	---
RaB, RaC, RaD-------- Rabe	AQVib(Ha)-AQVib	AVb-AFVb	---
RbA------------------ Robago	TMC	TMC	---
RcA------------------ Roscommon	---	---	Lsmin
RoB, RoC, RoD-------- Rosholt	AQVib(Ha)-AQVib	AVb-AFVb	---
RsB, RsC, RsD-------- Rousseau	ATM-ATFD	ATM-ATFD	---
ScA------------------ Scott Lake	AQVib(Ha)-AFVib	AVb-AFVb	---
SfB, SfC, SfD-------- Shawano	PMV(Q)	PArVPo	---
SuA------------------ Sunia	AQVib	AVb	---
TlC, TlD------------- Tilleda	AQVib(Ha)	AVb-AFVb	---
TmA------------------ Tipler	ATDH-ATM	ATDH-ATM	---
ToB, ToC------------- Tourtillotte	AQVib	AVb	---
VsB, VsC, VsD-------- Vilas	ATM-ATFD	ATM-ATFD	---
WaA------------------ Wainola	TMC	ArAbVC	---
WkB:			
Wayka---------------	TMC	TMC	---
Rock outcrop.			
WrB------------------ Worcester	TMC	TMC	---
WtA------------------ Wormet	TMC	TMC	---
WuA------------------ Wurtsmith	PMV(Q)-QV	PArVPo-PArVAo	---

* Kotar, John, and Timothy L. Burger. 1989. Forest habitat type classification for the Menominee Indian Reservation. Department of Forestry, University of Wisconsin-Madison.

** Kotar, John, Joseph A. Kovach, and Timothy L. Burger. 2002. Field guide to forest habitat types of northern Wisconsin. 2nd edition. Department of Forest Ecology and Management, University of Wisconsin-Madison.

Table 11.--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
AfB	Aftad loam, 0 to 6 percent slopes
AnB	Annalake fine sandy loam, 0 to 6 percent slopes
AtB	Antigo silt loam, 0 to 6 percent slopes
FeB	Frechette fine sandy loam, 2 to 6 percent slopes
FrB	Frechette sandy loam, 2 to 6 percent slopes
KxB	Keshena fine sandy loam, 2 to 6 percent slopes
LaB	Lablatz sandy loam, 0 to 4 percent slopes
PaB	Padus fine sandy loam, 0 to 6 percent slopes
PbB	Padwet fine sandy loam, 0 to 6 percent slopes
PrB	Perote fine sandy loam, 2 to 6 percent slopes
PsB	Peshtigo loam, 0 to 4 percent slopes (where drained)
RbA	Robago fine sandy loam, 0 to 3 percent slopes (where drained)
RoB	Rosholt fine sandy loam, 0 to 6 percent slopes
ScA	Scott Lake fine sandy loam, 0 to 3 percent slopes
TmA	Tipler fine sandy loam, 0 to 3 percent slopes
WrA	Worcester fine sandy loam, 0 to 3 percent slopes (where drained)

Table 12a.--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. See text for further explanation of ratings in this table)

Map symbol and component name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
AfB:						
Aftad	Not limited		Not limited		Somewhat limited	
					Slope	0.12
AnB:						
Annalake	Not limited		Not limited		Somewhat limited	
					Slope	0.12
AtB:						
Antigo	Not limited		Not limited		Somewhat limited	
					Slope	0.12
AuA:						
Au Gres	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
CeB:						
Cress	Not limited		Not limited		Somewhat limited	
					Slope	0.12
CeC:						
Cress	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
CeD:						
Cress	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
CmA:						
Crex	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
CrB:						
Cromwell	Not limited		Not limited		Somewhat limited	
					Slope	0.12
CrC:						
Cromwell	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
CrD:						
Cromwell	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
CsA:						
Croswell	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
FeB:						
Frechette	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Gravel content	0.07
					Content of large stones	0.01

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
FeC:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Gravel content	0.07
					Content of large stones	0.01
FeD:						
Frechette-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.07
					Content of large stones	0.01
FrB:						
Frechette-----------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Gravel content	0.03
					Content of large stones	0.01
FrC:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Gravel content	0.03
					Content of large stones	0.01
FrD:						
Frechette-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.03
					Content of large stones	0.01
GaB:						
Grayling------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
GaC:						
Grayling------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00
GaD:						
Grayling------------	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
GyB:						
Grayling------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
GyC:						
Grayling------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
GyD:						
Grayling-----------	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
IgA:						
Ingalls------------	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
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
IsB:						
Iosco--------------	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
IxB:						
Ishpeming----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Restricted permeability	1.00
					Slope	0.50
					Depth to bedrock	0.42
					Content of large stones	0.03
Rock outcrop--------	Not rated		Not rated		Not rated	
IxC:						
Ishpeming----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Restricted permeability	1.00	Restricted permeability	1.00	Too sandy	1.00
	Slope	0.37	Slope	0.37	Restricted permeability	1.00
					Depth to bedrock	0.42
					Content of large stones	0.03
Rock outcrop--------	Not rated		Not rated		Not rated	
KaB:						
Karlin-------------	Not limited		Not limited		Somewhat limited	
					Slope	0.12
KaC:						
Karlin-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
KaD:						
Karlin-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
KeC:						
Kennan-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Content of large stones	0.20

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
KeD:						
Kennan--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.20
KoC:						
Kennan--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Content of large stones	0.11
KoD:						
Kennan--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.11
KxB:						
Keshena-------------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Gravel content	0.03
					Content of large stones	0.01
LaB:						
Lablatz-------------	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 large stones	0.01
LDF:						
Landfill------------	Not rated		Not rated		Not rated	
LoA:						
Loxley--------------	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 acid	1.00	Too acid	1.00	Too acid	1.00
LuA:						
Lupton--------------	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	Flooding	0.40	Flooding	1.00
Markey--------------	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
	Content of organic matter	1.00	Flooding	0.40	Flooding	1.00
Cathro--------------	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	Flooding	0.40	Flooding	1.00
M-W:						
Miscellaneous water	Not rated		Not rated		Not rated	

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
MaB:						
Mahtomedi-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.72	Too sandy	0.72	Too sandy	0.72
					Gravel content	0.48
					Slope	0.12
MaC:						
Mahtomedi-----------	Somewhat limited		Somewhat limited		Very limited	
	Too sandy	0.72	Too sandy	0.72	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	0.72
					Gravel content	0.48
MaD:						
Mahtomedi-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Too sandy	0.72	Too sandy	0.72	Too sandy	0.72
					Gravel content	0.48
MoC:						
Menominee-----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00
					Content of large stones	0.01
MoD:						
Menominee-----------	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
					Content of large stones	0.01
MqB:						
Mequithy------------	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Depth to bedrock	0.42
					Gravel content	0.02
					Content of large stones	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
MqC:						
Mequithy------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Depth to bedrock	0.42
					Gravel content	0.02
					Content of large stones	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
MuA:						
Minocqua------------	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	Flooding	0.40	Flooding	1.00

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
MwB:						
Moodig	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 large stones	0.11
MxB:						
Morganlake	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
	Restricted permeability	0.21	Restricted permeability	0.21	Restricted permeability	0.21
					Slope	0.12
MzB:						
Moshawquit	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.50
					Content of large stones	0.01
MzC:						
Moshawquit	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00
					Content of large stones	0.01
NeA:						
Neconish	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
NoB:						
Neopit	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Content of large stones	0.11
NpB:						
Neopit	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Content of large stones	0.11
NsA:						
Noseum	Not limited		Not limited		Not limited	
PaB:						
Padus	Not limited		Not limited		Somewhat limited	
					Slope	0.12
					Content of large stones	0.01
PaC:						
Padus	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Content of large stones	0.01

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PaD:						
Padus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.01
PbB:						
Padwet	Not limited		Not limited		Somewhat limited	
					Slope	0.12
					Gravel content	0.03
					Content of large stones	0.01
PeB:						
Pecore	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Content of large stones	0.01
PeC:						
Pecore	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Content of large stones	0.01
PeD:						
Pecore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.01
PnB:						
Pence	Not limited		Not limited		Somewhat limited	
					Slope	0.12
					Content of large stones	0.03
PnC:						
Pence	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Content of large stones	0.03
PnD:						
Pence	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.03
PrB:						
Perote	Not limited		Not limited		Somewhat limited	
					Slope	0.50
					Content of large stones	0.01
PrC:						
Perote	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.16	Slope	0.16	Slope	1.00
					Content of large stones	0.01

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
PrD:						
Perote	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Content of large stones	0.01
PsB:						
Peshtigo	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
					Gravel content	0.13
					Content of large stones	0.01
Pt:						
Pits, gravel	Not rated		Not rated		Not rated	
RaB:						
Rabe	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.50
					Content of large stones	0.01
RaC:						
Rabe	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.16	Slope	0.16	Too sandy	1.00
					Content of large stones	0.01
RaD:						
Rabe	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
					Content of large stones	0.01
RbA:						
Robago	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RcA:						
Roscommon	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	Flooding	0.40	Flooding	1.00
RoB:						
Rosholt	Not limited		Not limited		Somewhat limited	
					Slope	0.12
					Gravel content	0.04
RoC:						
Rosholt	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Gravel content	0.04

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RoD:						
Rosholt------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.04
RsB:						
Rousseau-----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
RsC:						
Rousseau-----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00
RsD:						
Rousseau-----------	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
ScA:						
Scott Lake----------	Not limited		Not limited		Somewhat limited	
					Gravel content	0.03
					Content of large stones	0.01
SfB:						
Shawano------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
SfC:						
Shawano------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00
SfD:						
Shawano------------	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
SuA:						
Sunia---------------	Not limited		Not limited		Somewhat limited	
					Gravel content	0.04
TlC:						
Tilleda-------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
					Gravel content	0.04
TlD:						
Tilleda-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
					Gravel content	0.04
TmA:						
Tipler--------------	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
ToB:						
Tourtillotte	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
ToC:						
Tourtillotte	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00
UdD:						
Udipsamments (earthen dam)	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
VsB:						
Vilas	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
					Slope	0.12
VsC:						
Vilas	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Too sandy	1.00
VsD:						
Vilas	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
W:						
Water	Not rated		Not rated		Not rated	
WaA:						
Wainola	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
WkB:						
Wayka	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 large stones	0.11
Rock outcrop	Not rated		Not rated		Not rated	
WrA:						
Worcester	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 large stones	0.01
WtA:						
Wormet	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 large stones	0.03

Table 12a.--Recreational Development--Continued

Map symbol and component name	Camp areas		Picnic areas		Playgrounds	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WuA:						
Wurtsmith-----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Too sandy	1.00

Table 12b.--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. See text for further explanation of ratings in this table)

Map symbol and component name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AfB:						
Aftad	Not limited		Not limited		Not limited	
AnB:						
Annalake	Not limited		Not limited		Not limited	
AtB:						
Antigo	Not limited		Not limited		Not limited	
AuA:						
Au Gres	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		
CeB:						
Cress	Not limited		Not limited		Somewhat limited	
					Droughty	0.59
CeC:						
Cress	Not limited		Not limited		Somewhat limited	
					Droughty	0.59
					Slope	0.37
CeD:						
Cress	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Droughty	0.59
CmA:						
Crex	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.10
CrB:						
Cromwell	Not limited		Not limited		Not limited	
CrC:						
Cromwell	Not limited		Not limited		Somewhat limited	
					Slope	0.37
CrD:						
Cromwell	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
CsA:						
Croswell	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.01
FeB:						
Frechette	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
FeC:						
Frechette-----------	Not limited		Not limited		Somewhat limited	
					Slope	0.37
					Content of large stones	0.01
FeD:						
Frechette-----------	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Content of large stones	0.01
FrB:						
Frechette-----------	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
FrC:						
Frechette-----------	Not limited		Not limited		Somewhat limited	
					Slope	0.37
					Content of large stones	0.01
FrD:						
Frechette-----------	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Content of large stones	0.01
GaB:						
Grayling------------	Very limited		Very limited		Not limited	
	Too sandy	1.00	Too sandy	1.00		
GaC:						
Grayling------------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
GaD:						
Grayling------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00				
GyB:						
Grayling------------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.08
GyC:						
Grayling------------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
					Droughty	0.08
GyD:						
Grayling------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00			Droughty	0.08
IgA:						
Ingalls-------------	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		

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
IsB:						
Iosco---------------	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		
IxB:						
Ishpeming-----------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Depth to bedrock	0.42
					Droughty	0.30
					Content of large stones	0.03
Rock outcrop--------	Not rated		Not rated		Not rated	
IxC:						
Ishpeming-----------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Depth to bedrock	0.42
					Slope	0.37
					Droughty	0.30
					Content of large stones	0.03
Rock outcrop--------	Not rated		Not rated		Not rated	
KaB:						
Karlin--------------	Not limited		Not limited		Somewhat limited	
					Droughty	0.02
KaC:						
Karlin--------------	Not limited		Not limited		Somewhat limited	
					Slope	0.37
					Droughty	0.02
KaD:						
Karlin--------------	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Droughty	0.02
KeC:						
Kennan--------------	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.37
					Content of large stones	0.20
KeD:						
Kennan--------------	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00			Content of large stones	0.20
KoC:						
Kennan--------------	Very limited		Very limited		Somewhat limited	
	Water erosion	1.00	Water erosion	1.00	Slope	0.37
					Content of large stones	0.11
KoD:						
Kennan--------------	Very limited		Very limited		Very limited	
	Water erosion	1.00	Water erosion	1.00	Slope	1.00
	Slope	1.00			Content of large stones	0.11

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
KxB:						
Keshena	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
LaB:						
Lablatz	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 large stones	0.01
LDF:						
Landfill	Not rated		Not rated		Not rated	
LoA:						
Loxley	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 acid	1.00
LuA:						
Lupton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
Markey	Very limited		Very limited		Very limited	
	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	Content of organic matter	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
Cathro	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
M-W:						
Miscellaneous water	Not rated		Not rated		Not rated	
MaB:						
Mahtomedi	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.72	Too sandy	0.72	Droughty	0.84
MaC:						
Mahtomedi	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.72	Too sandy	0.72	Droughty	0.84
					Slope	0.37
MaD:						
Mahtomedi	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Too sandy	0.72	Slope	1.00
	Too sandy	0.72			Droughty	0.84
MoC:						
Menominee	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
					Content of large stones	0.01

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
MoD:						
Menominee-----------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00			Content of large stones	0.01
MqB:						
Mequithy------------	Not limited		Not limited		Somewhat limited	
					Depth to bedrock	0.42
					Content of large stones	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
MqC:						
Mequithy------------	Not limited		Not limited		Somewhat limited	
					Depth to bedrock	0.42
					Slope	0.37
					Content of large stones	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
MuA:						
Minocqua------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
MwB:						
Moodig--------------	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 large stones	0.11
MxB:						
Morganlake----------	Very limited		Very limited		Not limited	
	Too sandy	1.00	Too sandy	1.00		
MzB:						
Moshawquit----------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Content of large stones	0.01
MzC:						
Moshawquit----------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
					Content of large stones	0.01
NeA:						
Neconish------------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.04
NoB:						
Neopit--------------	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.11

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
NpB:						
Neopit	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.11
NsA:						
Noseum	Not limited		Not limited		Not limited	
PaB:						
Padus	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
PaC:						
Padus	Not limited		Not limited		Somewhat limited	
					Slope	0.37
					Content of large stones	0.01
PaD:						
Padus	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Content of large stones	0.01
PbB:						
Padwet	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
PeB:						
Pecore	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
PeC:						
Pecore	Not limited		Not limited		Somewhat limited	
					Slope	0.37
					Content of large stones	0.01
PeD:						
Pecore	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Content of large stones	0.01
PnB:						
Pence	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.03
					Droughty	0.01
PnC:						
Pence	Not limited		Not limited		Somewhat limited	
					Slope	0.37
					Content of large stones	0.03
					Droughty	0.01

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
PnD:						
Pence---------------	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Content of large stones	0.03
					Droughty	0.01
PrB:						
Perote--------------	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
PrC:						
Perote--------------	Not limited		Not limited		Somewhat limited	
					Slope	0.16
					Content of large stones	0.01
PrD:						
Perote--------------	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
					Content of large stones	0.01
PsB:						
Peshtigo------------	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 large stones	0.01
Pt:						
Pits, gravel--------	Not rated		Not rated		Not rated	
RaB:						
Rabe----------------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Content of large stones	0.01
RaC:						
Rabe----------------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.16
					Content of large stones	0.01
RaD:						
Rabe----------------	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00			Content of large stones	0.01
RbA:						
Robago--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RcA:						
Roscommon-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RoB:						
Rosholt	Not limited		Not limited		Not limited	
RoC:						
Rosholt	Not limited		Not limited		Somewhat limited	
					Slope	0.37
RoD:						
Rosholt	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
RsB:						
Rousseau	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.19
RsC:						
Rousseau	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
					Droughty	0.19
RsD:						
Rousseau	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00			Droughty	0.19
ScA:						
Scott Lake	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
SfB:						
Shawano	Very limited		Very limited		Not limited	
	Too sandy	1.00	Too sandy	1.00		
SfC:						
Shawano	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
SfD:						
Shawano	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00				
SuA:						
Sunia	Not limited		Not limited		Not limited	
TlC:						
Tilleda	Not limited		Not limited		Somewhat limited	
					Slope	0.37
TlD:						
Tilleda	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
TmA:						
Tipler	Not limited		Not limited		Somewhat limited	
					Content of large stones	0.01
ToB:						
Tourtillotte	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.02

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
ToC:						
Tourtillotte	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
					Droughty	0.02
UdD:						
Udipsamments (earthen dam)	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00			Droughty	1.00
					Too sandy	0.50
VsB:						
Vilas	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.06
VsC:						
Vilas	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Slope	0.37
					Droughty	0.06
VsD:						
Vilas	Very limited		Very limited		Very limited	
	Too sandy	1.00	Too sandy	1.00	Slope	1.00
	Slope	1.00			Droughty	0.06
W:						
Water	Not rated		Not rated		Not rated	
WaA:						
Wainola	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		
WkB:						
Wayka	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 bedrock	0.42
					Content of large stones	0.11
Rock outcrop	Not rated		Not rated		Not rated	
WrA:						
Worcester	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 large stones	0.01
WtA:						
Wormet	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 large stones	0.03

Table 12b.--Recreational Development--Continued

Map symbol and component name	Paths and trails		Off-road motorcycle trails		Golf fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WuA:						
Wurtsmith-----------	Very limited		Very limited		Somewhat limited	
	Too sandy	1.00	Too sandy	1.00	Droughty	0.01

Table 13.--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 component name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
AfB:										
Aftad	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AnB:										
Annalake	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AtB:										
Antigo	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
AuA:										
Au Gres	Poor	Fair	Good	Good	Good	Poor	Poor	Fair	Good	Poor
CeB:										
Cress	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
CeC:										
Cress	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
CeD:										
Cress	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CmA:										
Crex	Poor	Fair	Good	Poor	Fair	Poor	Very poor	Fair	Poor	Very poor
CrB:										
Cromwell	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
CrC:										
Cromwell	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
CrD:										
Cromwell	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
CsA:										
Croswell	Poor	Fair	Fair	Fair	Fair	Poor	Very poor	Fair	Fair	Very poor
FeB:										
Frechette	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FeC:										
Frechette	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FeD:										
Frechette	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and component name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
FrB:										
Frechette	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FrC:										
Frechette	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
FrD:										
Frechette	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
GaB:										
Grayling	Poor	Poor	Fair	Poor	Poor	Poor	Very poor	Poor	Poor	Very poor
GaC:										
Grayling	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
GaD:										
Grayling	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
GyB:										
Grayling	Poor	Poor	Fair	Poor	Poor	Poor	Very poor	Poor	Poor	Very poor
GyC:										
Grayling	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
GyD:										
Grayling	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
IgA:										
Ingalls	Fair	Fair	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair
IsB:										
Iosco	Fair	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Fair
IxB:										
Ishpeming	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop.										
IxC:										
Ishpeming	Poor	Fair	Fair	Good	Good	Very poor	Very poor	Fair	Good	Very poor
Rock outcrop.										
KaB:										
Karlin	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
KaC:										
Karlin	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and component name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
KaD:										
Karlin	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
KeC:										
Kennan	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
KeD:										
Kennan	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
KoC:										
Kennan	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
KoD:										
Kennan	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
KxB:										
Keshena	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LaB:										
Lablatz	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
LDF.										
Landfill										
LoA:										
Loxley	Very poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
LuA:										
Lupton	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
Markey	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
Cathro	Poor	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good
M-W.										
Miscellaneous water										
MaB:										
Mahtomedi	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Fair	Very poor
MaC:										
Mahtomedi	Poor	Fair	Fair	Poor	Fair	Very poor	Very poor	Fair	Fair	Very poor
MaD:										
Mahtomedi	Very poor	Poor	Fair	Poor	Fair	Very poor	Very poor	Poor	Fair	Very poor
MoC:										
Menominee	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MoD:										
Menominee	Poor	Poor	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and component name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
MqB:										
Mequithy	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Rock outcrop.										
MqC:										
Mequithy	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
Rock outcrop.										
MuA:										
Minocqua	Fair	Good	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair
MwB:										
Moodig	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
MxB:										
Morganlake	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
MzB:										
Moshawquit	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
MzC:										
Moshawquit	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
NeA:										
Neconish	Poor	Poor	Fair	Fair	Fair	Poor	Very poor	Poor	Fair	Very poor
NoB:										
Neopit	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
NpB:										
Neopit	Poor	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
NsA:										
Noseum	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
PaB:										
Padus	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PaC:										
Padus	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PaD:										
Padus	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
PbB:										
Padwet	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and component name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hard-wood trees	Conif-erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Open-land wild-life	Wood-land wild-life	Wetland wild-life
PeB:										
Pecore	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PeC:										
Pecore	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PeD:										
Pecore	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PnB:										
Pence	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
PnC:										
Pence	Fair	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
PnD:										
Pence	Poor	Fair	Fair	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
PrB:										
Perote	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PrC:										
Perote	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PrD:										
Perote	Good	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
PsB:										
Peshtigo	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
Pt.										
Pits, gravel										
RaB:										
Rabe	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
RaC:										
Rabe	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
RaD:										
Rabe	Poor	Fair	Good	Fair	Fair	Very poor	Very poor	Fair	Fair	Very poor
RbA:										
Robago	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
RcA:										
Roscommon	Poor	Poor	Poor	Fair	Fair	Good	Good	Poor	Fair	Good

Table 13.--Wildlife Habitat--Continued

Map symbol and component name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
RoB: Rosholt	Good	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
RoC: Rosholt	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
RoD: Rosholt	Very poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
RsB: Rousseau	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
RsC: Rousseau	Fair	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
RsD: Rousseau	Very poor	Poor	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
ScA: Scott Lake	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
SfB: Shawano	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
SfC: Shawano	Poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
SfD: Shawano	Very poor	Very poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
SuA: Sunia	Fair	Fair	Good	Good	Good	Poor	Very poor	Fair	Good	Very poor
TlC: Tilleda	Fair	Good	Good	Good	Good	Very poor	Very poor	Good	Good	Very poor
TlD: Tilleda	Poor	Fair	Good	Good	Good	Very poor	Very poor	Fair	Good	Very poor
TmA: Tipler	Fair	Good	Good	Good	Good	Poor	Very poor	Good	Good	Very poor
ToB: Tourtillotte	Poor	Poor	Fair	Fair	Fair	Very poor	Very poor	Poor	Fair	Very poor
ToC: Tourtillotte	Poor	Poor	Fair	Fair	Fair	Poor	Very poor	Poor	Fair	Very poor

Table 13.--Wildlife Habitat--Continued

Map symbol and component name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
UdD:										
Udipsamments (earthen dam)	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
VsB:										
Vilas	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
VsC:										
Vilas	Poor	Fair	Fair	Poor	Poor	Very poor	Very poor	Fair	Poor	Very poor
VsD:										
Vilas	Very poor	Poor	Fair	Poor	Poor	Very poor	Very poor	Poor	Poor	Very poor
W.										
Water										
WaA:										
Wainola	Fair	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor
WkB:										
Wayka	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
Rock outcrop.										
WrA:										
Worcester	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair
WtA:										
Wormet	Fair	Good	Good	Good	Good	Fair	Good	Good	Good	Fair
WuA:										
Wurtsmith	Poor	Poor	Fair	Fair	Good	Poor	Very poor	Poor	Good	Very poor

Table 14a.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component 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
AfB:						
Aftad	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
AnB:						
Annalake	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
AtB:						
Antigo	Not limited		Not limited		Not limited	
AuA:						
Au Gres	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
CeB:						
Cress	Not limited		Not limited		Not limited	
CeC:						
Cress	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
CeD:						
Cress	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
CmA:						
Crex	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
CrB:						
Cromwell	Not limited		Not limited		Not limited	
CrC:						
Cromwell	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
CrD:						
Cromwell	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
CsA:						
Croswell	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
FeB:						
Frechette	Not limited		Not limited		Not limited	
FeC:						
Frechette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00

Table 14a.--Building Site Development--Continued

Map symbol and component 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
FeD:						
Frechette	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
FrB:						
Frechette	Not limited		Not limited		Not limited	
FrC:						
Frechette	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
FrD:						
Frechette	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
GaB:						
Grayling	Not limited		Not limited		Not limited	
GaC:						
Grayling	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
GaD:						
Grayling	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
GyB:						
Grayling	Not limited		Not limited		Not limited	
GyC:						
Grayling	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
GyD:						
Grayling	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
IgA:						
Ingalls	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
IsB:						
Iosco	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
IxB:						
Ishpeming	Somewhat limited		Very limited		Somewhat limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to hard bedrock	0.42
Rock outcrop	Not rated		Not rated		Not rated	
IxC:						
Ishpeming	Somewhat limited		Very limited		Very limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Depth to hard bedrock	0.42
Rock outcrop	Not rated		Not rated		Not rated	

Table 14a.--Building Site Development--Continued

Map symbol and component 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
KaB:						
Karlin--------------	Not limited		Not limited		Not limited	
KaC:						
Karlin--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
KaD:						
Karlin--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
KeC:						
Kennan--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
KeD:						
Kennan--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
KoC:						
Kennan--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
KoD:						
Kennan--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
KxB:						
Keshena-------------	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
			Shrink-swell	0.50		
LaB:						
Lablatz-------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
LDF:						
Landfill------------	Not rated		Not rated		Not rated	
LoA:						
Loxley--------------	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
LuA:						
Lupton--------------	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

Table 14a.--Building Site Development--Continued

Map symbol and component name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
LuA:						
Markey	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
Cathro	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
M-W:						
Miscellaneous water	Not rated		Not rated		Not rated	
MaB:						
Mahtomedi	Not limited		Not limited		Not limited	
MaC:						
Mahtomedi	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
MaD:						
Mahtomedi	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
MoC:						
Menominee	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Shrink-swell	0.50	Slope	1.00
			Slope	0.37		
MoD:						
Menominee	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Shrink-swell	0.50		
MqB:						
Mequithy	Somewhat limited		Very limited		Somewhat limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to hard bedrock	0.42
Rock outcrop	Not rated		Not rated		Not rated	
MqC:						
Mequithy	Somewhat limited		Very limited		Very limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Slope	1.00
	Slope	0.37	Slope	0.37	Depth to hard bedrock	0.42
Rock outcrop	Not rated		Not rated		Not rated	
MuA:						
Minocqua	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

Table 14a.--Building Site Development--Continued

Map symbol and component 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
MwB:						
Moodig	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
MxB:						
Morganlake	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
			Shrink-swell	0.50		
MzB:						
Moshawquit	Not limited		Not limited		Not limited	
MzC:						
Moshawquit	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
NeA:						
Neconish	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
NoB:						
Neopit	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
NpB:						
Neopit	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
NsA:						
Noseum	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
PaB:						
Padus	Not limited		Not limited		Not limited	
PaC:						
Padus	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
PaD:						
Padus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
PbB:						
Padwet	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
PeB:						
Pecore	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
PeC:						
Pecore	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.37	Slope	0.37	Shrink-swell	0.50

Table 14a.--Building Site Development--Continued

Map symbol and component name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
PeD:						
Pecore--------------	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
PnB:						
Pence---------------	Not limited		Not limited		Not limited	
PnC:						
Pence---------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
PnD:						
Pence---------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
PrB:						
Perote--------------	Not limited		Not limited		Not limited	
PrC:						
Perote--------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.16	Slope	0.16	Slope	1.00
PrD:						
Perote--------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
PsB:						
Peshtigo------------	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	0.44	Shrink-swell	0.50
Pt:						
Pits, gravel--------	Not rated		Not rated		Not rated	
RaB:						
Rabe----------------	Not limited		Not limited		Not limited	
RaC:						
Rabe----------------	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.16	Slope	0.16	Slope	1.00
RaD:						
Rabe----------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
RbA:						
Robago--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RcA:						
Roscommon-----------	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
RoB:						
Rosholt-------------	Not limited		Not limited		Not limited	

Table 14a.--Building Site Development--Continued

Map symbol and component name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
RoC:						
Rosholt	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
RoD:						
Rosholt	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
RsB:						
Rousseau	Not limited		Not limited		Not limited	
RsC:						
Rousseau	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
RsD:						
Rousseau	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
ScA:						
Scott Lake	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
SfB:						
Shawano	Not limited		Not limited		Not limited	
SfC:						
Shawano	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
SfD:						
Shawano	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
SuA:						
Sunia	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
TlC:						
Tilleda	Somewhat limited		Somewhat limited		Very limited	
	Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
	Slope	0.37	Slope	0.37	Shrink-swell	0.50
TlD:						
Tilleda	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
TmA:						
Tipler	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		
ToB:						
Tourtillotte	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		

Table 14a.--Building Site Development--Continued

Map symbol and component name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
ToC:						
Tourtillotte	Somewhat limited		Very limited		Very limited	
	Slope	0.37	Depth to saturated zone	1.00	Slope	1.00
			Slope	0.37		
UdD:						
Udipsamments (earthen dam)	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
VsB:						
Vilas	Not limited		Not limited		Not limited	
VsC:						
Vilas	Somewhat limited		Somewhat limited		Very limited	
	Slope	0.37	Slope	0.37	Slope	1.00
VsD:						
Vilas	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
W:						
Water	Not rated		Not rated		Not rated	
WaA:						
Wainola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WkB:						
Wayka	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 hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to hard bedrock	0.42
Rock outcrop	Not rated		Not rated		Not rated	
WrA:						
Worcester	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WtA:						
Wormet	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WuA:						
Wurtsmith	Not limited		Very limited		Not limited	
			Depth to saturated zone	1.00		

Table 14b.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
AfB:						
Aftad	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Depth to saturated zone	1.00		
			Cutbanks cave	0.10		
AnB:						
Annalake	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
			Depth to saturated zone	1.00		
AtB:						
Antigo	Very limited		Very limited		Not limited	
	Frost action	1.00	Cutbanks cave	1.00		
AuA:						
Au Gres	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00		
CeB:						
Cress	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.59
CeC:						
Cress	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Droughty	0.59
			Slope	0.37	Slope	0.37
CeD:						
Cress	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.59
CmA:						
Crex	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.10
			Depth to saturated zone	1.00		
CrB:						
Cromwell	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
CrC:						
Cromwell	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37		
CrD:						
Cromwell	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00		

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
CsA:						
Croswell------------	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.01
			Depth to saturated zone	1.00		
FeB:						
Frechette-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.01
FeC:						
Frechette-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Frost action	0.50	Slope	0.37	Slope	0.37
	Slope	0.37	Cutbanks cave	0.10	Content of large stones	0.01
FeD:						
Frechette-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.01
FrB:						
Frechette-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.01
FrC:						
Frechette-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Frost action	0.50	Slope	0.37	Slope	0.37
	Slope	0.37	Cutbanks cave	0.10	Content of large stones	0.01
FrD:						
Frechette-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	0.10	Content of large stones	0.01
GaB:						
Grayling------------	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
GaC:						
Grayling------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37		
GaD:						
Grayling------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00		
GyB:						
Grayling------------	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.08
GyC:						
Grayling------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37	Droughty	0.08

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
GyD:						
Grayling	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.08
IgA:						
Ingalls	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00		
IsB:						
Iosco	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00		
IxB:						
Ishpeming	Somewhat limited		Very limited		Somewhat limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to bedrock	0.42
					Droughty	0.30
			Cutbanks cave	1.00	Content of large stones	0.03
Rock outcrop	Not rated		Not rated		Not rated	
IxC:						
Ishpeming	Somewhat limited		Very limited		Somewhat limited	
	Depth to hard bedrock	0.42	Depth to hard bedrock	1.00	Depth to bedrock	0.42
					Slope	0.37
	Slope	0.37	Cutbanks cave	1.00	Droughty	0.30
			Slope	0.37	Content of large stones	0.03
Rock outcrop	Not rated		Not rated		Not rated	
KaB:						
Karlin	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.02
KaC:						
Karlin	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37	Droughty	0.02
KaD:						
Karlin	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.02
KeC:						
Kennan	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.37
	Slope	0.37	Slope	0.37	Content of large stones	0.20
KeD:						
Kennan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.20

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
KoC:						
Kennan	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.37
	Slope	0.37	Slope	0.37	Content of large stones	0.11
KoD:						
Kennan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.11
KxB:						
Keshena	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Depth to saturated zone	1.00	Content of large stones	0.01
	Frost action	0.50	Cutbanks cave	0.10		
LaB:						
Lablatz	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10	Content of large stones	0.01
LDF:						
Landfill	Not rated		Not rated		Not rated	
LoA:						
Loxley	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00	Too acid	1.00
	Frost action	1.00	Cutbanks cave	0.10		
LuA:						
Lupton	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Subsidence	1.00	Content of organic matter	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
	Frost action	1.00	Cutbanks cave	0.10		
Markey	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Subsidence	1.00	Cutbanks cave	1.00	Content of organic matter	1.00
	Frost action	1.00	Content of organic matter	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
Cathro	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Subsidence	1.00	Content of organic matter	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
	Frost action	1.00	Cutbanks cave	0.10		

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
M-W:						
Miscellaneous water	Not rated		Not rated		Not rated	
MaB:						
Mahtomedi-----------	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.84
MaC:						
Mahtomedi-----------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Droughty	0.84
			Slope	0.37	Slope	0.37
MaD:						
Mahtomedi-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.84
MoC:						
Menominee-----------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37	Content of large stones	0.01
MoD:						
Menominee-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Content of large stones	0.01
MqB:						
Mequithy------------	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Depth to hard bedrock	0.42	Cutbanks cave	0.10	Content of large stones	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
MqC:						
Mequithy------------	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Depth to hard bedrock	1.00	Depth to bedrock	0.42
	Depth to hard bedrock	0.42	Slope	0.37	Slope	0.37
	Slope	0.37	Cutbanks cave	0.10	Content of large stones	0.01
Rock outcrop--------	Not rated		Not rated		Not rated	
MuA:						
Minocqua------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Frost action	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.80		
			Dense layer	0.50		
MwB:						
Moodig--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10	Content of large stones	0.11

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
MxB:						
Morganlake	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
			Depth to saturated zone	1.00		
MzB:						
Moshawquit	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Content of large stones	0.01
MzC:						
Moshawquit	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37	Content of large stones	0.01
NeA:						
Neconish	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.04
			Depth to saturated zone	1.00		
NoB:						
Neopit	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.11
			Depth to saturated zone	1.00		
NpB:						
Neopit	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.11
			Depth to saturated zone	1.00		
NsA:						
Noseum	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
			Depth to saturated zone	1.00		
PaB:						
Padus	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01
PaC:						
Padus	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.37
	Slope	0.37	Slope	0.37	Content of large stones	0.01
PaD:						
Padus	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PbB:						
Padwet	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01
			Depth to saturated zone	1.00		
PeB:						
Pecore	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Content of large stones	0.01
	Frost action	0.50				
PeC:						
Pecore	Somewhat limited		Very limited		Somewhat limited	
	Shrink-swell	0.50	Cutbanks cave	1.00	Slope	0.37
	Frost action	0.50	Slope	0.37	Content of large stones	0.01
	Slope	0.37				
PeD:						
Pecore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	1.00	Content of large stones	0.01
	Frost action	0.50				
PnB:						
Pence	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Content of large stones	0.03
					Droughty	0.01
PnC:						
Pence	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37	Content of large stones	0.03
					Droughty	0.01
PnD:						
Pence	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Content of large stones	0.03
					Droughty	0.01
PrB:						
Perote	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01
PrC:						
Perote	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.16
	Slope	0.16	Slope	0.16	Content of large stones	0.01
PrD:						
Perote	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
PsB:						
Peshtigo------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10	Content of large stones	0.01
	Shrink-swell	0.50				
Pt:						
Pits, gravel--------	Not rated		Not rated		Not rated	
RaB:						
Rabe----------------	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Content of large stones	0.01
RaC:						
Rabe----------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.16	Cutbanks cave	1.00	Slope	0.16
			Slope	0.16	Content of large stones	0.01
RaD:						
Rabe----------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Content of large stones	0.01
RbA:						
Robago--------------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	0.10		
RcA:						
Roscommon-----------	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
	Flooding	1.00	Cutbanks cave	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Flooding	0.80		
RoB:						
Rosholt-------------	Somewhat limited		Very limited		Not limited	
	Frost action	0.50	Cutbanks cave	1.00		
RoC:						
Rosholt-------------	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Slope	0.37
	Slope	0.37	Slope	0.37		
RoD:						
Rosholt-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Frost action	0.50	Cutbanks cave	1.00		
RsB:						
Rousseau------------	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.19
RsC:						
Rousseau------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37	Droughty	0.19

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets		Shallow excavations		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
RsD:						
Rousseau------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.19
ScA:						
Scott Lake----------	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01
			Depth to saturated zone	1.00		
SfB:						
Shawano-------------	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
SfC:						
Shawano-------------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37		
SfD:						
Shawano-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00		
SuA:						
Sunia---------------	Not limited		Very limited		Not limited	
			Cutbanks cave	1.00		
			Depth to saturated zone	1.00		
TlC:						
Tilleda-------------	Somewhat limited		Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Slope	0.37	Slope	0.37
	Frost action	0.50	Cutbanks cave	0.10		
	Slope	0.37				
TlD:						
Tilleda-------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Shrink-swell	0.50	Cutbanks cave	0.10		
	Frost action	0.50				
TmA:						
Tipler--------------	Somewhat limited		Very limited		Somewhat limited	
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.01
			Depth to saturated zone	1.00		
ToB:						
Tourtillotte--------	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.02
			Depth to saturated zone	1.00		
ToC:						
Tourtillotte--------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Depth to saturated zone	1.00	Droughty	0.02
			Slope	0.37		

Table 14b.--Building Site Development--Continued

Map symbol and component name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
UdD:						
Udipsamments (earthen dam)	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	1.00
					Too sandy	0.50
VsB:						
Vilas	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.06
VsC:						
Vilas	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Cutbanks cave	1.00	Slope	0.37
			Slope	0.37	Droughty	0.06
VsD:						
Vilas	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00	Droughty	0.06
W:						
Water	Not rated		Not rated		Not rated	
WaA:						
Wainola	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00		
WkB:						
Wayka	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to hard bedrock	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Depth to saturated zone	1.00	Depth to bedrock	0.42
	Depth to hard bedrock	0.42	Cutbanks cave	1.00	Content of large stones	0.11
Rock outcrop	Not rated		Not rated		Not rated	
WrA:						
Worcester	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	1.00	Cutbanks cave	1.00	Content of large stones	0.01
WtA:						
Wormet	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Frost action	0.50	Cutbanks cave	1.00	Content of large stones	0.03
WuA:						
Wurtsmith	Not limited		Very limited		Somewhat limited	
			Cutbanks cave	1.00	Droughty	0.01
			Depth to saturated zone	1.00		

Table 15a.--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. See text for further explanation of ratings in this table)

Map symbol and component name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
AfB:				
Aftad	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	0.46	Depth to saturated zone	0.19
			Slope	0.08
AnB:				
Annalake	Very limited		Very limited	
	Depth to saturated zone	1.00	Content of organic matter	1.00
	Restricted permeability	0.46	Seepage	0.53
			Depth to saturated zone	0.19
			Slope	0.08
AtB:				
Antigo	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.08
AuA:				
Au Gres	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00
CeB:				
Cress	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
CeC:				
Cress	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
CeD:				
Cress	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
CmA:				
Crex	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
CrB:				
Cromwell-----------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
CrC:				
Cromwell-----------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
CrD:				
Cromwell-----------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
CsA:				
Croswell-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00
FeB:				
Frechette----------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.32
FeC:				
Frechette----------	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
	Slope	0.37	Seepage	0.53
FeD:				
Frechette----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
FrB:				
Frechette----------	Somewhat limited		Somewhat limited	
	Restricted permeability	0.46	Seepage	0.53
			Slope	0.32
FrC:				
Frechette----------	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
	Slope	0.37	Seepage	0.53
FrD:				
Frechette----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
GaB:				
Grayling	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.08
GaC:				
Grayling	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
			Content of organic matter	1.00
GaD:				
Grayling	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
			Content of organic matter	1.00
GyB:				
Grayling	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.08
GyC:				
Grayling	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
			Content of organic matter	1.00
GyD:				
Grayling	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
			Content of organic matter	1.00
IgA:				
Ingalls	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Content of organic matter	1.00
IsB:				
Iosco	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.72	Content of organic matter	1.00

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
IxB:				
Ishpeming	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.32
Rock outcrop	Not rated		Not rated	
IxC:				
Ishpeming	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
			Content of organic matter	1.00
Rock outcrop	Not rated		Not rated	
KaB:				
Karlin	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.08
KaC:				
Karlin	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	1.00
	Slope	0.37	Content of organic matter	1.00
KaD:				
Karlin	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00	Content of organic matter	1.00
KeC:				
Kennan	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
			Content of organic matter	1.00
	Slope	0.37		
			Seepage	0.53
KeD:				
Kennan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Seepage	0.53

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
KoC:				
Kennan	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
	Slope	0.37	Content of organic matter	1.00
			Seepage	0.53
KoD:				
Kennan	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Seepage	0.53
KxB:				
Keshena	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Seepage	0.53
	Restricted permeability	1.00	Slope	0.32
			Depth to saturated zone	0.19
LaB:				
Lablatz	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Seepage	0.53
LDF:				
Landfill	Not rated		Not rated	
LoA:				
Loxley	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
LuA:				
Lupton	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
Markey	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Subsidence	1.00	Content of organic matter	1.00

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
LuA:				
Cathro	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.72	Seepage	1.00
			Content of organic matter	1.00
M-W:				
Miscellaneous water	Not rated		Not rated	
MaB:				
Mahtomedi	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08
MaC:				
Mahtomedi	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	1.00
	Slope	0.37		
MaD:				
Mahtomedi	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00		
MoC:				
Menominee	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	1.00
	Restricted permeability	0.72	Content of organic matter	1.00
	Slope	0.37		
MoD:				
Menominee	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00	Content of organic matter	1.00
	Restricted permeability	0.72		
MqB:				
Mequithy	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	0.32
Rock outcrop	Not rated		Not rated	

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
MqC:				
Mequithy	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Filtering capacity	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	1.00
	Slope	0.37		
Rock outcrop	Not rated		Not rated	
MuA:				
Minocqua	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
MwB:				
Moodig	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Seepage	1.00
			Content of organic matter	1.00
MxB:				
Morganlake	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Restricted permeability	1.00	Content of organic matter	1.00
	Filtering capacity	1.00	Depth to saturated zone	0.19
			Slope	0.08
MzB:				
Moshawquit	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Slope	0.32
MzC:				
Moshawquit	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.37	Content of organic matter	1.00
NeA:				
Neconish	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
NoB:				
Neopit--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.32
			Depth to saturated zone	0.19
NpB:				
Neopit--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.32
			Depth to saturated zone	0.19
NsA:				
Noseum--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00
PaB:				
Padus---------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Slope	0.08
PaC:				
Padus---------------	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
	Slope	0.37		
PaD:				
Padus---------------	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
			Seepage	1.00
	Slope	1.00	Content of organic matter	1.00
	Restricted permeability	0.46		
PbB:				
Padwet--------------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
			Depth to saturated zone	0.19
	Filtering capacity	1.00		
			Slope	0.08
	Restricted permeability	0.46		

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
PeB:				
Pecore	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Slope	0.32
PeC:				
Pecore	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.37	Content of organic matter	1.00
PeD:				
Pecore	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
PnB:				
Pence	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.08
PnC:				
Pence	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
			Content of organic matter	1.00
PnD:				
Pence	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
			Content of organic matter	1.00
PrB:				
Perote	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Slope	0.32
PrC:				
Perote	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.16	Content of organic matter	1.00

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
PrD:				
Perote	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
PsB:				
Peshtigo	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	1.00	Seepage	0.53
Pt:				
Pits, gravel	Not rated		Not rated	
RaB:				
Rabe	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Slope	0.32
RaC:				
Rabe	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Restricted permeability	0.46	Slope	1.00
	Slope	0.16	Content of organic matter	1.00
RaD:				
Rabe	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
RbA:				
Robago	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Seepage	0.53
RcA:				
Roscommon	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00
RoB:				
Rosholt	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Slope	0.08

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields: Rating class and limiting features	Septic tank absorption fields: Value	Sewage lagoons: Rating class and limiting features	Sewage lagoons: Value
RoC:				
Rosholt	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
RoD:				
Rosholt	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
RsB:				
Rousseau	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.08
RsC:				
Rousseau	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
			Content of organic matter	1.00
RsD:				
Rousseau	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
			Content of organic matter	1.00
ScA:				
Scott Lake	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46		
SfB:				
Shawano	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.08
SfC:				
Shawano	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
			Content of organic matter	1.00
SfD:				
Shawano	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
			Content of organic matter	1.00

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields: Rating class and limiting features	Septic tank absorption fields: Value	Sewage lagoons: Rating class and limiting features	Sewage lagoons: Value
SuA:				
Sunia	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
TlC:				
Tilleda	Somewhat limited		Very limited	
	Restricted permeability	0.46	Slope	1.00
	Slope	0.37	Seepage	0.53
TlD:				
Tilleda	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Restricted permeability	0.46	Seepage	0.53
TmA:				
Tipler	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
ToB:				
Tourtillotte	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Content of organic matter	1.00
	Restricted permeability	1.00	Depth to saturated zone	0.19
			Slope	0.08
ToC:				
Tourtillotte	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Slope	1.00
	Restricted permeability	1.00	Content of organic matter	1.00
	Slope	0.37	Depth to saturated zone	0.19
UdD:				
Udipsamments (earthen dam)	Very limited		Very limited	
	Slope	1.00	Slope	1.00
VsB:				
Vilas	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
			Content of organic matter	1.00
			Slope	0.08

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
VsC:				
Vilas	Very limited		Very limited	
	Filtering capacity	1.00	Seepage	1.00
	Slope	0.37	Slope	1.00
			Content of organic matter	1.00
VsD:				
Vilas	Very limited		Very limited	
	Filtering capacity	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
			Content of organic matter	1.00
W:				
Water	Not rated		Not rated	
WaA:				
Wainola	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00
WkB:				
Wayka	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
			Seepage	0.53
Rock outcrop	Not rated		Not rated	
WrA:				
Worcester	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
	Restricted permeability	0.46	Content of organic matter	1.00
WtA:				
Wormet	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00

Table 15a.--Sanitary Facilities--Continued

Map symbol and component name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
WuA:				
Wurtsmith-----------	Very limited		Very limited	
	Depth to saturated zone	1.00	Seepage	1.00
	Filtering capacity	1.00	Depth to saturated zone	1.00
			Content of organic matter	1.00

Table 15b.--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. See text for further explanation of ratings in this table)

Map symbol and component 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
AfB:						
Aftad	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
AnB:						
Annalake	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
AtB:						
Antigo	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
AuA:						
Au Gres	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
CeB:						
Cress	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	0.57
CeC:						
Cress	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Gravel content	0.57
					Slope	0.37
CeD:						
Cress	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	0.57
CmA:						
Crex	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				
CrB:						
Cromwell	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 15b.--Sanitary Facilities--Continued

Map symbol and component name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
CrC:						
Cromwell------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
CrD:						
Cromwell------------	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
CsA:						
Croswell------------	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
FeB:						
Frechette-----------	Not limited		Not limited		Not limited	
FeC:						
Frechette-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37	Slope	0.37
FeD:						
Frechette-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
FrB:						
Frechette-----------	Not limited		Not limited		Not limited	
FrC:						
Frechette-----------	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37	Slope	0.37
FrD:						
Frechette-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
GaB:						
Grayling------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
GaC:						
Grayling------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
GaD:						
Grayling------------	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
GyB:						
Grayling------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 15b.--Sanitary Facilities--Continued

Map symbol and component name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
GyC:						
Grayling	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
GyD:						
Grayling	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
IgA:						
Ingalls	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		
IsB:						
Iosco	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	0.50	Seepage	1.00	Seepage	1.00
					Too sandy	0.50
IxB:						
Ishpeming	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
	Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
Rock outcrop	Not rated		Not rated		Not rated	
IxC:						
Ishpeming	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
	Seepage	1.00	Depth to bedrock	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
Rock outcrop	Not rated		Not rated		Not rated	
KaB:						
Karlin	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
KaC:						
Karlin	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
KaD:						
Karlin	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 15b.--Sanitary Facilities--Continued

Map symbol and component name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
KeC:						
Kennan	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.37	Slope	0.37
	Slope	0.37				
KeD:						
Kennan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00				
KoC:						
Kennan	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.37	Slope	0.37
	Slope	0.37				
KoD:						
Kennan	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00				
KxB:						
Keshena	Somewhat limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
LaB:						
Lablatz	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
LDF:						
Landfill	Not rated		Not rated		Not rated	
LoA:						
Loxley	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
	Too acid	1.00			Too acid	1.00
	Seepage	1.00			Seepage	0.16
LuA:						
Lupton	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	Content of organic matter	1.00
	Content of organic matter	1.00	Seepage	1.00	Seepage	0.16
	Seepage	1.00				
Markey	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				

Table 15b.--Sanitary Facilities--Continued

Map symbol and component 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
LuA:						
Cathro--------------	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	Content of organic matter	1.00
	Content of organic matter	1.00	Seepage	1.00	Seepage	0.16
M-W:						
Miscellaneous water	Not rated		Not rated		Not rated	
MaB:						
Mahtomedi-----------	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	0.09
MaC:						
Mahtomedi-----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
					Gravel content	0.09
MaD:						
Mahtomedi-----------	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	0.09
MoC:						
Menominee-----------	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.37	Seepage	1.00	Slope	0.37
			Slope	0.37		
MoD:						
Menominee-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Seepage	1.00		
MqB:						
Mequithy------------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
			Seepage	1.00		
Rock outcrop--------	Not rated		Not rated		Not rated	
MqC:						
Mequithy------------	Very limited		Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slope	0.37	Seepage	1.00	Slope	0.37
			Slope	0.37		
Rock outcrop--------	Not rated		Not rated		Not rated	

Table 15b.--Sanitary Facilities--Continued

Map symbol and component 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
MuA:						
Minocqua------------	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				
MwB:						
Moodig--------------	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				
MxB:						
Morganlake----------	Somewhat limited		Very limited		Somewhat limited	
	Depth to saturated zone	0.86	Seepage	1.00	Depth to saturated zone	0.47
			Depth to saturated zone	0.19		
MzB:						
Moshawquit----------	Very limited		Very limited		Not limited	
	Seepage	1.00	Seepage	1.00		
MzC:						
Moshawquit----------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Slope	0.37
	Slope	0.37	Slope	0.37		
NeA:						
Neconish------------	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
NoB:						
Neopit--------------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.47
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Seepage	0.22
NpB:						
Neopit--------------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Seepage	1.00	Depth to saturated zone	0.47
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Seepage	0.22
NsA:						
Noseum--------------	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 0.47
PaB:						
Padus---------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00

Table 15b.--Sanitary Facilities--Continued

Map symbol and component 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
PaC:						
Padus	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
PaD:						
Padus	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
PbB:						
Padwet	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Depth to saturated zone	0.19	Seepage	1.00
	Depth to saturated zone	0.86			Depth to saturated zone	0.47
PeB:						
Pecore	Very limited		Not limited		Somewhat limited	
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
PeC:						
Pecore	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.37	Too clayey	0.50
	Too clayey	0.50			Slope	0.37
	Slope	0.37				
PeD:						
Pecore	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00			Too clayey	0.50
	Too clayey	0.50				
PnB:						
Pence	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	0.06
PnC:						
Pence	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
					Gravel content	0.06
PnD:						
Pence	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	0.06
PrB:						
Perote	Very limited		Not limited		Not limited	
	Seepage	1.00				

Table 15b.--Sanitary Facilities--Continued

Map symbol and component name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
PrC:						
Perote	Very limited		Somewhat limited		Somewhat limited	
	Seepage	1.00	Slope	0.16	Slope	0.16
	Slope	0.16				
PrD:						
Perote	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Seepage	1.00				
PsB:						
Peshtigo	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
Pt:						
Pits, gravel	Not rated		Not rated		Not rated	
RaB:						
Rabe	Not limited		Very limited		Not limited	
			Seepage	1.00		
RaC:						
Rabe	Somewhat limited		Very limited		Somewhat limited	
	Slope	0.16	Seepage	1.00	Slope	0.16
			Slope	0.16		
RaD:						
Rabe	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
			Seepage	1.00		
RbA:						
Robago	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
RcA:						
Roscommon	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				
RoB:						
Rosholt	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	0.01
RoC:						
Rosholt	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
					Gravel content	0.01

Table 15b.--Sanitary Facilities--Continued

Map symbol and component name	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
RoD:						
Rosholt	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	0.01
RsB:						
Rousseau	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
RsC:						
Rousseau	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
RsD:						
Rousseau	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
ScA:						
Scott Lake	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
					Gravel content	0.01
SfB:						
Shawano	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
SfC:						
Shawano	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
SfD:						
Shawano	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
SuA:						
Sunia	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
TlC:						
Tilleda	Somewhat limited		Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37	Slope	0.37

Table 15b.--Sanitary Facilities--Continued

Map symbol and component 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
TlD:						
Tilleda	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
TmA:						
Tipler	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
ToB:						
Tourtillotte	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Depth to saturated zone	0.86	Depth to saturated zone	0.19	Depth to saturated zone	0.47
ToC:						
Tourtillotte	Very limited		Very limited		Very limited	
	Too sandy	1.00	Seepage	1.00	Too sandy	1.00
	Depth to saturated zone	0.86	Slope	0.37	Depth to saturated zone	0.47
	Slope	0.37	Depth to saturated zone	0.19	Slope	0.37
UdD:						
Udipsamments (earthen dam)	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
VsB:						
Vilas	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00			Seepage	1.00
VsC:						
Vilas	Very limited		Very limited		Very limited	
	Seepage	1.00	Seepage	1.00	Too sandy	1.00
	Too sandy	1.00	Slope	0.37	Seepage	1.00
	Slope	0.37			Slope	0.37
VsD:						
Vilas	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
W:						
Water	Not rated		Not rated		Not rated	
WaA:						
Wainola	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	Seepage	1.00
	Too sandy	0.50			Too sandy	0.50

Table 15b.--Sanitary Facilities--Continued

Map symbol and component 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
WkB:						
Wayka	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to bedrock	1.00
	Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to saturated zone	1.00
Rock outcrop	Not rated		Not rated		Not rated	
WrA:						
Worcester	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
					Gravel content	0.01
WtA:						
Wormet	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
WuA:						
Wurtsmith	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

Table 16a.--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 larger the value, the greater the likelihood that the soil is a source of gravel or sand. See text for further explanation of ratings in this table)

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
AfB:				
Aftad	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.02
AnB:				
Annalake	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
AtB:				
Antigo	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.15	Bottom layer	0.50
AuA:				
Au Gres	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.10
	Thickest layer	0.00	Bottom layer	0.72
CeB:				
Cress	Possible		Fair	
	Bottom layer	0.31	Thickest layer	0.10
	Thickest layer	0.31	Bottom layer	0.50
CeC:				
Cress	Possible		Fair	
	Bottom layer	0.31	Thickest layer	0.10
	Thickest layer	0.31	Bottom layer	0.50
CeD:				
Cress	Possible		Fair	
	Bottom layer	0.31	Thickest layer	0.10
	Thickest layer	0.31	Bottom layer	0.50
CmA:				
Crex	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.26
	Thickest layer	0.00	Bottom layer	0.34
CrB:				
Cromwell	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.72
CrC:				
Cromwell	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.72
CrD:				
Cromwell	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.72

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
CsA:				
Croswell	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.64
	Thickest layer	0.00	Thickest layer	0.64
FeB:				
Frechette	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.03
FeC:				
Frechette	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.03
FeD:				
Frechette	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.03
FrB:				
Frechette	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.03
FrC:				
Frechette	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.03
FrD:				
Frechette	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.03
GaB:				
Grayling	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.79
	Thickest layer	0.00	Bottom layer	0.82
GaC:				
Grayling	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.79
	Thickest layer	0.00	Bottom layer	0.82
GaD:				
Grayling	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.79
	Thickest layer	0.00	Bottom layer	0.82
GyB:				
Grayling	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
GyC:				
Grayling	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
GyD:				
Grayling------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
IgA:				
Ingalls-------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.28
IsB:				
Iosco---------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.10
IxB:				
Ishpeming-----------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.30
	Thickest layer	0.00	Thickest layer	0.30
Rock outcrop--------	Not rated		Not rated	
IxC:				
Ishpeming-----------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.30
	Thickest layer	0.00	Thickest layer	0.30
Rock outcrop--------	Not rated		Not rated	
KaB:				
Karlin--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.34
	Thickest layer	0.00	Bottom layer	0.64
KaC:				
Karlin--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.34
	Thickest layer	0.00	Bottom layer	0.64
KaD:				
Karlin--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.34
	Thickest layer	0.00	Bottom layer	0.64
KeC:				
Kennan--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.10
KeD:				
Kennan--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.10
KoC:				
Kennan--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.10
KoD:				
Kennan--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.10

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
KxB:				
Keshena	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
LaB:				
Lablatz	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.03
LDF:				
Landfill	Not rated		Not rated	
LoA:				
Loxley	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
LuA:				
Lupton	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Markey	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.64
Cathro	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
M-W:				
Miscellaneous water	Not rated		Not rated	
MaB:				
Mahtomedi	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.36
	Thickest layer	0.00	Bottom layer	0.50
MaC:				
Mahtomedi	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.36
	Thickest layer	0.00	Bottom layer	0.50
MaD:				
Mahtomedi	Improbable		Fair	
	Thickest layer	0.00	Thickest layer	0.36
	Bottom layer	0.00	Bottom layer	0.50
MoC:				
Menominee	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MoD:				
Menominee	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
MqB:				
Mequithy------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.04
Rock outcrop--------	Not rated		Not rated	
MqC:				
Mequithy------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.04
Rock outcrop--------	Not rated		Not rated	
MuA:				
Minocqua------------	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.15	Bottom layer	0.50
MwB:				
Moodig--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.03
MxB:				
Morganlake----------	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
MzB:				
Moshawquit----------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.40
	Thickest layer	0.00	Bottom layer	0.86
MzC:				
Moshawquit----------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.40
	Thickest layer	0.00	Bottom layer	0.86
NeA:				
Neconish------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.26
	Thickest layer	0.00	Bottom layer	0.36
NoB:				
Neopit--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.10
NpB:				
Neopit--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.02
	Thickest layer	0.00	Bottom layer	0.10
NsA:				
Noseum--------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.28
	Thickest layer	0.00	Bottom layer	0.40
PaB:				
Padus---------------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel: Rating class	Value	Potential as source of sand: Rating class	Value
PaC:				
Padus	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50
PaD:				
Padus	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50
PbB:				
Padwet	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.03
	Bottom layer	0.15	Bottom layer	0.50
PeB:				
Pecore	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50
PeC:				
Pecore	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50
PeD:				
Pecore	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50
PnB:				
Pence	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.58
PnC:				
Pence	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.58
PnD:				
Pence	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.58
PrB:				
Perote	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50
PrC:				
Perote	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50
PrD:				
Perote	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.50

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
PsB:				
Peshtigo------------	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
Pt:				
Pits, gravel--------	Not rated		Not rated	
RaB:				
Rabe----------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.03
	Thickest layer	0.00	Thickest layer	0.41
RaC:				
Rabe----------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.03
	Thickest layer	0.00	Thickest layer	0.41
RaD:				
Rabe----------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.03
	Thickest layer	0.00	Thickest layer	0.41
RbA:				
Robago--------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.04
RcA:				
Roscommon-----------	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.00
	Thickest layer	0.00	Bottom layer	0.89
RoB:				
Rosholt-------------	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.02
	Bottom layer	0.15	Bottom layer	0.50
RoC:				
Rosholt-------------	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.02
	Bottom layer	0.15	Bottom layer	0.50
RoD:				
Rosholt-------------	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.02
	Bottom layer	0.15	Bottom layer	0.50
RsB:				
Rousseau------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.25
	Thickest layer	0.00	Thickest layer	0.25
RsC:				
Rousseau------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.25
	Thickest layer	0.00	Thickest layer	0.25
RsD:				
Rousseau------------	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.25
	Thickest layer	0.00	Thickest layer	0.25

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
ScA:				
Scott Lake	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.10
	Bottom layer	0.19	Bottom layer	0.50
SfB:				
Shawano	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.26
	Thickest layer	0.00	Bottom layer	0.36
SfC:				
Shawano	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.26
	Thickest layer	0.00	Bottom layer	0.36
SfD:				
Shawano	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.26
	Thickest layer	0.00	Bottom layer	0.36
SuA:				
Sunia	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.50
	Thickest layer	0.00	Thickest layer	0.64
TlC:				
Tilleda	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
TlD:				
Tilleda	Improbable		Poor	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.00
TmA:				
Tipler	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.00
	Bottom layer	0.15	Bottom layer	0.50
ToB:				
Tourtillotte	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.44
ToC:				
Tourtillotte	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.00
	Thickest layer	0.00	Thickest layer	0.44
UdD:				
Udipsamments (earthen dam)	Improbable		Fair	
	Bottom layer	0.00	Bottom layer	0.82
	Thickest layer	0.00	Thickest layer	0.82
VsB:				
Vilas	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.08
	Thickest layer	0.00	Bottom layer	0.89

Table 16a.--Construction Materials--Continued

Map symbol and component name	Potential as source of gravel		Potential as source of sand	
	Rating class	Value	Rating class	Value
VsC:				
Vilas	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.08
	Thickest layer	0.00	Bottom layer	0.89
VsD:				
Vilas	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.08
	Thickest layer	0.00	Bottom layer	0.89
W:				
Water	Not rated		Not rated	
WaA:				
Wainola	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.10
	Thickest layer	0.00	Bottom layer	0.25
WkB:				
Wayka	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.03
	Thickest layer	0.00	Bottom layer	0.16
Rock outcrop	Not rated		Not rated	
WrA:				
Worcester	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.04
	Bottom layer	0.15	Bottom layer	0.50
WtA:				
Wormet	Possible		Fair	
	Thickest layer	0.00	Thickest layer	0.06
	Bottom layer	0.04	Bottom layer	0.50
WuA:				
Wurtsmith	Improbable		Fair	
	Bottom layer	0.00	Thickest layer	0.82
	Thickest layer	0.00	Bottom layer	0.86

Table 16b.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component 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
AfB:						
Aftad	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.89
	Too acid	0.68	Depth to saturated zone	0.89		
	Water erosion	0.90				
AnB:						
Annalake	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.89
	Too acid	0.54	Depth to saturated zone	0.89		
AtB:						
Antigo	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.50
	Too acid	0.68				
	Water erosion	0.90				
AuA:						
Au Gres	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
	Low content of organic matter	0.12 0.12			Rock fragments	0.97
	Too acid	0.61				
	Droughty	0.99				
CeB:						
Cress	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Droughty	0.02			Rock fragments	0.00
	Low content of organic matter	0.12			Hard to reclaim	0.02
	Too acid	0.54				
CeC:						
Cress	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Droughty	0.02			Rock fragments	0.00
	Low content of organic matter	0.12			Hard to reclaim	0.02
					Slope	0.63
	Too acid	0.54				
CeD:						
Cress	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Droughty	0.02	Slope	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Rock fragments	0.00
					Hard to reclaim	0.02
	Too acid	0.54				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
CmA:						
Crex----------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00	Depth to saturated zone	0.89	Too acid	0.76
	Low content of organic matter	0.12			Depth to saturated zone	0.89
	Too acid	0.50				
	Droughty	0.70				
CrB:						
Cromwell------------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Too acid	0.98
	Too acid	0.54				
CrC:						
Cromwell------------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.63
	Too acid	0.54			Too acid	0.98
CrD:						
Cromwell------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00	Too acid	0.98
	Too acid	0.54				
CsA:						
Croswell------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Low content of organic matter	0.12			Rock fragments	0.97
	Too acid	0.50			Too acid	0.99
	Droughty	0.92				
FeB:						
Frechette-----------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.94
	Too acid	0.68				
	Carbonate content	0.92				
FeC:						
Frechette-----------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.63
					Rock fragments	0.94
	Too acid	0.68				
	Carbonate content	0.92				
FeD:						
Frechette-----------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00	Rock fragments	0.94
	Too acid	0.68				
	Carbonate content	0.92				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
FrB:						
Frechette-----------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.94
	Too acid	0.68				
	Carbonate content	0.92				
FrC:						
Frechette-----------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.63
					Rock fragments	0.94
	Too acid	0.68				
	Carbonate content	0.92				
FrD:						
Frechette-----------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00	Rock fragments	0.94
	Too acid	0.68				
	Carbonate content	0.92				
GaB:						
Grayling------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.88
	Low content of organic matter	0.12			Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.88				
GaC:						
Grayling------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.63
	Low content of organic matter	0.12			Too acid	0.88
					Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.88				
GaD:						
Grayling------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Too acid	0.88
					Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.88				
GyB:						
Grayling------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Too acid	0.88
	Low content of organic matter	0.12			Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.66				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
GyC:						
Grayling------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.63
	Low content of organic matter	0.12			Too acid	0.88
					Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.66				
GyD:						
Grayling------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Too acid	0.88
					Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.66				
IgA:						
Ingalls-------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too sandy	0.00				
	Low content of organic matter	0.12	Low strength	0.00	Too sandy	0.00
	Too acid	0.54				
	Water erosion	0.90				
IsB:						
Iosco---------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too sandy	0.02				
	Low content of organic matter	0.50	Low strength	0.00	Too sandy	0.02
					Rock fragments	0.97
	Carbonate content	0.80				
	Too acid	0.84				
	Water erosion	0.99				
IxB:						
Ishpeming-----------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to bedrock	0.00	Too sandy	0.00
	Too sandy	0.00	Low strength	0.00	Depth to bedrock	0.58
	Droughty	0.01			Rock fragments	0.95
	Low content of organic matter	0.12				
	Depth to bedrock	0.58				
	Too acid	0.68				
Rock outcrop--------	Not rated		Not rated		Not rated	
IxC:						
Ishpeming-----------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to bedrock	0.00	Too sandy	0.00
	Too sandy	0.00	Low strength	0.00	Depth to bedrock	0.58
	Droughty	0.01			Slope	0.63
	Low content of organic matter	0.12			Rock fragments	0.95
	Depth to bedrock	0.58				
	Too acid	0.68				
Rock outcrop--------	Not rated		Not rated		Not rated	

Table 16b.--Construction Materials--Continued

Map symbol and component 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
KaB:						
Karlin	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.61				
KaC:						
Karlin	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Slope	0.63
					Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.61				
KaD:						
Karlin	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Low content of organic matter	0.12	Slope	0.00	Too sandy	0.00
					Rock fragments	0.97
	Too acid	0.50				
	Droughty	0.61				
KeC:						
Kennan	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.28
					Slope	0.63
	Too acid	0.88			Hard to reclaim	0.68
	Water erosion	0.99				
KeD:						
Kennan	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00	Rock fragments	0.28
	Too acid	0.88			Hard to reclaim	0.68
	Water erosion	0.99				
KoC:						
Kennan	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.28
					Slope	0.63
	Too acid	0.88			Hard to reclaim	0.68
	Water erosion	0.99				
KoD:						
Kennan	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00	Rock fragments	0.28
	Too acid	0.88			Hard to reclaim	0.68
	Water erosion	0.99				
KxB:						
Keshena	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Depth to saturated zone	0.89
			Depth to saturated zone	0.89	Rock fragments	0.97
	Too acid	0.88				
	Carbonate content	0.92	Shrink-swell	0.95		

Table 16b.--Construction Materials--Continued

Map symbol and component 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
LaB:						
Lablatz	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.32	Low strength	0.00	Too acid	0.88
	Carbonate content	0.92			Rock fragments	0.97
LDF:						
Landfill	Not rated		Not rated		Not rated	
LoA:						
Loxley	Fair		Poor		Poor	
	Too acid	0.50	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
					Too acid	0.00
LuA:						
Lupton	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
			Low strength	0.00	Content of organic matter	0.00
Markey	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.12	Low strength	0.00	Content of organic matter	0.00
Cathro	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.97	Low strength	0.00	Content of organic matter	0.00
M-W:						
Miscellaneous water	Not rated		Not rated		Not rated	
MaB:						
Mahtomedi	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Rock fragments	0.00
	Droughty	0.08			Hard to reclaim	0.82
	Low content of organic matter	0.12				
	Too acid	0.84				
MaC:						
Mahtomedi	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Rock fragments	0.00
	Droughty	0.08			Slope	0.63
	Low content of organic matter	0.12			Hard to reclaim	0.82
	Too acid	0.84				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
MaD:						
Mahtomedi-----------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Droughty	0.08			Rock fragments	0.00
	Low content of organic matter	0.12			Hard to reclaim	0.82
	Too acid	0.84				
MoC:						
Menominee-----------	Poor		Poor		Poor	
	Wind erosion	0.00	Low strength	0.00	Too sandy	0.00
	Too sandy	0.00	Shrink-swell	0.99	Slope	0.63
	Low content of organic matter	0.12				
	Too acid	0.32				
	Carbonate content	0.68				
MoD:						
Menominee-----------	Poor		Poor		Poor	
	Wind erosion	0.00	Low strength	0.00	Slope	0.00
	Too sandy	0.00	Slope	0.00	Too sandy	0.00
	Low content of organic matter	0.12	Shrink-swell	0.99		
	Too acid	0.32				
	Carbonate content	0.68				
MqB:						
Mequithy------------	Fair		Poor		Fair	
	Droughty	0.39	Depth to bedrock	0.00	Depth to bedrock	0.58
	Too acid	0.54	Low strength	0.00	Rock fragments	0.98
	Depth to bedrock	0.58			Too acid	0.98
Rock outcrop--------	Not rated		Not rated		Not rated	
MqC:						
Mequithy------------	Fair		Poor		Fair	
	Droughty	0.39	Depth to bedrock	0.00	Depth to bedrock	0.58
	Too acid	0.54	Low strength	0.00	Slope	0.63
	Depth to bedrock	0.58			Rock fragments	0.98
					Too acid	0.98
Rock outcrop--------	Not rated		Not rated		Not rated	
MuA:						
Minocqua------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.50
	Water erosion	0.90			Rock fragments	0.97
	Too acid	0.97			Hard to reclaim	0.99
MwB:						
Moodig--------------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.68	Low strength	0.00	Rock fragments	0.12
					Hard to reclaim	0.68

Table 16b.--Construction Materials--Continued

Map symbol and component 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
MxB:						
Morganlake----------	Poor		Poor		Poor	
	Wind erosion	0.00	Low strength	0.00	Too sandy	0.00
	Too sandy	0.00	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Low content of organic matter	0.12				
	Too acid	0.74				
	Water erosion	0.90				
	Carbonate content	0.92				
MzB:						
Moshawquit----------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Rock fragments	0.98
	Too acid	0.68				
	Low content of organic matter	0.88				
MzC:						
Moshawquit----------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.63
	Too acid	0.68			Rock fragments	0.98
	Low content of organic matter	0.88				
NeA:						
Neconish------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Low content of organic matter	0.12			Rock fragments	0.97
	Too acid	0.54				
	Droughty	0.78				
NoB:						
Neopit--------------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.28
			Depth to saturated zone	0.89	Hard to reclaim	0.68
	Too acid	0.68			Depth to saturated zone	0.89
NpB:						
Neopit--------------	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.28
			Depth to saturated zone	0.89	Hard to reclaim	0.68
	Too acid	0.68			Depth to saturated zone	0.89
	Water erosion	0.99				
NsA:						
Noseum--------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too acid	0.68			Rock fragments	0.97
	Droughty	0.99				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
PaB:						
Padus	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.32
	Too acid	0.54			Too acid	0.98
	Droughty	0.98				
PaC:						
Padus	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.32
	Too acid	0.54			Slope	0.63
	Droughty	0.98			Too acid	0.98
PaD:						
Padus	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
	Too acid	0.54	Slope	0.00	Hard to reclaim	0.32
	Droughty	0.98			Too acid	0.98
PbB:						
Padwet	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.32
	Too acid	0.54	Depth to saturated zone	0.89	Depth to saturated zone	0.89
					Rock fragments	0.97
					Too acid	0.98
PeB:						
Pecore	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.97
	Too acid	0.68	Shrink-swell	0.97		
	Carbonate content	0.92				
PeC:						
Pecore	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.63
	Too acid	0.68	Shrink-swell	0.97	Rock fragments	0.97
	Carbonate content	0.92				
PeD:						
Pecore	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
	Too acid	0.68	Slope	0.00	Rock fragments	0.97
	Carbonate content	0.92	Shrink-swell	0.97		
PnB:						
Pence	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Rock fragments	0.00
	Too acid	0.54			Hard to reclaim	0.50
	Droughty	0.73				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
PnC:						
Pence	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Rock fragments	0.00
	Too acid	0.54			Hard to reclaim	0.50
	Droughty	0.73			Slope	0.63
PnD:						
Pence	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Low content of organic matter	0.12	Slope	0.00	Too sandy	0.00
	Too acid	0.54			Rock fragments	0.00
	Droughty	0.73			Hard to reclaim	0.50
PrB:						
Perote	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.94
	Too acid	0.68				
	Carbonate content	0.92				
PrC:						
Perote	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.84
	Too acid	0.68			Rock fragments	0.94
	Carbonate content	0.92				
PrD:						
Perote	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
	Too acid	0.68	Slope	0.00	Rock fragments	0.94
	Carbonate content	0.92				
PsB:						
Peshtigo	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.68	Low strength	0.00	Rock fragments	0.90
	Carbonate content	0.92	Shrink-swell	0.89		
Pt:						
Pits, gravel	Not rated		Not rated		Not rated	
RaB:						
Rabe	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Rock fragments	0.95
	Too acid	0.68				
	Low content of organic matter	0.88				
	Carbonate content	0.92				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
RaC:						
Rabe	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.84
	Too acid	0.68			Rock fragments	0.95
	Low content of organic matter	0.88				
	Carbonate content	0.92				
RaD:						
Rabe	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Too acid	0.68			Rock fragments	0.95
	Low content of organic matter	0.88				
	Carbonate content	0.92				
RbA:						
Robago	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.50	Low strength	0.00	Rock fragments	0.97
RcA:						
Roscommon	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	0.97	Low strength	0.00		
RoB:						
Rosholt	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.12
					Hard to reclaim	0.50
	Too acid	0.68				
	Droughty	0.76				
RoC:						
Rosholt	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Rock fragments	0.12
					Hard to reclaim	0.50
	Too acid	0.68			Slope	0.63
	Droughty	0.76				
RoD:						
Rosholt	Fair		Poor		Poor	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.00
			Slope	0.00	Rock fragments	0.12
	Too acid	0.68			Hard to reclaim	0.50
	Droughty	0.76				
RsB:						
Rousseau	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00				
	Too acid	0.54				
	Droughty	0.60				
	Low content of organic matter	0.92				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
RsC:						
Rousseau------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.63
	Too acid	0.54				
	Droughty	0.60				
	Low content of organic matter	0.92				
RsD:						
Rousseau------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Too acid	0.54				
	Droughty	0.60				
	Low content of organic matter	0.92				
ScA:						
Scott Lake----------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12	Depth to saturated zone	0.89	Rock fragments	0.12
					Hard to reclaim	0.18
	Too acid	0.68			Depth to saturated zone	0.89
	Droughty	0.91				
SfB:						
Shawano-------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00				
	Low content of organic matter	0.12				
	Too acid	0.84				
	Droughty	0.98				
SfC:						
Shawano-------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.63
	Low content of organic matter	0.12				
	Too acid	0.84				
	Droughty	0.98				
SfD:						
Shawano-------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Low content of organic matter	0.12				
	Too acid	0.84				
	Droughty	0.98				
SuA:						
Sunia---------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12	Depth to saturated zone	0.89	Rock fragments	0.68
					Depth to saturated zone	0.89
	Too acid	0.54				
	Droughty	0.84				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
TlC:						
Tilleda	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Slope	0.63
	Too acid	0.97	Shrink-swell	0.87	Rock fragments	0.97
TlD:						
Tilleda	Fair		Poor		Poor	
	Low content of organic matter	0.88	Low strength	0.00	Slope	0.00
	Too acid	0.97	Slope	0.00	Rock fragments	0.97
			Shrink-swell	0.87		
TmA:						
Tipler	Fair		Poor		Fair	
	Low content of organic matter	0.12	Low strength	0.00	Hard to reclaim	0.50
	Too acid	0.54	Depth to saturated zone	0.89	Depth to saturated zone	0.89
					Rock fragments	0.97
					Too acid	0.98
ToB:						
Tourtillotte	Poor		Poor		Fair	
	Wind erosion	0.00	Low strength	0.00	Too sandy	0.19
	Low content of organic matter	0.12	Depth to saturated zone	0.89	Depth to saturated zone	0.89
	Too sandy	0.19			Rock fragments	0.97
	Too acid	0.54			Too acid	0.98
ToC:						
Tourtillotte	Poor		Poor		Fair	
	Wind erosion	0.00	Low strength	0.00	Too sandy	0.19
	Low content of organic matter	0.12	Depth to saturated zone	0.89	Slope	0.63
	Too sandy	0.19			Depth to saturated zone	0.89
	Too acid	0.54			Rock fragments	0.97
					Too acid	0.98
UdD:						
Udipsamments (earthen dam)	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Droughty	0.00			Too acid	0.88
	Low content of organic matter	0.12				
	Too acid	0.50				
VsB:						
Vilas	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Rock fragments	0.97
	Low content of organic matter	0.12				
	Too acid	0.68				
	Droughty	0.78				

Table 16b.--Construction Materials--Continued

Map symbol and component 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
VsC:						
Vilas---------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00			Slope	0.63
	Low content of organic matter	0.12			Rock fragments	0.97
	Too acid	0.68				
	Droughty	0.78				
VsD:						
Vilas---------------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Slope	0.00
	Wind erosion	0.00	Slope	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Rock fragments	0.97
	Too acid	0.68				
	Droughty	0.78				
W:						
Water---------------	Not rated		Not rated		Not rated	
WaA:						
Wainola-------------	Poor		Poor		Poor	
	Wind erosion	0.00	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Low content of organic matter	0.12			Rock fragments	0.97
		0.12				
	Too acid	0.54				
	Droughty	0.95				
WkB:						
Wayka---------------	Fair		Poor		Poor	
	Too acid	0.50	Depth to bedrock	0.00	Depth to saturated zone	0.00
	Depth to bedrock	0.58	Depth to saturated zone	0.00	Depth to bedrock	0.58
	Droughty	0.63	Low strength	0.00	Rock fragments	0.88
	Low content of organic matter	0.88			Too acid	0.98
Rock outcrop--------	Not rated		Not rated		Not rated	
WrA:						
Worcester-----------	Fair		Poor		Poor	
	Low content of organic matter	0.12	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Too acid	0.54	Low strength	0.00	Rock fragments	0.12
					Hard to reclaim	0.50
WtA:						
Wormet--------------	Fair		Poor		Poor	
	Too sandy	0.02	Depth to saturated zone	0.00	Depth to saturated zone	0.00
	Low content of organic matter	0.12	Low strength	0.00	Too sandy	0.02
	Too acid	0.54			Rock fragments	0.12
					Hard to reclaim	0.82
					Too acid	0.98

Table 16b.--Construction Materials--Continued

Map symbol and component 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
WuA:						
Wurtsmith-----------	Poor		Poor		Poor	
	Too sandy	0.00	Low strength	0.00	Too sandy	0.00
	Wind erosion	0.00	Depth to saturated zone	0.89	Too acid	0.76
	Low content of organic matter	0.12			Depth to saturated zone	0.89
	Too acid	0.20				
	Droughty	0.89				

Table 17.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and component 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
AfB:						
Aftad	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Piping	1.00	Depth to water	1.00
			Depth to saturated zone	0.86		
			Seepage	0.02		
AnB:						
Annalake	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Piping	1.00	Depth to water	1.00
			Depth to saturated zone	0.86		
AtB:						
Antigo	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
AuA:						
Au Gres	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.72		
CeB:						
Cress	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
CeC:						
Cress	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.01				
CeD:						
Cress	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.28				
CmA:						
Crex	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to water	0.06
			Seepage	0.34		
CrB:						
Cromwell	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
CrC:						
Cromwell	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
	Slope	0.01				
CrD:						
Cromwell	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
	Slope	0.28				

Table 17.--Water Management--Continued

Map symbol and component 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
CsA:						
Croswell------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to water	0.06
			Seepage	0.64		
FeB:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.03	Depth to water	1.00
FeC:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.03	Depth to water	1.00
	Slope	0.01				
FeD:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.03	Depth to water	1.00
	Slope	0.28				
FrB:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.03	Depth to water	1.00
FrC:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.03	Depth to water	1.00
	Slope	0.01				
FrD:						
Frechette-----------	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.72	Seepage	0.03	Depth to water	1.00
	Slope	0.28				
GaB:						
Grayling------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
GaC:						
Grayling------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
	Slope	0.01				
GaD:						
Grayling------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
	Slope	0.28				
GyB:						
Grayling------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
GyC:						
Grayling------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
	Slope	0.01				
GyD:						
Grayling------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
	Slope	0.28				

Table 17.--Water Management--Continued

Map symbol and component 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
IgA:						
Ingalls	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.28		
IsB:						
Iosco	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.10		
IxB:						
Ishpeming	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.85	Depth to water	1.00
	Depth to bedrock	0.85	Seepage	0.30		
Rock outcrop	Not rated		Not rated		Not rated	
IxC:						
Ishpeming	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.85	Depth to water	1.00
	Depth to bedrock	0.85	Seepage	0.30		
	Slope	0.01				
Rock outcrop	Not rated		Not rated		Not rated	
KaB:						
Karlin	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.64	Depth to water	1.00
KaC:						
Karlin	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.64	Depth to water	1.00
	Slope	0.01				
KaD:						
Karlin	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.64	Depth to water	1.00
	Slope	0.28				
KeC:						
Kennan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.10	Depth to water	1.00
	Slope	0.01				
KeD:						
Kennan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.10	Depth to water	1.00
	Slope	0.28				
KoC:						
Kennan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.10	Depth to water	1.00
	Slope	0.01				
KoD:						
Kennan	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.10	Depth to water	1.00
	Slope	0.28				

Table 17.--Water Management--Continued

Map symbol and component 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
KxB:						
Keshena	Somewhat limited		Somewhat limited		Very limited	
	Seepage	0.54	Depth to saturated zone	0.86	Depth to water	1.00
LaB:						
Lablatz	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Seepage	0.03		
LDF:						
Landfill	Not rated		Not rated		Not rated	
LoA:						
Loxley	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
			Piping	1.00		
LuA:						
Lupton	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
			Piping	1.00		
Markey	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Piping	1.00		
			Seepage	0.64		
Cathro	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Content of organic matter	1.00	Cutbanks cave	0.10
			Depth to saturated zone	1.00		
			Piping	1.00		
M-W:						
Miscellaneous water	Not rated		Not rated		Not rated	
MaB:						
Mahtomedi	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
MaC:						
Mahtomedi	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
	Slope	0.01				
MaD:						
Mahtomedi	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
	Slope	0.28				

Table 17.--Water Management--Continued

Map symbol and component 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
MoC:						
Menominee-----------	Very limited		Not limited		Very limited	
	Seepage	1.00			Depth to water	1.00
	Slope	0.01				
MoD:						
Menominee-----------	Very limited		Not limited		Very limited	
	Seepage	1.00			Depth to water	1.00
	Slope	0.28				
MqB:						
Mequithy------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.85	Depth to water	1.00
	Depth to bedrock	0.85	Seepage	0.04		
Rock outcrop--------	Not rated		Not rated		Not rated	
MqC:						
Mequithy------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Thin layer	0.85	Depth to water	1.00
	Depth to bedrock	0.85	Seepage	0.04		
	Slope	0.01				
Rock outcrop--------	Not rated		Not rated		Not rated	
MuA:						
Minocqua------------	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.50		
MwB:						
Moodig--------------	Very limited		Very limited		Somewhat limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
			Seepage	0.03		
MxB:						
Morganlake----------	Very limited		Very limited		Very limited	
	Seepage	1.00	Piping	1.00	Depth to water	1.00
			Depth to saturated zone	0.86		
MzB:						
Moshawquit----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
MzC:						
Moshawquit----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Depth to water	1.00
	Slope	0.01				
NeA:						
Neconish------------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to water	0.06
			Seepage	0.36		

Table 17.--Water Management--Continued

Map symbol and component 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
NoB:						
Neopit	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Depth to water	1.00
			Seepage	0.10		
NpB:						
Neopit	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Depth to water	1.00
			Seepage	0.10		
NsA:						
Noseum	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to water	0.06
			Seepage	0.40		
PaB:						
Padus	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
PaC:						
Padus	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.01				
PaD:						
Padus	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.28				
PbB:						
Padwet	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Depth to water	1.00
			Seepage	0.50		
PeB:						
Pecore	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
PeC:						
Pecore	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.01				
PeD:						
Pecore	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.28				
PnB:						
Pence	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.58	Depth to water	1.00
PnC:						
Pence	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.58	Depth to water	1.00
	Slope	0.01				

Table 17.--Water Management--Continued

Map symbol and component 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
PnD:						
Pence	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.58	Depth to water	1.00
	Slope	0.28				
PrB:						
Perote	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
PrC:						
Perote	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
PrD:						
Perote	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.28				
PsB:						
Peshtigo	Somewhat limited		Very limited		Very limited	
	Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
Pt:						
Pits, gravel	Not rated		Not rated		Very limited	
RaB:						
Rabe	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
RaC:						
Rabe	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
RaD:						
Rabe	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.72	Depth to water	1.00
	Slope	0.28				
RbA:						
Robago	Somewhat limited		Very limited		Somewhat limited	
	Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
					Cutbanks cave	0.10
			Piping	1.00		
			Seepage	0.04		
RcA:						
Roscommon	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.89		
RoB:						
Rosholt	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
RoC:						
Rosholt	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.01				

Table 17.--Water Management--Continued

Map symbol and component 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
RoD:						
Rosholt	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.50	Depth to water	1.00
	Slope	0.28				
RsB:						
Rousseau	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.25	Depth to water	1.00
RsC:						
Rousseau	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.25	Depth to water	1.00
	Slope	0.01				
RsD:						
Rousseau	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.25	Depth to water	1.00
	Slope	0.28				
ScA:						
Scott Lake	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to water	0.06
			Seepage	0.50		
SfB:						
Shawano	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.36	Depth to water	1.00
SfC:						
Shawano	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.36	Depth to water	1.00
	Slope	0.01				
SfD:						
Shawano	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.36	Depth to water	1.00
	Slope	0.28				
SuA:						
Sunia	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to water	0.06
			Seepage	0.64		
TlC:						
Tilleda	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00
	Slope	0.01				
TlD:						
Tilleda	Somewhat limited		Not limited		Very limited	
	Seepage	0.72			Depth to water	1.00
	Slope	0.28				
TmA:						
Tipler	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Cutbanks cave	1.00
					Depth to water	0.06
			Seepage	0.50		

Table 17.--Water Management--Continued

Map symbol and component 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
ToB:						
Tourtillotte	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Depth to water	1.00
			Seepage	0.82		
ToC:						
Tourtillotte	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Depth to saturated zone	0.86	Depth to water	1.00
	Slope	0.01				
			Seepage	0.82		
UdD:						
Udipsamments (earthen dam)	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.82	Depth to water	1.00
	Slope	0.28				
VsB:						
Vilas	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.89	Depth to water	1.00
VsC:						
Vilas	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.89	Depth to water	1.00
	Slope	0.01				
VsD:						
Vilas	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.89	Depth to water	1.00
	Slope	0.28				
W:						
Water	Not rated		Not rated		Not rated	
WaA:						
Wainola	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.25		
WkB:						
Wayka	Somewhat limited		Very limited		Very limited	
	Depth to bedrock	0.85	Depth to saturated zone	1.00	Depth to hard bedrock	1.00
	Seepage	0.72				
			Thin layer	0.85	Cutbanks cave	1.00
			Seepage	0.16	Slow refill	0.28
Rock outcrop	Not rated		Not rated		Not rated	
WrA:						
Worcester	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.50		
WtA:						
Wormet	Very limited		Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
			Seepage	0.50		

Table 17.--Water Management--Continued

Map symbol and component 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
WuA:						
Wurtsmith-----------	Very limited		Somewhat limited		Very limited	
	Seepage	1.00	Seepage	0.86	Cutbanks cave	1.00
			Depth to saturated zone	0.86	Depth to water	0.06

Table 18.--Engineering Index Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and component name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AfB:												
Aftad-----------	0-4	Loam	ML, CL-ML	A-4	0	0	95-100	90-100	65-95	55-75	18-23	3-6
	4-12	Fine sandy loam, sandy loam, loam, very fine sandy loam	CL-ML, ML, SM, SC-SM	A-2-4, A-4	0	0	95-100	90-100	45-95	25-75	0-23	NP-6
	12-28	Fine sandy loam, loam, very fine sandy loam, sandy loam	CL, SM, ML, SC	A-4	0	0	95-100	90-100	65-95	35-75	18-26	NP-8
	28-60	Stratified sandy loam to silt loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0	95-100	90-100	65-95	25-90	0-23	NP-6
AnB:												
Annalake--------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-3	Fine sandy loam	ML, SC-SM, CL-ML, SM	A-2-4, A-4	0	0	90-100	85-100	50-85	25-55	0-26	NP-8
	3-12	Very fine sandy loam, loam, sandy loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0	90-100	85-100	50-95	25-75	0-26	NP-8
	12-25	Loam, sandy loam, fine sandy loam, very fine sandy loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0	90-100	85-100	50-95	25-65	0-26	NP-8
	25-40	Very fine sandy loam, sandy loam, fine sandy loam, loamy very fine sand, loam	ML, SC, SM, SC-SM, CL-ML	A-2-4, A-4	0	0	90-100	85-100	50-95	25-80	0-28	NP-8
	40-62	Stratified loamy very fine sand to silt loam	ML, SC-SM, CL-ML, SM	A-2-4, A-4	0	0	90-100	85-100	50-95	25-80	0-26	NP-8

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
AtB:												
Antigo----------	0-4	Silt loam	CL-ML, ML	A-4	0	0-3	95-100	90-100	70-100	65-85	0-25	2-7
	4-12	Silt loam	CL-ML, ML	A-4	0	0-3	95-100	90-100	70-100	65-85	15-25	2-7
	12-24	Loam, fine sandy loam, sandy loam, silt loam	CL, SC-SM, CL-ML	A-4	0	0-3	95-100	90-100	70-100	65-85	20-30	4-9
	24-27	Sand, loamy sand, gravelly sand, gravelly loamy sand	GM, SM, SP-SM	A-1, A-2, A-3	0	0-9	50-100	45-100	25-75	7-30	0-30	NP-9
	27-60	Stratified sand to gravelly sand	GP, SP-SM, GP-GM, SP	A-1, A-2, A-3, A-1-b, A-2-4	0	0-9	30-100	25-100	10-70	1-12	0-14	NP
AuA:												
Au Gres---------	0-1	Moderately decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-3	Highly decomposed plant material	PT	A-8	0	0	---	---	---	---	---	---
	3-7	Loamy sand	SC-SM, SM	A-1-b, A-2-4	0	0	95-100	75-100	35-75	10-30	0-25	NP-7
	7-21	Loamy sand, sand	SC-SM, SM, SP-SM, SP	A-1-b, A-3, A-2-4	0	0	95-100	75-100	35-75	0-30	0-25	NP-7
	21-63	Sand	SP, SP-SM	A-2-4, A-1-b, A-3	0	0	95-100	75-100	35-70	0-15	0-14	NP
CeB:												
Cress-----------	0-3	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	85-100	80-100	50-70	25-40	0-28	NP-9
	3-14	Fine sandy loam, sandy loam, gravelly sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	75-100	70-100	40-85	20-55	0-28	NP-9
	14-26	Gravelly loamy coarse sand, gravelly sand, coarse sand, loamy sand, sand	SM, GP, SP, SP-SM	A-1-a, A-3	0	0-5	35-75	30-75	9-55	1-25	0-20	NP
	26-60	Stratified gravelly coarse sand to sand	SM, GP, SP, SP-SM	A-1-a	0	0-5	35-75	30-75	9-30	1-15	0-20	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
CeC:												
Cress	0-3	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	85-100	80-100	50-70	25-40	0-28	NP-9
	3-14	Fine sandy loam, gravelly sandy loam, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	75-100	70-100	40-85	20-55	0-28	NP-9
	14-26	Sand, gravelly loamy coarse sand, gravelly sand, coarse sand, loamy sand	SM, GP, SP, SP-SM	A-1-a, A-3	0	0-5	35-75	30-75	9-55	1-25	0-20	NP
	26-60	Stratified gravelly coarse sand to sand	SM, GP, SP, SP-SM	A-1-a	0	0-5	35-75	30-75	9-30	1-15	0-20	NP
CeD:												
Cress	0-3	Sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	85-100	80-100	50-70	25-40	0-28	NP-9
	3-14	Sandy loam, gravelly sandy loam, fine sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	75-100	70-100	40-85	20-55	0-28	NP-9
	14-26	Loamy sand, coarse sand, sand, gravelly loamy coarse sand, gravelly sand	SM, GP, SP, SP-SM	A-1-a, A-3	0	0-5	35-75	30-75	9-55	1-25	0-20	NP
	26-60	Stratified gravelly coarse sand to sand	SM, GP, SP, SP-SM	A-1-a	0	0-5	35-75	30-75	9-30	1-15	0-20	NP
CmA:												
Crex	0-3	Fine sand	SM	A-2-4	0	0	100	100	75-80	25-35	0-15	NP
	3-37	Loamy fine sand, fine sand	SM	A-2-4	0	0	100	100	65-95	15-50	0-15	NP
	37-60	Loamy fine sand, sand, fine sand	SM, SP-SM	A-1-b, A-3, A-2-4	0	0	100	100	30-85	5-35	0-15	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
CrB:												
Cromwell--------	0-21	Sandy loam	SM	A-2, A-4	0	0	95-100	80-100	55-70	20-40	15-20	NP
	21-60	Sand, loamy sand, gravelly sand, coarse sand	SM, SP-SM, SP	A-1, A-3, A-2	0	0-2	80-100	60-100	35-70	0-15	15-20	NP
CrC:												
Cromwell--------	0-21	Sandy loam	SM	A-2, A-4	0	0	95-100	80-100	55-70	20-40	15-20	NP
	21-60	Loamy sand, gravelly sand, coarse sand, sand	SM, SP-SM, SP	A-1, A-3, A-2	0	0-2	80-100	60-100	35-70	0-15	15-20	NP
CrD:												
Cromwell--------	0-21	Sandy loam	SM	A-2, A-4	0	0	95-100	80-100	55-70	20-40	15-20	NP
	21-60	Gravelly sand, loamy sand, coarse sand, sand	SM, SP-SM, SP	A-1, A-3, A-2	0	0-2	80-100	60-100	35-70	0-15	15-20	NP
CsA:												
Croswell--------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-4	Loamy sand	SM, SC-SM	A-1-b, A-2	0	0	90-100	75-100	40-75	10-30	0-25	NP-7
	4-26	Loamy sand, sand	SM, SP, SP-SM	A-2-4, A-1-b, A-3	0	0	90-100	75-100	40-75	3-30	0-14	NP
	26-62	Sand	SP, SP-SM	A-1-b, A-2-4, A-3	0	0	90-100	75-100	40-70	3-15	0-14	NP
FeB:												
Frechette-------	0-4	Fine sandy loam	CL-ML, ML	A-4	0	0-9	80-100	75-98	50-85	25-55	10-25	NP-7
	4-12	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	12-45	Sandy loam, loamy sand, fine sandy loam, loam	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	45-63	Fine sandy loam, loam, sandy loam	CL, SM, ML, SC	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	63-80	Fine sandy loam, loam, sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
FeC:												
Frechette-------	0-4	Fine sandy loam	CL-ML, ML	A-4	0	0-9	80-100	75-98	50-85	25-55	10-25	NP-7
	4-12	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	12-45	Loam, sandy loam, fine sandy loam, loamy sand	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	45-63	Fine sandy loam, loam, sandy loam	CL, SM, ML, SC	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	63-80	Fine sandy loam, loam, sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
FeD:												
Frechette-------	0-4	Fine sandy loam	CL-ML, ML	A-4	0	0-9	80-100	75-98	50-85	25-55	10-25	NP-7
	4-12	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	12-45	Loam, sandy loam, fine sandy loam, loamy sand	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	45-63	Fine sandy loam, loam, sandy loam	CL, SM, ML, SC	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	63-80	Fine sandy loam, loam, sandy loam	SM, ML, SC-SM, CL-ML	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
FrB:												
Frechette-------	0-4	Sandy loam	SM	A-4, A-2-4	0	0-9	80-100	75-100	60-70	30-40	20-30	NP-7
	4-12	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	12-45	Loam, fine sandy loam, loamy sand, sandy loam	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	45-63	Loam, sandy loam, fine sandy loam	ML, CL, SC, SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	63-80	Fine sandy loam, sandy loam, loam	ML, CL-ML, SM, SC-SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
FrC:												
Frechette-------	0-4	Sandy loam	SM	A-4, A-2-4	0	0-9	80-100	75-100	60-70	30-40	20-30	NP-7
	4-12	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	12-45	Sandy loam, loam, loamy sand, fine sandy loam	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	45-63	Loam, sandy loam, fine sandy loam	ML, CL, SC, SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	63-80	Fine sandy loam, loam, sandy loam	ML, CL-ML, SM, SC-SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
FrD:												
Frechette-------	0-4	Sandy loam	SM	A-4, A-2-4	0	0-9	80-100	75-100	60-70	30-40	20-30	NP-7
	4-12	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	12-45	Sandy loam, loam, fine sandy loam, loamy sand	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	45-63	Fine sandy loam, loam, sandy loam	ML, CL, SC, SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	63-80	Sandy loam, fine sandy loam, loam	ML, CL-ML, SM, SC-SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
GaB:												
Grayling--------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-5	Loamy sand	SM	A-2-4, A-3	0	0	95-100	90-100	45-70	5-30	0-14	NP
	5-26	Sand	SP-SM, SM	A-2-4, A-3, A-1-b	0	0	80-100	75-100	20-75	5-30	0-14	NP
	26-62	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	20-70	2-15	0-14	NP
GaC:												
Grayling--------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-5	Loamy sand	SM	A-2-4, A-3	0	0	95-100	90-100	45-70	5-30	0-14	NP
	5-26	Sand	SP-SM, SM	A-2-4, A-3, A-1-b	0	0	80-100	75-100	20-75	5-30	0-14	NP
	26-62	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	20-70	2-15	0-14	NP
GaD:												
Grayling--------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-5	Loamy sand	SM	A-2-4, A-3	0	0	95-100	90-100	45-70	5-30	0-14	NP
	5-26	Sand	SP-SM, SM	A-2-4, A-3, A-1-b	0	0	80-100	75-100	20-75	5-30	0-14	NP
	26-62	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	20-70	2-15	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
GyB:												
Grayling--------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-5	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	2-15	0-14	NP
	5-26	Loamy sand, sand	SP-SM, SM	A-2-4, A-3, A-1-b	0	0	80-100	75-100	20-75	5-30	0-14	NP
	26-62	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	20-70	2-15	0-14	NP
GyC:												
Grayling--------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-5	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	2-15	0-14	NP
	5-26	Sand, loamy sand	SP-SM, SM	A-2-4, A-3, A-1-b	0	0	80-100	75-100	20-75	5-30	0-14	NP
	26-62	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	20-70	2-15	0-14	NP
GyD:												
Grayling--------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-5	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	45-70	2-15	0-14	NP
	5-26	Sand, loamy sand	SP-SM, SM	A-2-4, A-3, A-1-b	0	0	80-100	75-100	20-75	5-30	0-14	NP
	26-62	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	20-70	2-15	0-14	NP
IgA:												
Ingalls---------	0-2	Highly decomposed plant material	---	A-8	0	0-8	---	---	---	---	---	---
	2-5	Loamy sand	SM	A-1-b, A-2-4	0	0-8	80-100	75-100	30-75	10-30	---	NP
	5-26	Fine sand, loamy fine sand, sand, loamy sand	SM, SP-SM	A-2, A-1, A-3	0	0-8	90-100	85-100	40-80	5-35	---	NP
	26-33	Fine sand, sand			0	0-8	90-100	85-100	40-80	5-35	---	NP
	33-60	Stratified very fine sandy loam to loamy very fine sand to silt	CL-ML, CL, SC, SC-SM	A-4, A-6	0	0	95-100	90-100	65-100	45-90	20-35	4-15

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
IsB:												
Iosco-----------	0-2	Highly decomposed plant material	---	A-8	0	0-8	---	---	---	---	---	---
	2-4	Loamy sand	SM, SP-SM	A-1-b, A-2-4	0	0-8	90-100	75-100	35-75	10-30	0-14	NP
	4-35	Sand, fine sand, loamy fine sand, loamy sand	SC-SM, SP-SM, SM	A-1-b, A-3, A-2-4	0	0-8	90-100	75-100	35-85	5-35	0-25	NP-7
	35-42	Fine sandy loam, sandy loam, sandy clay loam	CL, SC-SM, CL-ML, SC	A-2, A-4, A-7, A-6	0	0-8	90-100	85-100	65-90	30-55	25-45	5-25
	42-62	Sandy clay loam, silt loam, loam, clay loam	CL, SC	A-4, A-6, A-7	0	0-8	80-100	75-100	50-100	35-75	25-45	9-22
IxB:												
Ishpeming-------	0-2	Highly decomposed plant material	---	A-8	0	0-15	---	---	---	---	---	---
	2-7	Sand	SM, SP-SM	A-3, A-2-4, A-1-b	0	0-15	90-100	75-100	35-70	5-15	0-20	NP-5
	7-27	Loamy sand, loamy fine sand, fine sand, sand	SC-SM, SP-SM, SM	A-2-4, A-1-b, A-3, A-4	0	0-15	90-100	85-100	40-95	5-50	0-25	NP-7
	27-47	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
IxC:												
Ishpeming-------	0-2	Highly decomposed plant material	---	A-8	0	0-15	---	---	---	---	---	---
	2-7	Sand	SP-SM, SM	A-1-b, A-2-4, A-3	0	0-15	90-100	75-100	35-70	5-15	0-20	NP-5
	7-27	Fine sand, sand, loamy fine sand, loamy sand	SC-SM, SM, SP-SM	A-2-4, A-1-b, A-3, A-4	0	0-15	90-100	85-100	40-95	5-50	0-25	NP-7
	27-47	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
KaB:												
Karlin----------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-3	Sandy loam	SM	A-2, A-1, A-4	0	0	90-100	75-100	45-70	20-40	17-28	2-10
	3-15	Sandy loam, fine sandy loam	ML, SP-SM, SM	A-2, A-4	0	0	90-100	75-100	60-85	30-55	18-31	2-10
	15-33	Sand, fine sand, loamy sand, loamy fine sand	SM, SP, SP-SM	A-1, A-3, A-2	0	0	90-100	75-100	35-80	0-35	0-27	0-10
	33-60	Sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	80-100	75-100	35-70	0-15	0-23	0-6
KaC:												
Karlin----------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-3	Sandy loam	SM	A-1, A-2, A-4	0	0	90-100	75-100	45-70	20-40	17-28	2-10
	3-15	Sandy loam, fine sandy loam	ML, SP-SM, SM	A-2, A-4	0	0	90-100	75-100	60-85	30-55	18-31	2-10
	15-33	Loamy fine sand, sand, fine sand, loamy sand	SM, SP, SP-SM	A-1, A-3, A-2	0	0	90-100	75-100	35-80	0-35	0-27	0-10
	33-60	Sand	SP, SM, SP-SM	A-1, A-2, A-3	0	0	80-100	75-100	35-70	0-15	0-23	0-6
KaD:												
Karlin----------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-3	Sandy loam	SM	A-1, A-2, A-4	0	0	90-100	75-100	45-70	20-40	27-28	2-10
	3-15	Sandy loam, fine sandy loam	ML, SM, SP-SM	A-2, A-4	0	0	90-100	75-100	60-85	30-55	18-31	2-10
	15-33	Loamy fine sand, sand, fine sand, loamy sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0	90-100	75-100	35-80	0-35	0-27	0-10
	33-60	Sand	SM, SP-SM, SP	A-2, A-1, A-3	0	0	80-100	75-100	35-70	0-15	0-23	0-6

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
KeC:												
Kennan----------	0-2	Highly decomposed plant material	---	A-8	0-2	5-20	---	---	---	---	---	---
	2-4	Fine sandy loam, silt loam	ML, CL-ML, SC-SM, SM	A-4	0-2	5-20	85-100	80-100	65-100	45-90	0-25	3-7
	4-15	Silt loam, loam, fine sandy loam, loamy sand, sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-1-b, A-4	0	0-25	75-100	75-100	35-100	12-90	0-23	NP-6
	15-21	Silt loam, loam, fine sandy loam, sandy loam	ML, CL, SC, SM	A-1, A-2, A-4	0	0-25	75-100	75-100	40-100	20-90	0-30	NP-10
	21-66	Loamy sand, loam, sandy loam, gravelly sandy loam, gravelly loamy sand	CL, SM, ML, SC, SP-SM	A-1-b, A-4, A-2	0	0-25	65-95	60-95	30-90	10-70	0-30	NP-9
	66-80	Sandy loam, loamy sand, gravelly sandy loam, gravelly loamy sand	SC-SM, SM, SP-SM	A-1-b, A-2-4	0	0-25	65-95	60-95	30-70	10-25	0-20	NP-5

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
KeD:												
Kennan----------	0-2	Highly decomposed plant material	---	A-8	0-2	5-20	---	---	---	---	---	---
	2-4	Fine sandy loam, silt loam	ML, CL-ML, SC-SM, SM	A-4	0-2	5-20	85-100	80-100	65-100	45-90	0-25	3-7
	4-15	Loam, fine sandy loam, loamy sand, silt loam, sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-1-b, A-4	0	0-25	75-100	75-100	35-100	12-90	0-23	NP-6
	15-21	Silt loam, loam, fine sandy loam, sandy loam	ML, CL, SC, SM	A-1, A-2, A-4	0	0-25	75-100	75-100	40-100	20-90	0-30	NP-10
	21-66	Loam, sandy loam, gravelly sandy loam, gravelly loamy sand, loamy sand	CL, SM, ML, SC, SP-SM	A-1-b, A-4, A-2	0	0-25	65-95	60-95	30-90	10-70	0-30	NP-9
	66-80	Loamy sand, gravelly sandy loam, gravelly loamy sand, sandy loam	SC-SM, SM, SP-SM	A-1-b, A-2-4	0	0-25	65-95	60-95	30-70	10-25	0-20	NP-5

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
KoC:												
Kennan----------	0-2	Highly decomposed plant material	---	A-8	0-2	5-20	---	---	---	---	---	---
	2-4	Silt loam	ML, CL-ML, SC-SM, SM	A-4	0-2	5-20	85-100	80-100	65-100	45-90	0-25	3-7
	4-15	Silt loam, loamy sand, sandy loam, fine sandy loam, loam	ML, CL-ML, SC-SM, SM	A-2, A-1-b, A-4	0	0-25	75-100	75-100	35-100	12-90	0-23	NP-6
	15-21	Sandy loam, loam, silt loam, fine sandy loam	ML, CL, SC, SM	A-1, A-2, A-4	0	0-25	75-100	75-100	40-100	20-90	0-30	NP-10
	21-66	Loam, sandy loam, gravelly sandy loam, gravelly loamy sand, loamy sand	CL, SM, ML, SC, SP-SM	A-1-b, A-4, A-2	0	0-25	65-95	60-95	30-90	10-70	0-30	NP-9
	66-80	Loamy sand, gravelly sandy loam, gravelly loamy sand, sandy loam	SC-SM, SM, SP-SM	A-1-b, A-2-4	0	0-25	65-95	60-95	30-70	10-25	0-20	NP-5

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
KoD:												
Kennan----------	0-2	Highly decomposed plant material	---	A-8	0-2	5-20	---	---	---	---	---	---
	2-4	Silt loam	ML, CL-ML, SC-SM, SM	A-4	0-2	5-20	85-100	80-100	65-100	45-90	0-25	3-7
	4-15	Fine sandy loam, loamy sand, silt loam, sandy loam, loam	ML, CL-ML, SC-SM, SM	A-2, A-1-b, A-4	0	0-25	75-100	75-100	35-100	12-90	0-23	NP-6
	15-21	Sandy loam, fine sandy loam, loam, silt loam	ML, CL, SC, SM	A-1, A-2, A-4	0	0-25	75-100	75-100	40-100	20-90	0-30	NP-10
	21-66	Gravelly sandy loam, loam, sandy loam, gravelly loamy sand, loamy sand	CL, SM, ML, SC, SP-SM	A-1-b, A-4, A-2	0	0-25	65-95	60-95	30-90	10-70	0-30	NP-9
	66-80	Sandy loam, loamy sand, gravelly sandy loam, gravelly loamy sand	SC-SM, SM, SP-SM	A-1-b, A-2-4	0	0-25	65-95	60-95	30-70	10-25	0-20	NP-5
KxB:												
Keshena---------	0-3	Fine sandy loam	SC-SM, SM, CL-ML, ML	A-4	0	0-9	80-100	75-100	60-85	35-55	0-25	NP-7
	3-19	Loam, sandy loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-4	0	0-9	80-100	75-100	50-95	35-65	0-25	NP-7
	19-49	Loam, sandy clay loam, sandy loam, clay loam	ML, CL, SC, CL-ML	A-4, A-6	0-1	0-9	80-100	75-100	50-100	35-55	25-40	3-18
	49-75	Sandy clay loam, clay loam, loam	SC, CL	A-6, A-7, A-4	0-1	0-9	80-100	75-100	50-100	35-55	28-44	9-22
	75-80	Silt loam, clay loam, loam	CL	A-6, A-4, A-7	0-1	0-9	80-100	75-100	60-100	50-60	20-44	4-22

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
LaB:												
Lablatz---------	0-4	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	4-7	Sandy loam	SM	A-4, A-2-4	0	0-9	80-100	75-100	50-70	25-40	10-25	NP-7
	7-16	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, SM, ML	A-4, A-2	0	0-9	80-100	75-100	50-95	25-65	10-25	NP-7
	16-30	Sandy loam, fine sandy loam, loam	CL-ML, SM, ML, SC-SM	A-4, A-2	0-1	0-9	80-100	75-100	50-95	25-65	10-30	NP-7
	30-41	Loam, fine sandy loam, sandy loam	ML, CL, SC, SM	A-2, A-4	0-1	0-9	80-100	75-100	50-95	25-65	15-30	NP-10
	41-64	Loam, fine sandy loam, sandy loam	CL-ML, SC-SM, ML, SM	A-2, A-4	0-1	0-9	80-100	75-100	50-95	25-65	10-25	NP-7
LDF.												
Landfill												
LoA:												
Loxley----------	0-10	Peat	PT	A-8	0	0	---	---	---	---	---	---
	10-60	Muck	PT	A-8	0	0	---	---	---	---	---	---
LuA:												
Lupton----------	0-7	Muck	PT	A-8	0	0	---	---	---	---	---	---
	7-60	Muck	PT	A-8	0	0	---	---	---	---	---	---
Markey----------	0-28	Muck	PT	A-8	---	---	---	---	---	---	---	---
	28-60	Coarse sand, gravelly sand, fine sand, sand	SM, SP-SM, SP	A-1, A-3, A-2	0	0	95-100	60-100	30-75	0-30	---	NP
Cathro----------	0-8	Muck	PT	A-8	0	0	---	---	---	---	---	---
	8-37	Muck	PT	A-8	0	0	---	---	---	---	---	---
	37-60	Fine sandy loam, silt loam, sandy loam, silty clay loam, loam	CL-ML, CL, SC, SC-SM	A-4, A-6	0	0-5	80-100	65-100	60-100	35-90	20-40	4-20

Table 18.--Engineering Index Properties--Continued

Map symbol and component name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
M-W. Miscellaneous water												
MaB:												
Mahtomedi-------	0-4	Loamy sand	SC-SM, SM	A-1, A-2	0	0-2	95-100	75-90	40-75	15-30	15-20	NP-4
	4-20	Gravelly sand, gravelly loamy sand, loamy sand, sand	SM, SP-SM	A-1, A-3, A-2	0	0-2	80-95	50-85	30-75	5-15	15-20	NP
	20-38	Gravelly sand, coarse sand, sand, gravelly coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0-10	70-95	50-85	30-70	5-15	15-20	NP
	38-60	Coarse sand, gravelly coarse sand, stratified sand to gravelly sand	SP, SM, SP-SM	A-2, A-1, A-3	0	0-10	55-95	50-85	30-70	2-15	15-20	NP
MaC:												
Mahtomedi-------	0-4	Loamy sand	SC-SM, SM	A-1, A-2	0	0-2	95-100	75-90	40-75	15-30	15-20	NP-4
	4-20	Gravelly sand, gravelly loamy sand, sand, loamy sand	SM, SP-SM	A-1, A-3, A-2	0	0-2	80-95	50-85	30-75	5-15	15-20	NP
	20-38	Gravelly sand, coarse sand, sand, gravelly coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0-10	70-95	50-85	30-70	5-15	15-20	NP
	38-60	Gravelly coarse sand, gravelly sand, coarse sand, stratified sand to gravelly sand	SP, SM, SP-SM	A-2, A-1, A-3	0	0-10	55-95	50-85	30-70	2-15	15-20	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
MaD:												
Mahtomedi-------	0-4	Loamy sand	SC-SM, SM	A-1, A-2	0	0-2	95-100	75-90	40-75	15-30	15-20	NP-4
	4-20	Gravelly sand, gravelly loamy sand, loamy sand, sand	SM, SP-SM	A-1, A-3, A-2	0	0-2	80-95	50-85	30-75	5-15	15-20	NP
	20-38	Gravelly coarse sand, gravelly sand, coarse sand, sand	SM, SP-SM	A-1, A-2, A-3	0	0-10	70-95	50-85	30-70	5-15	15-20	NP
	38-60	Gravelly sand, coarse sand, stratified sand to gravelly sand, gravelly coarse sand	SP, SM, SP-SM	A-2, A-1, A-3	0	0-10	55-95	50-85	30-70	2-15	15-20	NP
MoC:												
Menominee-------	0-2	Highly decomposed plant material	---	A-8	0	0-10	---	---	---	---	---	---
	2-4	Loamy fine sand	SM	A-2-4	0	0-10	95-100	95-100	50-75	15-30	---	NP
	4-27	Loamy sand, loamy fine sand, sand, fine sand	SM, SP, SP-SM	A-2-4, A-1-b, A-3	0	0-10	90-100	85-100	40-75	0-25	---	NP
	27-60	Loam, clay loam, fine sandy loam, sandy clay loam, sandy loam	CL, CL-ML	A-4, A-6	0	0-10	85-95	85-95	80-95	60-80	25-40	5-20
	60-80	Silt loam, silty clay loam, loam, clay loam	CL, CL-ML, SC-SM, SC	A-1, A-2, A-6, A-4	0	0-10	95-100	85-95	45-95	20-80	25-40	5-20

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
MoD:												
Menominee-------	0-2	Highly decomposed plant material	---	A-8	0	0-10	---	---	---	---	---	---
	2-4	Loamy fine sand	SM	A-2-4	0	0-10	95-100	95-100	50-75	15-30	---	NP
	4-27	Fine sand, loamy fine sand, loamy sand, sand	SM, SP, SP-SM	A-2-4, A-1-b, A-3	0	0-10	90-100	85-100	40-75	0-25	---	NP
	27-60	Sandy clay loam, loam, clay loam, fine sandy loam, sandy loam	CL, CL-ML	A-4, A-6	0	0-10	85-95	85-95	80-95	60-80	25-40	5-20
	60-80	Silt loam, silty clay loam, clay loam, loam	CL, CL-ML, SC-SM, SC	A-1, A-2, A-6, A-4	0	0-10	95-100	85-95	45-95	20-80	25-40	5-20
MqB:												
Mequithy--------	0-3	Fine sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	80-100	75-100	50-85	25-55	10-25	NP-7
	3-4	Sandy loam, fine sandy loam, loam	ML, SM	A-4, A-2	0-2	0-15	80-100	75-100	50-95	25-65	10-25	NP-7
	4-13	Sandy loam, fine sandy loam, loam	CL-ML, ML	A-4, A-2	0-5	0-15	85-100	80-100	50-95	25-65	10-25	NP-7
	13-21	Gravelly sandy loam, sandy loam, fine sandy loam, loam	CL-ML, ML	A-4, A-2	0-10	0-25	60-100	55-98	35-95	15-65	10-30	NP-7
	21-27	Sandy loam, loam, gravelly fine sandy loam, fine sandy loam	ML, CL, SC, SM	A-1, A-2, A-4	0-25	0-45	60-100	55-98	35-95	15-65	14-30	NP-10
	27-48	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
MqC:												
Mequithy--------	0-3	Fine sandy loam	SC-SM, ML, SM	A-4, A-2	0	0-15	80-100	75-100	50-85	25-55	10-25	NP-7
	3-4	Sandy loam, fine sandy loam, loam	ML, SM	A-4, A-2	0-2	0-15	80-100	75-100	50-95	25-65	10-25	NP-7
	4-13	Sandy loam, fine sandy loam, loam	CL-ML, ML	A-4, A-2	0-5	0-15	85-100	80-100	50-95	25-65	10-25	NP-7
	13-21	Gravelly sandy loam, sandy loam, fine sandy loam, loam	CL-ML, ML	A-4, A-2	0-10	0-25	60-100	55-98	35-95	15-65	10-30	NP-7
	21-27	Sandy loam, loam, gravelly fine sandy loam, fine sandy loam	ML, CL, SC, SM	A-1, A-2, A-4	0-25	0-45	60-100	55-98	35-95	15-65	14-30	NP-10
	27-48	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
MuA:												
Minocqua--------	0-6	Muck	PT	A-8	0	0	---	---	---	---	---	---
	6-30	Silt loam, gravelly loam, loam	CL, SM, ML, SC	A-2, A-4, A-6	0-1	0-9	80-100	75-100	45-100	25-90	0-35	NP-13
	30-38	Gravelly fine sandy loam, gravelly sandy loam, sandy loam, loam	GP, GM, SM, SP	A-1, A-4, A-2, A-3	0-1	0-9	40-100	35-100	5-70	2-40	0-20	NP-4
	38-66	Stratified sand to coarse sand to very gravelly sand	GM, SP, SM	A-2, A-1, A-3	0-1	0-9	30-100	25-100	5-70	0-15	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
MwB:												
Moodig----------	0-2	Highly decomposed plant material	---	A-8	2-3	0-15	---	---	---	---	---	---
	2-5	Fine sandy loam	SC, SM	A-2-4, A-4	2-3	0-15	85-100	80-100	45-80	20-50	0-25	NP-8
	5-14	Loam, fine sandy loam, sandy loam	ML, CL, SC, SM	A-2-4, A-4	2-7	0-15	85-100	80-100	45-95	20-75	0-25	NP-8
	14-25	Sandy loam, loam, gravelly sandy loam, fine sandy loam, loamy sand	ML, CL, SC, SM	A-1-b, A-2-4, A-4	1-10	0-25	60-100	55-100	35-95	15-75	0-25	NP-9
	25-49	Fine sandy loam, gravelly sandy loam, sandy loam, loam	ML, CL, SC, SM	A-1-b, A-4, A-2-4	0-10	0-25	60-95	55-95	35-90	15-75	0-25	NP-9
	49-62	Sandy loam, gravelly sandy loam, sand, gravelly sand	SC-SM, SP-SM, SM	A-1-b, A-2-4, A-4	0-10	0-25	60-95	55-95	20-70	8-40	0-25	NP-6
MxB:												
Morganlake------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-4	Loamy fine sand	SC-SM, SM	A-2-4, A-4	0	0	95-100	90-100	65-95	20-50	0-25	NP-6
	4-26	Fine sand, loamy fine sand, sand	SC-SM, SM, SP-SM	A-2-4, A-1-b, A-3, A-4	0	0	95-100	90-100	25-95	5-50	0-25	NP-6
	26-36	Sand, fine sandy loam, loamy fine sand, fine sand, loam, loamy sand	SM, SC-SM, SP-SM	A-2-4, A-3, A-1-b, A-4	0	0	95-100	90-100	25-95	5-50	0-25	NP-6
	36-65	Loam, sandy clay loam, clay loam, silt loam	CL	A-6, A-7	0	0	80-95	75-95	60-95	50-90	25-45	10-20
	65-80	Sandy clay loam, silt loam, clay loam, loam	CL	A-6, A-7	0	0	80-95	75-95	60-95	50-90	25-45	10-20

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
MzB:												
Moshawquit------	0-1	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	1-3	Loamy sand	SM	A-1, A-2	0	0-9	80-100	75-100	30-75	10-30	0-20	NP
	3-26	Fine sand, loamy fine sand, sand, loamy sand	SM, SP-SM	A-1, A-3, A-2	0	0-9	80-100	75-100	20-95	5-35	0-20	NP
	26-48	Fine sand, sand, fine sandy loam, loamy sand, loam, sandy loam	CL, SC	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-10
	48-60	Sand, coarse sand, gravelly coarse sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0-9	55-100	50-100	15-70	2-15	0-20	NP
MzC:												
Moshawquit------	0-1	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	1-3	Loamy sand	SM	A-1, A-2	0	0-9	80-100	75-100	30-75	10-30	0-20	NP
	3-26	Loamy sand, sand, fine sand, loamy fine sand	SM, SP-SM	A-1, A-3, A-2	0	0-9	80-100	75-100	20-95	5-35	0-20	NP
	26-48	Fine sandy loam, fine sand, sand, loamy sand, loam, sandy loam	CL, SC	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-10
	48-60	Coarse sand, gravelly coarse sand, sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0-9	55-100	50-100	15-70	2-15	0-20	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
NeA:												
Neconish--------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-4	Fine sand	SP, SM, SP-SM	A-2, A-1, A-3	0	0	75-100	75-100	40-70	3-15	0-14	NP
	4-36	Loamy fine sand, fine sand	SM, SP-SM, SP	A-1, A-2, A-3	0	0	75-100	75-100	40-75	3-30	0-14	NP
	36-60	Fine sand, sand	SM, SP, SP-SM	A-1, A-3, A-2	0	0	75-100	75-100	40-70	3-15	0-14	NP
NoB:												
Neopit----------	0-1	Highly decomposed plant material	---	A-8	1-2	0-20	---	---	---	---	---	---
	1-4	Fine sandy loam	SM	A-4, A-2-4	1-2	0-20	85-100	80-100	50-85	25-55	10-25	NP-7
	4-12	Loam, sandy loam, silt loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-1-b, A-4, A-2-4	1-2	0-20	85-100	80-95	45-95	20-75	15-25	NP-7
	12-20	Fine sandy loam, silt loam, loam, gravelly loamy sand	CL-ML, ML, SM, SC-SM	A-1-b, A-2-4, A-4	1-4	0-25	65-100	60-95	35-85	15-75	15-25	NP-7
	20-67	Loam, gravelly sandy loam, sandy loam, fine sandy loam	SC, SM	A-1-b, A-2-4, A-4	1-4	0-25	65-100	60-95	35-85	15-55	15-28	NP-9
	67-80	Loamy sand, sandy loam, gravelly loamy sand	SM, SP-SM	A-1-b, A-2-4, A-4	1-5	0-25	65-100	60-95	25-75	10-40	0-21	NP-4

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
NpB:												
Neopit----------	0-1	Highly decomposed plant material	---	A-8	1-2	0-20	---	---	---	---	---	---
	1-4	Silt loam	CL-ML, ML	A-4	1-2	0-20	85-100	80-95	55-90	45-75	15-25	NP-7
	4-12	Silt loam, sandy loam, fine sandy loam, loam	ML, CL-ML, SC-SM, SM	A-1-b, A-4, A-2-4	1-2	0-20	85-100	80-95	45-95	20-75	15-25	NP-7
	12-20	Loam, silt loam, fine sandy loam, gravelly loamy sand	CL-ML, ML, SM, SC-SM	A-1-b, A-2-4, A-4	1-4	0-25	65-100	60-95	35-85	15-75	15-25	NP-7
	20-67	Sandy loam, gravelly sandy loam, loam, fine sandy loam	SC, SM	A-1-b, A-2-4, A-4	1-4	0-25	65-100	60-95	35-85	15-55	15-28	NP-9
	67-80	Gravelly loamy sand, sandy loam, loamy sand	SM, SP-SM	A-1-b, A-2-4, A-4	1-5	0-25	65-100	60-95	25-70	10-40	0-21	NP-4
NsA:												
Noseum----------	0-1	Highly decomposed plant material	---	A-8	0	0-5	---	---	---	---	---	---
	1-3	Fine sandy loam	SM	A-2, A-4	0	0-5	80-100	75-100	50-70	20-40	15-20	NP-4
	3-14	Fine sandy loam, sandy loam	SM	A-2, A-4	0	0-5	80-100	75-100	50-85	20-50	15-20	NP-4
	14-32	Loamy fine sand, fine sand, sand	SM, SP-SM	A-2, A-3	0	0-5	80-100	75-100	50-95	5-35	0-20	NP
	32-60	Fine sand, sand	SM, SP, SP-SM	A-1, A-2, A-3	0	0-5	80-100	75-100	50-80	2-35	0-20	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
PaB:												
Padus-----------	0-1	Highly decomposed plant material	---	A-8	0	0-5	---	---	---	---	---	---
	1-4	Fine sandy loam	SM	A-4	0	0-5	80-100	75-100	60-85	35-50	10-20	NP-5
	4-13	Fine sandy loam, loam, sandy loam	SM, SC-SM	A-4	0	0-5	80-100	75-100	60-95	35-60	10-20	NP-10
	13-22	Fine sandy loam, loam, sandy loam	CL-ML, SC-SM, SM	A-4	0	0-5	80-100	75-100	60-95	35-60	10-20	3-10
	22-27	Sandy loam, fine sandy loam, gravelly loam	ML, SC-SM, SM	A-4, A-2	0	0-5	65-100	60-100	40-90	25-65	15-30	3-15
	27-31	Loamy sand, sand, gravelly sand	SP-SM, SP	A-1, A-2	0	0-5	65-95	50-95	30-65	2-25	---	NP
	31-60	Stratified gravelly coarse sand to sand	SP-SM, SP	A-1, A-2	0	0-5	60-95	40-95	25-60	2-15	---	NP
PaC:												
Padus-----------	0-1	Highly decomposed plant material	---	A-8	0	0-5	---	---	---	---	---	---
	1-4	Fine sandy loam	SM	A-4	0	0-5	80-100	75-100	60-85	35-50	10-20	NP-5
	4-13	Fine sandy loam, loam, sandy loam	SM, SC-SM	A-4	0	0-5	80-100	75-100	60-95	35-60	10-20	NP-10
	13-22	Fine sandy loam, loam, sandy loam	CL-ML, SC-SM, SM	A-4	0	0-5	80-100	75-100	60-95	35-60	10-20	3-10
	22-27	Sandy loam, fine sandy loam, gravelly loam	ML, SC-SM, SM	A-4, A-2	0	0-5	65-100	60-100	40-90	25-65	15-30	3-15
	27-31	Loamy sand, sand, gravelly sand	SP-SM, SP	A-1, A-2	0	0-5	65-95	50-95	30-65	2-25	---	NP
	31-60	Stratified gravelly coarse sand to sand	SP-SM, SP	A-1, A-2	0	0-5	60-95	40-95	25-60	2-15	---	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
PaD:												
Padus-----------	0-1	Highly decomposed plant material	---	A-8	0	0-5	---	---	---	---	---	---
	1-4	Fine sandy loam	SM	A-4	0	0-5	80-100	75-100	60-85	35-50	10-20	NP-5
	4-13	Fine sandy loam, loam, sandy loam	SM, SC-SM	A-4	0	0-5	80-100	75-100	60-95	35-60	10-20	NP-10
	13-22	Sandy loam, loam, fine sandy loam	CL-ML, SC-SM, SM	A-4	0	0-5	80-100	75-100	60-95	35-60	10-20	3-10
	22-27	Sandy loam, fine sandy loam, gravelly loam	ML, SC-SM, SM	A-4, A-2	0	0-5	65-100	60-100	40-90	25-65	15-30	3-15
	27-31	Gravelly sand, loamy sand, sand	SP-SM, SP	A-1, A-2	0	0-5	65-95	50-95	30-65	2-25	---	NP
	31-60	Stratified gravelly coarse sand to sand	SP-SM, SP	A-1, A-2	0	0-5	60-95	40-95	25-60	2-15	---	NP
PbB:												
Padwet----------	0-3	Fine sandy loam	SM	A-2, A-4	0	0-9	80-100	75-100	40-80	25-50	0-20	NP-4
	3-5	Fine sandy loam, loam, sandy loam	CL-ML, ML, SM, SC-SM	A-2-4, A-4	0	0-9	80-100	75-100	40-95	25-80	0-25	NP-7
	5-22	Fine sandy loam, loam, sandy loam	ML, CL, SC, SM	A-2, A-4	0	0-9	80-100	75-100	40-95	25-75	0-25	NP-8
	22-38	Loam, gravelly sandy loam, fine sandy loam, sandy loam	CL, ML, SM, SC	A-1, A-2, A-4	0	0-9	55-100	50-100	30-95	15-75	0-30	NP-9
	38-60	Stratified gravelly coarse sand to sand	GP, SM, GM, SP	A-2, A-1, A-3	0	0-9	30-100	25-95	7-65	1-15	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
PeB:												
Pecore----------	0-2	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	2-4	Loam	ML, CL-ML, SC-SM, SM	A-4	0	0-9	80-100	75-100	50-95	45-75	10-25	NP-7
	4-10	Sandy loam, fine sandy loam, loam	SM, ML, CL-ML, SC-SM	A-4, A-2-4	0	0-9	80-100	75-100	50-95	25-75	10-25	NP-7
	10-27	Sandy loam, loam, clay loam, sandy clay loam, fine sandy loam	CL, SC	A-4, A-6, A-2	0-1	0-9	80-100	75-100	50-95	25-75	10-40	4-18
	27-47	Loam, silt loam, clay loam, sandy clay loam	CL	A-6, A-4, A-7	0-1	0-9	80-100	75-100	50-100	35-75	25-45	9-22
	47-62	Stratified gravelly coarse sand to sand	SP, SP-SM	A-2-4, A-3	0-1	0-9	55-100	50-100	15-70	2-15	0-20	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
PeC:												
Pecore----------	0-2	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	2-4	Loam	ML, CL-ML, SC-SM, SM	A-4	0	0-9	80-100	75-100	50-95	45-75	10-25	NP-7
	4-10	Loam, fine sandy loam, sandy loam	SM, ML, CL-ML, SC-SM	A-4, A-2-4	0	0-9	80-100	75-100	50-95	25-75	10-25	NP-7
	10-27	Sandy loam, clay loam, loam, fine sandy loam, sandy clay loam	CL, SC	A-4, A-6, A-2	0-1	0-9	80-100	75-100	50-95	25-75	10-40	4-18
	27-47	Loam, sandy clay loam, clay loam, silt loam	CL	A-6, A-4, A-7	0-1	0-9	80-100	75-100	50-100	35-75	25-45	9-22
	47-62	Stratified gravelly coarse sand to sand	SP, SP-SM	A-2-4, A-3	0-1	0-9	55-100	50-100	15-70	2-15	0-20	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
PeD:												
Pecore----------	0-2	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	2-4	Loam	ML, CL-ML, SC-SM, SM	A-4	0	0-9	80-100	75-100	50-95	45-75	10-25	NP-7
	4-10	Loam, sandy loam, fine sandy loam	SM, ML, CL-ML, SC-SM	A-4, A-2-4	0	0-9	80-100	75-100	50-95	25-75	10-25	NP-7
	10-27	Sandy clay loam, sandy loam, clay loam, loam, fine sandy loam	CL, SC	A-4, A-6, A-2	0-1	0-9	80-100	75-100	50-95	25-75	10-40	4-18
	27-47	Silt loam, clay loam, sandy clay loam, loam	CL	A-6, A-4, A-7	0-1	0-9	80-100	75-100	50-100	35-75	25-45	9-22
	47-62	Stratified gravelly coarse sand to sand	SP, SP-SM	A-2-4, A-3	0-1	0-9	55-100	50-100	15-70	2-15	0-20	NP
PnB:												
Pence-----------	0-2	Highly decomposed plant material	---	A-8	0	0-15	---	---	---	---	---	---
	2-5	Sandy loam	SM	A-1-b, A-2-4, A-4	0	0-15	85-100	75-100	45-70	20-40	0-21	NP-4
	5-14	Sandy loam, gravelly sandy loam	SM, SC-SM	A-1-b, A-4, A-2-4	0-4	0-15	55-100	50-100	30-70	15-40	0-25	NP-7
	14-18	Gravelly loamy sand, sand, loamy sand, gravelly coarse sand, coarse sand, gravelly sand	GP-GM, GM, SM, SP-SM	A-1-b, A-3	0-4	0-15	55-100	50-100	25-75	2-30	0-14	NP
	18-62	Stratified coarse sand to gravelly coarse sand	SM, SP	A-1-b, A-3	0-4	0-15	55-95	35-90	15-55	2-15	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
PnC:												
Pence-----------	0-2	Highly decomposed plant material	---	A-8	0	0-15	---	---	---	---	---	---
	2-5	Sandy loam	SM	A-1-b, A-2-4, A-4	0	0-15	85-100	75-100	45-70	20-40	0-21	NP-4
	5-14	Gravelly sandy loam, sandy loam	SM, SC-SM	A-1-b, A-2-4, A-4	0-4	0-15	55-100	50-100	30-70	15-40	0-25	NP-7
	14-18	Gravelly sand, coarse sand, gravelly loamy sand, sand, loamy sand, gravelly coarse sand	GM, SP-SM, GP-GM, SM	A-1-b, A-3	0-4	0-15	55-100	50-100	25-75	2-30	0-14	NP
	18-62	Stratified coarse sand to gravelly coarse sand	SM, SP	A-1-b, A-3	0-4	0-15	55-95	35-90	15-55	2-15	0-14	NP
PnD:												
Pence-----------	0-2	Highly decomposed plant material	---	A-8	0	0-15	---	---	---	---	---	---
	2-5	Sandy loam	SM	A-1-b, A-2-4, A-4	0	0-15	85-100	75-100	45-70	20-40	0-21	NP-4
	5-14	Sandy loam, gravelly sandy loam	SM, SC-SM	A-2-4, A-1-b, A-4	0-4	0-15	55-100	50-100	30-70	15-40	0-25	NP-7
	14-18	Gravelly sand, coarse sand, gravelly loamy sand, sand, loamy sand, gravelly coarse sand	GP-GM, GM, SM, SP-SM	A-1-b, A-3	0-4	0-15	55-100	50-100	25-75	2-30	0-14	NP
	18-62	Stratified coarse sand to gravelly coarse sand	SM, SP	A-1-b, A-3	0-4	0-15	55-95	35-90	15-55	2-15	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
PrB:												
Perote----------	0-2	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	2-4	Fine sandy loam	CL-ML, ML	A-4	0	0-9	80-100	75-98	50-95	25-55	10-25	NP-7
	4-11	Fine sandy loam, sandy loam, loam	CL-ML, SM, SC-SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	11-29	Loam, fine sandy loam, loamy sand, sandy loam	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	29-51	Fine sandy loam, sandy loam, loam	SC-SM, CL-ML, ML, SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	51-60	Stratified gravelly coarse sand to sand	SP, SP-SM	A-3, A-2-4	0-1	0-9	55-100	50-100	15-70	2-15	0-20	NP
PrC:												
Perote----------	0-2	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	2-4	Fine sandy loam	CL-ML, ML	A-4	0	0-9	80-100	75-98	50-95	25-55	10-25	NP-7
	4-11	Fine sandy loam, sandy loam, loam	CL-ML, SM, SC-SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	11-29	Sandy loam, loam, fine sandy loam, loamy sand	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	29-51	Fine sandy loam, loam, sandy loam	SC-SM, CL-ML, ML, SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	51-60	Stratified gravelly coarse sand to sand	SP, SP-SM	A-3, A-2-4	0-1	0-9	55-100	50-100	15-70	2-15	0-20	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
PrD:												
Perote----------	0-2	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	2-4	Fine sandy loam	CL-ML, ML	A-4	0	0-9	80-100	75-98	50-95	25-55	10-25	NP-7
	4-11	Sandy loam, loam, fine sandy loam	CL-ML, SM, SC-SM, ML	A-2, A-4	0	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
	11-29	Sandy loam, loam, fine sandy loam, loamy sand	CL-ML, ML, SM, SC-SM	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	29-51	Sandy loam, loam, fine sandy loam	SC-SM, CL-ML, ML, SM	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	51-60	Stratified gravelly coarse sand to sand	SP, SP-SM	A-3, A-2-4	0-1	0-9	55-100	50-100	15-70	2-15	0-20	NP
PsB:												
Peshtigo--------	0-5	Loam	ML, SC-SM, CL-ML, SM	A-4	0	0-9	80-100	75-96	60-90	35-55	0-25	NP-7
	5-11	Loam, sandy loam, fine sandy loam	SC-SM, SM, CL-ML, ML	A-4	0	0-9	80-100	75-96	60-95	35-70	0-25	NP-7
	11-29	Sandy loam, loam, fine sandy loam, clay loam, sandy clay loam	CL, SC	A-4, A-6	0-1	0-9	80-100	75-96	50-90	35-55	25-40	7-18
	29-62	Clay loam, loam, sandy clay loam	CL, SC	A-7, A-6, A-4	0-1	0-9	80-100	75-96	50-90	35-55	28-44	9-22
	62-80	Silt loam, clay loam, loam	CL	A-7, A-4, A-6	0-1	0-9	80-100	75-96	60-90	50-60	20-44	4-22
Pt:												
Pits, gravel----	0-10	Stratified extremely gravelly coarse sand to gravelly sand	---	---	0	0	0	0	0	0	---	---

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
RaB:												
Rabe------------	0-1	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	1-2	Loamy sand	SM	A-1, A-2	0	0-9	80-100	75-100	30-75	10-30	0-20	NP
	2-25	Loamy fine sand, fine sand, sand, loamy sand	SM, SP-SM	A-1, A-2, A-3	0	0-9	80-100	75-100	20-95	5-35	0-20	NP
	25-35	Sand, fine sand, loamy sand, loam, sandy loam	SM, ML	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	35-58	Fine sandy loam, loam, sandy loam	SM, ML, SC-SM, CL-ML	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	58-80	Sandy loam, fine sandy loam, loam	SM, ML	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
RaC:												
Rabe------------	0-1	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	1-2	Loamy sand	SM	A-1, A-2	0	0-9	80-100	75-100	30-75	10-30	0-20	NP
	2-25	Fine sand, loamy fine sand, sand, loamy sand	SM, SP-SM	A-1, A-2, A-3	0	0-9	80-100	75-100	20-95	5-35	0-20	NP
	25-35	Sand, fine sand, loamy sand, loam, sandy loam	SM, ML	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	35-58	Sandy loam, fine sandy loam, loam	SM, ML, SC-SM, CL-ML	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	58-80	Sandy loam, loam, fine sandy loam	SM, ML	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
RaD:												
Rabe------------	0-1	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	1-2	Loamy sand	SM	A-1, A-2	0	0-9	80-100	75-100	30-75	10-30	0-20	NP
	2-25	Fine sand, loamy fine sand, sand, loamy sand	SM, SP-SM	A-1, A-2, A-3	0	0-9	80-100	75-100	20-95	5-35	0-20	NP
	25-35	Sandy loam, loam, loamy sand, fine sand, sand	SM, ML	A-2, A-4	0-1	0-9	80-100	75-98	50-95	25-65	10-30	NP-7
	35-58	Loam, fine sandy loam, sandy loam	SM, ML, SC-SM, CL-ML	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	14-30	NP-10
	58-80	Loam, sandy loam, fine sandy loam	SM, ML	A-4, A-2	0-1	0-9	80-100	75-98	50-95	25-65	10-25	NP-7
RbA:												
Robago----------	0-3	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	3-4	Fine sandy loam	SC-SM, SM	A-4, A-2-4	0	0	80-100	75-100	50-85	25-50	0-26	NP-8
	4-12	Loam, sandy loam, fine sandy loam	SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	50-90	25-50	0-26	NP-8
	12-18	Loam, sandy loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-2-4, A-4	0	0	80-100	75-100	50-95	25-75	0-26	NP-8
	18-26	Loam, sandy loam, fine sandy loam	CL-ML, ML, SM, SC-SM	A-2-4, A-4	0	0	80-100	75-100	50-95	25-75	0-26	NP-8
	26-35	Sandy loam, fine sandy loam, loam	ML, CL, SC, SM	A-2-4, A-4	0	0	80-100	75-100	50-95	25-75	18-28	3-9
	35-80	Stratified very fine sandy loam to silt loam	ML, SC-SM, CL-ML, SM	A-2-4, A-4	0	0	80-100	75-100	50-95	25-80	0-26	NP-8
RcA:												
Roscommon-------	0-6	Muck	PT	A-8	0	0	---	---	---	---	---	---
	6-60	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
RoB:												
Rosholt---------	0-4	Fine sandy loam	SM	A-2, A-4	0	0-3	80-100	75-100	45-85	20-50	0-21	NP-4
	4-10	Fine sandy loam, sandy loam, loam	ML, SC-SM, CL-ML, SM	A-2, A-4	0-1	0-3	90-100	85-100	50-95	25-75	0-26	NP-8
	10-22	Gravelly sandy loam, loam, loamy fine sand, loamy sand, sandy loam, fine sandy loam	ML, CL, SC, SM	A-1, A-4, A-2	0-1	0-3	55-100	50-100	30-95	15-75	0-26	NP-8
	22-30	Loamy sand, sand, very gravelly sand, gravelly sand	GM, SP-SM, GP-GM, SM	A-1, A-3, A-2	0-5	0-25	30-100	25-100	15-75	8-30	0-23	NP-6
	30-60	Stratified gravelly coarse sand to sand	GP, GM, SM, SP	A-1, A-2, A-3	0-5	0-25	30-100	25-100	7-70	1-15	0-14	NP
RoC:												
Rosholt---------	0-4	Fine sandy loam	SM	A-2, A-4	0	0-3	80-100	75-100	45-85	20-50	0-21	NP-4
	4-10	Sandy loam, loam, fine sandy loam	CL-ML, ML, SM, SC-SM	A-2, A-4	0-1	0-3	90-100	85-100	50-95	25-75	0-26	NP-8
	10-22	Loam, loamy fine sand, loamy sand, gravelly sandy loam, sandy loam, fine sandy loam	ML, CL, SC, SM	A-1, A-4, A-2	0-1	0-3	55-100	50-100	30-95	15-75	0-26	NP-8
	22-30	Loamy sand, sand, very gravelly sand, gravelly sand	GM, SP-SM, GP-GM, SM	A-1, A-3, A-2	0-5	0-25	30-100	25-100	15-75	8-30	0-23	NP-6
	30-60	Stratified gravelly coarse sand to sand	GP, GM, SM, SP	A-1, A-2, A-3	0-5	0-25	30-100	25-100	7-70	1-15	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
RoD:												
Rosholt---------	0-4	Fine sandy loam	SM	A-2, A-4	0	0-3	80-100	75-100	45-85	20-50	0-21	NP-4
	4-10	Sandy loam, loam, fine sandy loam	ML, CL-ML, SC-SM, SM	A-2, A-4	0-1	0-3	90-100	85-100	50-95	25-75	0-26	NP-8
	10-22	Loam, loamy fine sand, loamy sand, gravelly sandy loam, sandy loam, fine sandy loam	ML, CL, SC, SM	A-1, A-4, A-2	0-1	0-3	55-100	50-100	30-95	15-75	0-26	NP-8
	22-30	Gravelly sand, loamy sand, sand, very gravelly sand	GP-GM, GM, SM, SP-SM	A-1, A-3, A-2	0-5	0-25	30-100	25-100	15-75	8-30	0-23	NP-6
	30-60	Stratified gravelly coarse sand to sand	GM, GP, SP, SM	A-1, A-2, A-3	0-5	0-25	30-100	25-100	7-70	1-15	0-14	NP
RsB:												
Rousseau--------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-4	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-14	NP
	4-34	Loamy fine sand, fine sand	SM	A-2-4	0	0	100	100	65-95	20-35	0-14	NP
	34-60	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-14	NP
RsC:												
Rousseau--------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-4	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-14	NP
	4-34	Loamy fine sand, fine sand	SM	A-2-4	0	0	100	100	65-95	20-35	0-14	NP
	34-60	Sand, fine sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
RsD:												
Rousseau--------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-4	Fine sand	SM	A-2-4	0	0	100	100	65-80	20-35	0-14	NP
	4-34	Loamy fine sand, fine sand	SM	A-2-4	0	0	100	100	65-95	20-35	0-14	NP
	34-60	Fine sand, sand	SM, SP-SM	A-2-4, A-3	0	0	100	100	50-80	5-35	0-14	NP
ScA:												
Scott Lake------	0-3	Fine sandy loam	SC, SM	A-2-4, A-4	0	0-9	80-100	75-100	45-80	25-50	0-26	NP-8
	3-13	Fine sandy loam, sandy loam, loam	CL-ML, ML, SM, SC-SM	A-2-4, A-4	0	0-9	90-100	85-100	50-95	25-80	0-25	NP-7
	13-23	Sandy loam, loamy sand, fine sandy loam, loam, gravelly sandy loam	ML, CL, SC, SM	A-1-b, A-4, A-2-4	0	0-9	55-100	50-100	30-95	15-75	18-26	NP-8
	23-34	Sand, gravelly sand, loamy sand, gravelly loamy sand	SM, SC-SM	A-1-b, A-2-4	0	0-9	55-100	50-100	30-75	15-30	0-28	NP-9
	34-60	Stratified gravelly coarse sand to sand	GP, GM, SM, SP	A-1-a, A-3	0-1	0-25	30-95	25-90	7-65	1-30	0-14	NP
SfB:												
Shawano---------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-2	Fine sand	SM	A-2	0	0	95-100	95-100	65-80	20-35	0-14	NP
	2-26	Loamy fine sand, fine sand	SM	A-2, A-2-4	0	0	95-100	95-100	65-95	20-35	0-14	NP
	26-61	Sand, fine sand	SM	A-2, A-2-4	0	0	95-100	95-100	65-80	20-35	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
SfC:												
Shawano---------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-2	Fine sand	SM	A-2	0	0	95-100	95-100	65-80	20-35	0-14	NP
	2-26	Fine sand, loamy fine sand	SM	A-2, A-2-4	0	0	95-100	95-100	65-95	20-35	0-14	NP
	26-61	Sand, fine sand	SM	A-2, A-2-4	0	0	95-100	95-100	65-80	20-35	0-14	NP
SfD:												
Shawano---------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-2	Fine sand	SM	A-2	0	0	95-100	95-100	65-80	20-35	0-14	NP
	2-26	Fine sand, loamy fine sand	SM	A-2, A-2-4	0	0	95-100	95-100	65-95	20-35	0-14	NP
	26-61	Sand, fine sand	SM	A-2, A-2-4	0	0	95-100	95-100	65-80	20-35	0-14	NP
SuA:												
Sunia-----------	0-5	Sandy loam	SM	A-2-4, A-4	0	0-5	80-100	75-100	50-70	25-40	10-20	NP-5
	5-9	Fine sandy loam, sandy loam	SM, SC-SM	A-2-4, A-4	0	0-5	80-100	75-100	50-80	25-50	10-20	NP-7
	9-19	Loamy sand, fine sandy loam	SM, SC-SM	A-2-4	0	0-5	80-100	60-95	40-70	20-30	5-15	NP-5
	19-30	Sand, coarse sand	SM, SW-SM, SC-SM, SP, SP-SM	A-1, A-3, A-2-4	0	0-5	80-100	75-90	35-60	2-15	---	NP
	30-60	Stratified sand to coarse sand	SW-SM, SM, SP	A-1, A-3, A-2-4	0	0-5	80-100	75-90	40-60	2-15	---	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
TlC:												
Tilleda---------	0-4	Sandy loam	SM, SC-SM	A-4, A-2-4	0	0-8	80-100	75-100	60-70	30-40	20-30	NP-7
	4-17	Sandy loam, loam, fine sandy loam	ML, SM, SC-SM, CL-ML	A-4	0-1	0-8	80-100	75-100	50-95	35-65	0-25	NP-7
	17-53	Loam, fine sandy loam, sandy clay loam, clay loam	SC, CL-ML	A-4, A-6, A-7	0-1	0-8	80-100	75-100	50-100	35-55	20-44	3-22
	53-60	Silt loam, clay loam, loam	CL, ML, CL-ML	A-6, A-4, A-7	0-1	0-8	80-100	75-100	60-100	50-60	20-44	3-22
TlD:												
Tilleda---------	0-4	Sandy loam	SM, SC-SM	A-4, A-2-4	0	0-8	80-100	75-100	60-70	30-40	20-30	NP-7
	4-17	Loam, sandy loam, fine sandy loam	ML, SM, CL-ML, SC-SM	A-4	0-1	0-8	80-100	75-100	50-95	35-65	0-25	NP-7
	17-53	Clay loam, loam, fine sandy loam, sandy clay loam	SC, CL-ML	A-4, A-6, A-7	0-1	0-8	80-100	75-100	50-100	35-55	20-44	3-22
	53-60	Silt loam, clay loam, loam	CL, ML, CL-ML	A-6, A-4, A-7	0-1	0-8	80-100	75-100	60-100	50-60	20-44	3-22
TmA:												
Tipler----------	0-1	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	1-3	Fine sandy loam	SM	A-2, A-4	0	0-9	80-100	75-100	30-80	15-50	0-20	NP-4
	3-23	Fine sandy loam, loam, sandy loam	ML, CL, SC, SM	A-2, A-4	0	0-9	80-100	75-100	50-95	30-80	0-25	NP-8
	23-33	Gravelly sandy loam, sandy loam, fine sandy loam	ML, SC, CL, SM	A-2, A-1, A-4	0	0-9	60-100	55-100	35-95	20-80	0-30	NP-9
	33-60	Gravelly sand, stratified sand to gravelly coarse sand, very gravelly coarse sand, sand, coarse sand	GP, GM, SM, SP	A-2, A-1, A-3	0	0-9	45-85	40-85	25-70	2-15	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
ToB:												
Tourtillotte----	0-1	Highly decomposed plant material	---	A-8	0	0-5	---	---	---	---	---	---
	1-3	Loamy sand	SM, SP-SM	A-1, A-2	0	0-5	80-100	75-100	30-75	10-30	0-19	NP
	3-25	Loamy sand, sand, loamy fine sand, fine sand	SM, SP-SM	A-3, A-2	0	0-5	80-100	75-100	50-95	5-35	0-19	NP
	25-33	Sand, fine sand	SP, SP-SM, SM	A-2, A-3	0	0-5	80-100	75-100	50-80	2-35	0-19	NP
	33-56	Coarse sand, sand, fine sand	SP, SM, SP-SM	A-1, A-2, A-3	0	0-5	80-100	75-100	20-80	2-35	0-19	NP
	56-80	Stratified silt loam to very fine sand	CL, SM, ML, SC	A-4, A-2, A-6	0	0	95-100	90-100	50-100	25-85	15-30	NP-15
ToC:												
Tourtillotte----	0-1	Highly decomposed plant material	---	A-8	0	0-5	---	---	---	---	---	---
	1-3	Loamy sand	SM, SP-SM	A-2, A-1	0	0-5	80-100	75-100	30-75	10-30	0-19	NP
	3-25	Loamy fine sand, fine sand, sand, loamy sand	SM, SP-SM	A-3, A-2	0	0-5	80-100	75-100	50-95	5-35	0-19	NP
	25-33	Fine sand, sand	SM, SP-SM, SP	A-3, A-2	0	0-5	80-100	75-100	50-80	2-35	0-19	NP
	33-56	Sand, coarse sand, fine sand	SM, SP-SM, SP	A-1, A-2, A-3	0	0-5	80-100	75-100	20-80	2-35	0-19	NP
	56-80	Stratified silt loam to very fine sand	ML, CL, SC, SM	A-4, A-2, A-6	0	0	95-100	90-100	50-100	25-85	15-30	NP-15
UdD:												
Udipsamments (earthen dam)--	0-62	Sand	SP, SP-SM	A-2-4, A-3	0	0	95-100	90-100	4-70	5-15	---	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
VsB:												
Vilas-----------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-4	Loamy sand	SM	A-3, A-1-b, A-2-4	0	0	80-100	75-100	20-75	5-30	0-14	NP
	4-16	Sand, loamy sand	SM	A-1-b, A-2-4	0	0	80-100	75-100	30-75	10-30	0-14	NP
	16-61	Sand	SP, SP-SM	A-1-b, A-2-4, A-3	0	0	80-100	75-100	20-70	2-15	0-14	NP
VsC:												
Vilas-----------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-4	Loamy sand	SM	A-3, A-1-b, A-2-4	0	0	80-100	75-100	20-75	5-30	0-14	NP
	4-16	Loamy sand, sand	SM	A-1-b, A-2-4	0	0	80-100	75-100	30-75	10-30	0-14	NP
	16-61	Sand	SP, SP-SM	A-1-b, A-2-4, A-3	0	0	80-100	75-100	20-70	2-15	0-14	NP
VsD:												
Vilas-----------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-4	Loamy sand	SM	A-3, A-1-b, A-2-4	0	0	80-100	75-100	20-75	5-30	0-14	NP
	4-16	Loamy sand, sand	SM	A-1-b, A-2-4	0	0	80-100	75-100	30-75	10-30	0-14	NP
	16-61	Sand	SP, SP-SM	A-1-b, A-2-4, A-3	0	0	80-100	75-100	20-70	2-15	0-14	NP
W.												
Water												

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
WaA:												
Wainola---------	0-1	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	1-3	Loamy fine sand	SM	A-2-4	0	0	100	90-100	55-80	20-35	0-14	NP
	3-7	Loamy fine sand, fine sand	SP, SM, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	40-75	3-30	0-14	NP
	7-37	Loamy fine sand, fine sand	SP, SM, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	40-75	3-30	0-14	NP
	37-61	Loamy fine sand, sand, fine sand	SP, SM, SP-SM	A-1, A-2, A-3	0	0	75-100	75-100	40-70	3-15	0-14	NP
WkB:												
Wayka-----------	0-1	Highly decomposed plant material	---	A-8	0-2	0-20	---	---	---	---	---	---
	1-3	Sandy loam	ML, SC-SM, SM	A-4, A-2	0-2	0-20	85-100	80-100	50-85	25-55	10-25	NP-7
	3-17	Loam, fine sandy loam, sandy loam	ML, SM	A-4, A-2	0-2	0-20	85-100	80-100	50-95	25-65	10-25	NP-7
	17-21	Fine sandy loam, gravelly loamy sand, loam, sandy loam	ML, SM	A-4, A-2	0-10	0-25	55-100	50-98	35-95	15-65	10-30	NP-7
	21-27	Fine sandy loam, loamy sand, very gravelly loamy coarse sand	SC, SM	A-4, A-2, A-1	0-25	0-25	55-100	40-98	25-95	15-50	14-30	NP-10
	27	Bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
WrA:												
Worcester-------	0-3	Highly decomposed plant material	---	A-8	0	0-9	---	---	---	---	---	---
	3-6	Fine sandy loam	SC-SM, SC, SM	A-2-4, A-4	0	0-9	80-100	75-100	45-85	25-50	0-26	NP-8
	6-17	Fine sandy loam, loam, sandy loam	SC, SC-SM, SM	A-4, A-2-4	0	0-9	80-100	75-100	45-95	25-45	0-26	NP-8
	17-29	Loamy sand, loam, fine sandy loam, sandy loam, gravelly loam	SC, SM, SC-SM	A-1-b, A-2-4, A-4	0	0-9	55-100	50-100	35-95	12-45	18-28	3-9
	29-35	Gravelly coarse sand, sand, coarse sand, gravelly sand	GM, SM	A-1-a, A-3, A-2-4	0	0-9	30-100	25-100	10-70	5-15	0-18	NP-3
	35-63	Stratified sand to gravelly sand	GP, GM, SM, SP	A-1-a, A-3	0	0-9	30-100	25-100	7-70	1-15	0-14	NP
WtA:												
Wormet----------	0-3	Highly decomposed plant material	---	A-8	0	0-16	---	---	---	---	---	---
	3-7	Fine sandy loam	SC, SM	A-2-4, A-4	0	0-16	80-100	75-100	45-85	25-50	0-26	NP-8
	7-16	Loam, fine sandy loam, sandy loam	SC, SM	A-1-b, A-2-4, A-4	0	0-16	80-100	75-100	35-95	12-45	0-26	NP-8
	16-28	Gravelly sand, coarse sand, sand, loamy sand, fine sand, loamy fine sand	SM, GM, GP-GM, SP-SM	A-1-b, A-3	0	0-16	55-100	50-100	25-75	2-30	0-14	NP
	28-63	Fine sand	GM, SP, GP, SM	A-1-a, A-3	0	0-16	45-100	40-95	9-70	1-35	0-14	NP

Table 18.--Engineering Index Properties--Continued

Map symbol and component 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	
WuA:												
Wurtsmith-------	0-2	Highly decomposed plant material	---	A-8	0	0	---	---	---	---	---	---
	2-5	Sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	90-100	45-70	2-15	0-14	NP
	5-44	Sand	SP-SM, SP	A-2-4, A-3	0	0	95-100	90-100	45-70	2-15	0-14	NP
	44-62	Sand	SP, SP-SM	A-3, A-2-4	0	0	95-100	90-100	45-70	2-15	0-14	NP

Table 19.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
AfB:												
Aftad	0-4	8-12	1.35-1.55	0.60-2.00	0.18-0.22	0.0-2.9	1.0-3.0	.24	.24	5	5	56
	4-12	3-12	1.45-1.70	0.60-2.00	0.09-0.19	0.0-2.9	0.5-1.0	.43	.43			
	12-28	8-15	1.50-1.70	0.60-2.00	0.10-0.19	0.0-2.9	0.0-0.5	.43	.43			
	28-60	1-12	1.50-1.75	0.60-2.00	0.05-0.20	0.0-2.9	0.0-0.5	.32	.32			
AnB:												
Annalake	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	1-3	5-15	1.25-1.55	0.60-2.00	0.08-0.18	0.0-2.9	1.0-3.0	.24	.24			
	3-12	2-15	1.30-1.60	0.60-2.00	0.11-0.22	0.0-2.9	0.5-1.0	.24	.24			
	12-25	5-15	1.40-1.70	0.60-2.00	0.10-0.14	0.0-2.9	1.0-2.0	.24	.24			
	25-40	8-18	1.40-1.70	0.60-2.00	0.10-0.19	0.0-2.9	0.0-0.5	.24	.24			
	40-62	5-15	1.45-1.70	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
AtB:												
Antigo	0-4	8-15	1.25-1.55	0.60-2.00	0.20-0.24	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	4-12	8-15	1.35-1.55	0.60-2.00	0.20-0.22	0.0-2.9	0.5-1.0	.43	.43			
	12-24	8-17	1.55-1.65	0.60-2.00	0.16-0.22	0.0-2.9	0.0-0.5	.43	.43			
	24-27	2-10	1.55-1.70	0.60-2.00	0.05-0.19	0.0-2.9	0.0-0.5	.24	.24			
	27-60	1-6	1.50-1.70	6.00-60	0.02-0.06	0.0-2.9	0.0-0.5	.10	.10			
AuA:												
Au Gres	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-3	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---			
	3-7	10-15	1.30-1.55	6.00-20	0.07-0.09	0.0-2.9	0.5-2.0	.17	.17			
	7-21	1-15	1.50-1.70	6.00-20	0.06-0.09	0.0-2.9	0.6-1.0	.10	.15			
	21-63	0-8	1.50-1.70	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.10	.15			
CeB:												
Cress	0-3	5-18	1.25-1.60	0.60-2.00	0.12-0.18	0.0-2.9	0.5-2.0	.24	.24	3	3	86
	3-14	5-18	1.40-1.70	0.60-2.00	0.10-0.17	0.0-2.9	0.5-1.0	.24	.24			
	14-26	0-8	1.50-1.80	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.17	.17			
	26-60	0-8	1.50-1.80	20-60	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15			
CeC:												
Cress	0-3	5-18	1.25-1.60	0.60-2.00	0.12-0.18	0.0-2.9	0.5-2.0	.24	.24	3	3	86
	3-14	5-18	1.40-1.70	0.60-2.00	0.10-0.17	0.0-2.9	0.5-1.0	.24	.24			
	14-26	0-8	1.50-1.80	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.17	.17			
	26-60	0-8	1.50-1.80	20-60	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15			
CeD:												
Cress	0-3	5-18	1.25-1.60	0.60-2.00	0.12-0.18	0.0-2.9	0.5-2.0	.24	.24	3	3	86
	3-14	5-18	1.40-1.70	0.60-2.00	0.10-0.17	0.0-2.9	0.5-1.0	.24	.24			
	14-26	0-8	1.50-1.80	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.17	.17			
	26-60	0-8	1.50-1.80	20-60	0.01-0.03	0.0-2.9	0.0-0.5	.10	.15			
CmA:												
Crex	0-3	2-7	1.35-1.60	6.00-20	0.10-0.12	0.0-2.9	0.5-8.0	.15	.15	5	1	250
	3-37	2-7	1.45-1.70	6.00-20	0.06-0.11	0.0-2.9	0.0-0.5	.15	.15			
	37-60	1-4	1.50-1.70	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
CrB:												
Cromwell	0-21	5-18	1.20-1.40	0.60-6.00	0.16-0.18	0.0-2.9	0.5-2.0	.20	.24	3	3	86
	21-60	0-8	1.35-1.60	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.05	.15			
CrC:												
Cromwell	0-21	5-18	1.20-1.40	0.60-6.00	0.16-0.18	0.0-2.9	0.5-2.0	.20	.24	3	3	86
	21-60	0-8	1.35-1.60	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.05	.15			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
CrD:												
Cromwell	0-21	5-18	1.20-1.40	0.60-6.00	0.16-0.18	0.0-2.9	0.5-2.0	.20	.24	3	3	86
	21-60	0-8	1.35-1.60	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.05	.15			
CsA:												
Croswell	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	2-4	5-15	1.30-1.50	6.00-20	0.09-0.12	0.0-2.9	0.5-2.0	.17	.17			
	4-26	0-10	1.40-1.60	6.00-20	0.06-0.10	0.0-2.9	0.6-1.0	.10	.15			
	26-62	0-10	1.50-1.65	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.10	.15			
FeB:												
Frechette	0-4	3-15	1.35-1.70	0.60-2.00	0.13-0.18	0.0-2.9	2.0-4.0	.24	.24	5	3	86
	4-12	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	12-45	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	45-63	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	63-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.24	.24			
FeC:												
Frechette	0-4	3-15	1.35-1.70	0.60-2.00	0.13-0.18	0.0-2.9	2.0-4.0	.24	.24	5	3	86
	4-12	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	12-45	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	45-63	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	63-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.24	.24			
FeD:												
Frechette	0-4	3-15	1.35-1.70	0.60-2.00	0.13-0.18	0.0-2.9	2.0-4.0	.24	.24	5	3	86
	4-12	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	12-45	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	45-63	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	63-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.24	.24			
FrB:												
Frechette	0-4	3-15	1.35-1.70	0.60-2.00	0.13-0.18	0.0-2.9	2.0-4.0	.24	.24	5	3	86
	4-12	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	12-45	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	45-63	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	63-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.24	.24			
FrC:												
Frechette	0-4	3-15	1.35-1.70	0.60-2.00	0.13-0.18	0.0-2.9	2.0-4.0	.24	.24	5	3	86
	4-12	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	12-45	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	45-63	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	63-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.24	.24			
FrD:												
Frechette	0-4	3-15	1.35-1.70	0.60-2.00	0.13-0.18	0.0-2.9	2.0-4.0	.24	.24	5	3	86
	4-12	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	12-45	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	45-63	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	63-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.24	.24			
GaB:												
Grayling	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	220
	2-5	2-6	1.30-1.65	6.00-20	0.07-0.12	0.0-2.9	1.0-6.0	.15	.17			
	5-26	1-5	1.30-1.65	6.00-20	0.06-0.12	0.0-2.9	0.3-0.5	.15	.17			
	26-62	0-5	1.45-1.65	6.00-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
GaC:												
Grayling	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	220
	2-5	2-6	1.30-1.65	6.00-20	0.07-0.12	0.0-2.9	1.0-6.0	.15	.17			
	5-26	1-5	1.30-1.65	6.00-20	0.06-0.12	0.0-2.9	0.3-0.5	.15	.17			
	26-62	0-5	1.45-1.65	6.00-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
GaD:												
Grayling--------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	220
	2-5	2-6	1.30-1.65	6.00-20	0.07-0.12	0.0-2.9	1.0-6.0	.15	.17			
	5-26	1-5	1.30-1.65	6.00-20	0.06-0.12	0.0-2.9	0.3-0.5	.15	.17			
	26-62	0-5	1.45-1.65	6.00-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
GyB:												
Grayling--------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	220
	2-5	0-5	1.30-1.65	6.00-20	0.07-0.09	0.0-2.9	1.0-6.0	.15	.15			
	5-26	0-5	1.30-1.65	6.00-20	0.06-0.08	0.0-2.9	0.3-0.5	.15	.15			
	26-62	0-5	1.45-1.65	6.00-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
GyC:												
Grayling--------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	220
	2-5	0-5	1.30-1.65	6.00-20	0.07-0.09	0.0-2.9	1.0-6.0	.15	.15			
	5-26	0-5	1.30-1.65	6.00-20	0.06-0.08	0.0-2.9	0.3-0.5	.15	.15			
	26-62	0-5	1.45-1.65	6.00-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
GyD:												
Grayling--------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	220
	2-5	0-5	1.30-1.65	6.00-20	0.07-0.09	0.0-2.9	1.0-6.0	.15	.15			
	5-26	0-5	1.30-1.65	6.00-20	0.06-0.08	0.0-2.9	0.3-0.5	.15	.15			
	26-62	0-5	1.45-1.65	6.00-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15			
IgA:												
Ingalls---------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	2-5	2-10	1.25-1.40	6.00-20	0.07-0.10	0.0-2.9	0.5-2.0	.17	.17			
	5-26	3-15	1.35-1.45	6.00-20	0.05-0.10	0.0-2.9	0.0-0.5	.17	.17			
	26-33	2-8	1.45-1.65	6.00-20	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	33-60	2-20	1.45-1.80	0.20-0.60	0.09-0.22	0.0-2.9	0.0-0.5	.43	.43			
IsB:												
Iosco-----------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	2-4	10-15	1.25-1.40	6.00-20	0.10-0.12	0.0-2.9	0.5-2.0	.17	.17			
	4-35	0-15	1.35-1.60	6.00-20	0.06-0.11	0.0-2.9	0.0-1.0	.17	.17			
	35-42	16-35	1.50-1.70	0.20-2.00	0.16-0.20	3.0-5.9	0.0-0.5	.37	.37			
	42-62	15-35	1.50-1.70	0.20-2.00	0.17-0.20	3.0-5.9	0.0-0.5	.37	.37			
IxB:												
Ishpeming-------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	1	220
	2-7	2-10	1.30-1.60	6.00-20	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15			
	7-27	2-15	1.30-1.60	6.00-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
	27-47	---	---	0.01-0.06	---	---	---	---	---			
Rock outcrop.												
IxC:												
Ishpeming-------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	1	220
	2-7	2-10	1.30-1.60	6.00-20	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15			
	7-27	2-15	1.30-1.60	6.00-20	0.05-0.11	0.0-2.9	0.0-0.5	.17	.17			
	27-47	---	---	0.01-0.06	---	---	---	---	---			
Rock outcrop.												
KaB:												
Karlin----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	1-3	5-15	1.35-1.60	2.00-6.00	0.15-0.17	0.0-2.9	0.6-1.0	.24	.24			
	3-15	5-15	1.35-1.60	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.24	.24			
	15-33	0-15	1.40-1.65	6.00-20	0.03-0.08	0.0-2.9	0.0-0.5	.15	.17			
	33-60	0-10	1.40-1.70	6.00-20	0.03-0.04	0.0-2.9	0.0-0.5	.10	.15			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
KaC:												
Karlin----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	1-3	5-15	1.35-1.60	2.00-6.00	0.15-0.17	0.0-2.9	0.6-1.0	.24	.24			
	3-15	5-15	1.35-1.60	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.24	.24			
	15-33	0-15	1.40-1.65	6.00-20	0.03-0.08	0.0-2.9	0.0-0.5	.15	.17			
	33-60	0-10	1.40-1.70	6.00-20	0.03-0.04	0.0-2.9	0.0-0.5	.10	.15			
KaD:												
Karlin----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	1-3	5-15	1.35-1.60	2.00-6.00	0.15-0.17	0.0-2.9	0.6-1.0	.24	.24			
	3-15	5-15	1.35-1.60	2.00-6.00	0.15-0.17	0.0-2.9	1.0-2.0	.24	.24			
	15-33	0-15	1.40-1.65	6.00-20	0.03-0.08	0.0-2.9	0.0-0.5	.15	.17			
	33-60	0-10	1.40-1.70	6.00-20	0.03-0.04	0.0-2.9	0.0-0.5	.10	.15			
KeC:												
Kennan----------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	2-4	5-15	1.20-1.60	0.60-2.00	0.10-0.20	0.0-2.9	0.5-2.0	.37	.37			
	4-15	3-12	1.40-1.70	0.60-2.00	0.07-0.22	0.0-2.9	---	.24	.24			
	15-21	5-18	1.55-1.70	0.60-2.00	0.08-0.22	0.0-2.9	---	.24	.24			
	21-66	5-18	1.55-1.70	0.60-2.00	0.04-0.18	0.0-2.9	---	.24	.24			
	66-80	3-10	1.55-1.70	0.60-6.00	0.03-0.12	0.0-2.9	---	.17	.17			
KeD:												
Kennan----------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	2-4	5-15	1.20-1.60	0.60-2.00	0.10-0.20	0.0-2.9	0.5-2.0	.37	.37			
	4-15	3-12	1.40-1.70	0.60-2.00	0.07-0.22	0.0-2.9	---	.24	.24			
	15-21	5-18	1.55-1.70	0.60-2.00	0.08-0.22	0.0-2.9	---	.24	.24			
	21-66	5-18	1.55-1.70	0.60-2.00	0.04-0.18	0.0-2.9	---	.24	.24			
	66-80	3-10	1.55-1.70	0.60-6.00	0.03-0.12	0.0-2.9	---	.17	.17			
KoC:												
Kennan----------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	5	56
	2-4	5-15	1.20-1.60	0.60-2.00	0.10-0.20	0.0-2.9	0.5-2.0	.37	.37			
	4-15	3-12	1.40-1.70	0.60-2.00	0.07-0.22	0.0-2.9	---	.24	.24			
	15-21	5-18	1.55-1.70	0.60-2.00	0.08-0.22	0.0-2.9	---	.24	.24			
	21-66	5-18	1.55-1.70	0.60-2.00	0.04-0.18	0.0-2.9	---	.24	.24			
	66-80	3-10	1.55-1.70	0.60-6.00	0.03-0.12	0.0-2.9	---	.17	.17			
KoD:												
Kennan----------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	5	56
	2-4	5-15	1.20-1.60	0.60-2.00	0.10-0.20	0.0-2.9	0.5-2.0	.37	.37			
	4-15	3-12	1.40-1.70	0.60-2.00	0.07-0.22	0.0-2.9	---	.24	.24			
	15-21	5-18	1.55-1.70	0.60-2.00	0.08-0.22	0.0-2.9	---	.24	.24			
	21-66	5-18	1.55-1.70	0.60-2.00	0.04-0.18	0.0-2.9	---	.24	.24			
	66-80	3-10	1.55-1.70	0.60-6.00	0.03-0.12	0.0-2.9	---	.17	.17			
KxB:												
Keshena---------------	0-3	4-15	1.35-1.60	0.60-2.00	0.14-0.18	0.0-2.9	2.0-4.0	.24	.24	5	3	86
	3-19	4-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	19-49	16-30	1.40-1.70	0.20-2.00	0.10-0.19	3.0-5.9	0.0-0.5	.24	.24			
	49-75	18-35	1.55-1.65	0.20-2.00	0.12-0.19	3.0-5.9	0.0-0.5	.32	.32			
	75-80	10-35	1.55-1.65	0.20-0.60	0.12-0.22	3.0-5.9	0.0-0.5	.37	.37			
LaB:												
Lablatz---------------	0-4	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	4-7	3-15	1.35-1.70	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24			
	7-16	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	16-30	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	30-41	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	41-64	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.24	.24			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
LDF.												
Landfill												
LoA:												
Loxley----------------	0-10	0-0	0.30-0.40	6.00-20	0.35-0.65	---	70-90	.10	.10	5	7	38
	10-60	0-0	0.10-0.35	0.20-6.00	0.35-0.45	---	70-90	---	---			
LuA:												
Lupton----------------	0-7	0-0	0.10-0.35	0.20-6.00	0.35-0.45	---	70-90	.10	.10	5	2	134
	7-60	0-0	0.10-0.35	0.20-6.00	0.35-0.45	---	70-90	---	---			
Markey----------------	0-28	---	0.15-0.45	0.20-6.00	0.35-0.45	---	55-85	.10	.10	4	2	134
	28-60	0-10	1.40-1.65	6.00-60	0.03-0.08	0.0-2.9	0.0-0.5	.10	.15			
Cathro----------------	0-8	0-0	0.28-0.45	0.20-6.00	0.35-0.45	---	60-85	.10	.10	5	2	134
	8-37	0-0	0.15-0.30	0.20-6.00	0.35-0.45	---	60-85	.10	.10			
	37-60	10-30	1.50-1.70	0.20-2.00	0.11-0.22	0.0-2.9	0.0-0.5	.32	---			
M-W.												
Miscellaneous water												
MaB:												
Mahtomedi-------------	0-4	2-15	1.40-1.60	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	4-20	0-10	1.40-1.50	6.00-20	0.06-0.08	0.0-2.9	0.0-0.5	.10	.10			
	20-38	0-8	1.45-1.75	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
	38-60	0-8	1.45-1.75	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
MaC:												
Mahtomedi-------------	0-4	2-15	1.40-1.60	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	4-20	0-10	1.40-1.50	6.00-20	0.06-0.08	0.0-2.9	0.0-0.5	.10	.10			
	20-38	0-8	1.45-1.75	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
	38-60	0-8	1.45-1.75	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
MaD:												
Mahtomedi-------------	0-4	2-15	1.40-1.60	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	4-20	0-10	1.40-1.50	6.00-20	0.06-0.08	0.0-2.9	0.0-0.5	.10	.10			
	20-38	0-8	1.45-1.75	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
	38-60	0-8	1.45-1.75	6.00-20	0.02-0.07	0.0-2.9	0.0-0.5	.05	.10			
MoC:												
Menominee-------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	2-4	2-12	1.35-1.65	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	4-27	5-12	1.45-1.70	6.00-20	0.04-0.10	0.0-2.9	0.0-0.5	.15	.17			
	27-60	18-35	1.45-1.70	0.20-2.00	0.14-0.18	3.0-5.9	0.0-0.5	.28	.32			
	60-80	12-35	1.45-1.75	0.20-2.00	0.13-0.18	3.0-5.9	0.0-0.5	.32	.37			
MoD:												
Menominee-------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	2-4	2-12	1.35-1.65	2.00-6.00	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	4-27	5-12	1.45-1.70	6.00-20	0.04-0.10	0.0-2.9	0.0-0.5	.15	.17			
	27-60	18-35	1.45-1.70	0.20-2.00	0.14-0.18	3.0-5.9	0.0-0.5	.28	.32			
	60-80	12-35	1.45-1.75	0.20-2.00	0.13-0.18	3.0-5.9	0.0-0.5	.32	.37			
MqB:												
Mequithy--------------	0-3	3-15	1.35-1.55	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	3	3	86
	3-4	3-15	1.50-1.65	0.60-2.00	0.12-0.19	0.0-2.9	0.0-1.0	.24	.24			
	4-13	3-15	1.50-1.65	0.60-2.00	0.12-0.19	0.0-2.9	1.0-2.0	.24	.24			
	13-21	3-15	1.50-1.65	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	21-27	6-18	1.40-1.70	0.60-2.00	0.08-0.19	0.0-2.9	0.0-0.5	.24	.24			
	27-48	---	---	0.01-20	---	---	---	---	---			
Rock outcrop.												

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
MqC:												
Mequithy----------------	0-3	3-15	1.35-1.55	0.60-2.00	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	3	3	86
	3-4	3-15	1.50-1.65	0.60-2.00	0.12-0.19	0.0-2.9	0.0-1.0	.24	.24			
	4-13	3-15	1.50-1.65	0.60-2.00	0.12-0.19	0.0-2.9	1.0-2.0	.24	.24			
	13-21	3-15	1.50-1.65	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	21-27	6-18	1.40-1.70	0.60-2.00	0.08-0.19	0.0-2.9	0.0-0.5	.24	.24			
	27-48	---	---	0.01-20	---	---	---	---	---			
Rock outcrop.												
MuA:												
Minocqua----------------	0-6	0-0	0.15-0.45	2.00-6.00	0.35-0.45	0.0-2.9	30-60	.10	.10	4	2	134
	6-30	10-17	1.50-1.60	0.60-2.00	0.11-0.19	0.0-2.9	0.5-2.0	.43	.43			
	30-38	3-17	1.65-1.75	2.00-20	0.06-0.13	0.0-2.9	0.0-0.5	.10	.15			
	38-66	0-3	1.75-1.85	6.00-60	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
MwB:												
Moodig------------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	2-5	4-15	1.35-1.70	0.60-2.00	0.09-0.15	0.0-2.9	1.0-2.0	.24	.24			
	5-14	4-15	1.40-1.70	0.60-2.00	0.09-0.22	0.0-2.9	0.5-1.0	.32	.32			
	14-25	4-17	1.40-1.70	0.60-2.00	0.07-0.21	0.0-2.9	0.0-0.5	.28	.28			
	25-49	5-17	1.40-1.70	0.60-2.00	0.07-0.21	0.0-2.9	0.0-0.5	.28	.28			
	49-62	4-12	1.40-1.70	0.60-6.00	0.05-0.14	0.0-2.9	0.0-0.5	.20	.20			
MxB:												
Morganlake--------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	2-4	1-12	1.35-1.60	2.00-20	0.09-0.14	0.0-2.9	0.5-1.0	.17	.17			
	4-26	1-12	1.45-1.70	2.00-20	0.06-0.12	0.0-2.9	1.0-2.0	.17	.17			
	26-36	1-12	1.45-1.70	2.00-20	0.06-0.12	0.0-2.9	0.5-1.0	.17	.17			
	36-65	18-35	1.45-1.65	0.20-0.60	0.13-0.20	3.0-5.9	0.0-0.5	.43	.43			
	65-80	18-35	1.50-1.75	0.20-0.60	0.12-0.18	3.0-5.9	0.0-0.5	.43	.43			
MzB:												
Moshawquit--------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-3	1-7	1.35-1.65	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	3-26	1-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.5-1.0	.17	.17			
	26-48	2-18	1.40-1.70	0.60-2.00	0.05-0.19	0.0-2.9	0.0-0.5	.24	.24			
	48-60	0-3	1.55-1.80	0.0000-6.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
MzC:												
Moshawquit--------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-3	1-7	1.35-1.65	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	3-26	1-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.5-1.0	.17	.17			
	26-48	2-18	1.40-1.70	0.60-2.00	0.05-0.19	0.0-2.9	0.0-0.5	.24	.24			
	48-60	0-3	1.55-1.80	0.0000-6.00	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
NeA:												
Neconish----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-4	2-6	1.50-1.65	6.00-20	0.06-0.09	0.0-2.9	0.5-1.0	.15	.15			
	4-36	2-7	1.35-1.65	6.00-60	0.05-0.11	0.0-2.9	0.0-0.5	.15	.15			
	36-60	0-4	1.50-1.70	6.00-60	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
NoB:												
Neopit------------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	5	56
	1-4	4-12	1.35-1.65	0.60-2.00	0.06-0.15	0.0-2.9	0.5-2.0	.24	.24			
	4-12	4-12	1.40-1.80	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.32	.32			
	12-20	4-15	1.40-1.80	0.60-6.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	20-67	5-18	1.40-1.80	0.60-6.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	67-80	2-10	1.35-1.80	0.60-6.00	0.06-0.14	0.0-2.9	0.0-0.5	.28	.28			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
NpB:												
Neopit----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	5	56
	1-4	4-15	1.35-1.65	0.60-2.00	0.17-0.22	0.0-2.9	0.5-2.0	.37	.37			
	4-12	4-15	1.40-1.80	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.32	.32			
	12-20	4-15	1.40-1.80	0.60-6.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	20-67	5-18	1.40-1.80	0.60-6.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	67-80	2-10	1.35-1.80	0.60-6.00	0.06-0.14	0.0-2.9	0.0-0.5	.28	.28			
NsA:												
Noseum----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	1-3	4-15	1.35-1.70	2.00-6.00	0.13-0.18	0.0-2.9	1.0-4.0	.24	.24			
	3-14	4-15	1.40-1.70	2.00-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.24	.24			
	14-32	1-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.0-0.5	.17	.17			
	32-60	0-3	1.55-1.70	6.00-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
PaB:												
Padus-----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	4	3	86
	1-4	3-6	1.35-1.70	0.60-2.00	0.10-0.18	0.0-2.9	0.8-1.2	.24	.24			
	4-13	4-8	1.40-1.70	0.60-2.00	0.09-0.19	0.0-2.9	1.0-2.0	.24	.24			
	13-22	6-10	1.40-1.70	0.60-2.00	0.09-0.19	0.0-2.9	0.5-1.0	.24	.24			
	22-27	6-12	1.40-1.70	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	27-31	0-3	1.55-1.80	6.00-60	0.01-0.06	0.0-2.9	0.0-0.5	.10	.10			
	31-60	0-3	1.55-1.80	6.00-60	0.01-0.06	0.0-2.9	0.0-0.5	.10	.10			
PaC:												
Padus-----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	4	3	86
	1-4	3-6	1.35-1.70	0.60-2.00	0.10-0.18	0.0-2.9	0.8-1.2	.24	.24			
	4-13	4-8	1.40-1.70	0.60-2.00	0.09-0.19	0.0-2.9	1.0-2.0	.24	.24			
	13-22	6-10	1.40-1.70	0.60-2.00	0.09-0.19	0.0-2.9	0.5-1.0	.24	.24			
	22-27	6-12	1.40-1.70	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	27-31	0-3	1.55-1.80	6.00-60	0.01-0.06	0.0-2.9	0.0-0.5	.10	.10			
	31-60	0-3	1.55-1.80	6.00-60	0.01-0.06	0.0-2.9	0.0-0.5	.10	.10			
PaD:												
Padus-----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	4	3	86
	1-4	3-6	1.35-1.70	0.60-2.00	0.10-0.18	0.0-2.9	0.8-1.2	.24	.24			
	4-13	4-8	1.40-1.70	0.60-2.00	0.09-0.19	0.0-2.9	1.0-2.0	.24	.24			
	13-22	6-10	1.40-1.70	0.60-2.00	0.09-0.19	0.0-2.9	0.5-1.0	.24	.24			
	22-27	6-12	1.40-1.70	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	27-31	0-3	1.55-1.80	6.00-60	0.01-0.06	0.0-2.9	0.0-0.5	.10	.10			
	31-60	0-3	1.55-1.80	6.00-60	0.01-0.06	0.0-2.9	0.0-0.5	.10	.10			
PbB:												
Padwet----------------	0-3	3-10	1.35-1.70	0.60-2.00	0.10-0.15	0.0-2.9	2.0-3.0	.24	.24	4	3	86
	3-5	3-14	1.40-1.65	0.60-2.00	0.09-0.19	0.0-2.9	0.5-1.0	.24	.24			
	5-22	5-15	1.40-1.65	0.60-2.00	0.09-0.19	0.0-2.9	1.0-2.0	.24	.24			
	22-38	6-17	1.40-1.65	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	38-60	0-3	1.55-1.80	6.00-20	0.01-0.06	0.0-2.9	0.0-0.5	.15	.15			
PeB:												
Pecore----------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	5	56
	2-4	4-15	1.35-1.55	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.32	.32			
	4-10	4-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.32	.32			
	10-27	10-30	1.40-1.70	0.60-2.00	0.12-0.19	2.9-5.9	0.0-0.5	.32	.32			
	27-47	18-35	1.55-1.65	0.60-2.00	0.12-0.22	2.9-5.9	0.0-0.5	.32	.32			
	47-62	0-3	1.55-1.80	6.00-60	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea-bility	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
PeC:												
Pecore	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	5	56
	2-4	4-15	1.35-1.55	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.32	.32			
	4-10	4-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.32	.32			
	10-27	10-30	1.40-1.70	0.60-2.00	0.12-0.19	2.9-5.9	0.0-0.5	.32	.32			
	27-47	18-35	1.55-1.65	0.60-2.00	0.12-0.22	2.9-5.9	0.0-0.5	.32	.32			
	47-62	0-3	1.55-1.80	6.00-60	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
PeD:												
Pecore	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	5	56
	2-4	4-15	1.35-1.55	0.60-2.00	0.20-0.22	0.0-2.9	2.0-4.0	.32	.32			
	4-10	4-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.32	.32			
	10-27	10-30	1.40-1.70	0.60-2.00	0.12-0.19	2.9-5.9	0.0-0.5	.32	.32			
	27-47	18-35	1.55-1.65	0.60-2.00	0.12-0.22	2.9-5.9	0.0-0.5	.32	.32			
	47-62	0-3	1.55-1.80	6.00-60	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
PnB:												
Pence	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	2-5	3-15	1.20-1.65	2.00-6.00	0.10-0.18	0.0-2.9	0.0-1.0	.24	.24			
	5-14	2-15	1.35-1.45	2.00-6.00	0.10-0.15	0.0-2.9	1.0-2.0	.17	.24			
	14-18	2-10	1.65-1.75	2.00-60	0.05-0.08	0.0-2.9	0.0-0.5	.05	.10			
	18-62	0-4	1.35-1.80	6.00-60	0.02-0.05	0.0-2.9	0.0-0.5	.05	.10			
PnC:												
Pence	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	2-5	3-15	1.20-1.65	2.00-6.00	0.10-0.18	0.0-2.9	0.0-1.0	.24	.24			
	5-14	2-15	1.35-1.45	2.00-6.00	0.10-0.15	0.0-2.9	1.0-2.0	.17	.24			
	14-18	2-10	1.65-1.75	2.00-60	0.05-0.08	0.0-2.9	0.0-0.5	.05	.10			
	18-62	0-4	1.35-1.80	6.00-60	0.02-0.05	0.0-2.9	0.0-0.5	.05	.10			
PnD:												
Pence	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	2-5	3-15	1.20-1.65	2.00-6.00	0.10-0.18	0.0-2.9	0.0-1.0	.24	.24			
	5-14	2-15	1.35-1.45	2.00-6.00	0.10-0.15	0.0-2.9	1.0-2.0	.17	.24			
	14-18	2-10	1.65-1.75	2.00-60	0.05-0.08	0.0-2.9	0.0-0.5	.05	.10			
	18-62	0-4	1.35-1.80	6.00-60	0.02-0.05	0.0-2.9	0.0-0.5	.05	.10			
PrB:												
Perote	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	2-4	3-15	1.35-1.55	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24			
	4-11	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	11-29	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	29-51	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	51-60	0-3	1.55-1.80	6.00-60	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
PrC:												
Perote	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	2-4	3-15	1.35-1.55	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24			
	4-11	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	11-29	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	29-51	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	51-60	0-3	1.55-1.80	6.00-60	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
PrD:												
Perote	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	2-4	3-15	1.35-1.55	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.24	.24			
	4-11	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	11-29	2-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	29-51	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.24	.24			
	51-60	0-3	1.55-1.80	6.00-60	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
PsB:												
Peshtigo--------------	0-5	4-15	1.35-1.60	0.60-2.00	0.16-0.18	0.0-2.9	2.0-4.0	.32	.32	5	3	86
	5-11	4-15	1.35-1.55	0.60-2.00	0.14-0.20	0.0-2.9	0.5-2.0	.24	.24			
	11-29	10-30	1.40-1.70	0.60-2.00	0.10-0.19	2.9-5.9	0.0-0.5	.24	.24			
	29-62	18-35	1.55-1.65	0.60-2.00	0.12-0.19	2.9-5.9	0.0-0.5	.32	.32			
	62-80	10-35	1.55-1.65	0.20-0.60	0.12-0.22	2.9-5.9	0.0-0.5	.37	.37			
Pt:												
Pits, gravel----------	0-10	0-5	---	---	---	---	---	.02	.02	5	1	250
RaB:												
Rabe------------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-2	1-7	1.35-1.65	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	2-25	1-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.5-1.0	.17	.17			
	25-35	2-18	1.40-1.70	0.60-2.00	0.05-0.19	0.0-2.9	0.0-0.5	.28	.28			
	35-58	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.28	.28			
	58-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.28	.28			
RaC:												
Rabe------------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-2	1-7	1.35-1.65	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	2-25	1-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.5-1.0	.17	.17			
	25-35	2-18	1.40-1.70	0.60-2.00	0.05-0.19	0.0-2.9	0.0-0.5	.28	.28			
	35-58	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.28	.28			
	58-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.28	.28			
RaD:												
Rabe------------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-2	1-7	1.35-1.65	6.00-20	0.10-0.12	0.0-2.9	0.5-1.0	.17	.17			
	2-25	1-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.5-1.0	.17	.17			
	25-35	2-18	1.40-1.70	0.60-2.00	0.05-0.19	0.0-2.9	0.0-0.5	.28	.28			
	35-58	6-18	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.0-0.5	.28	.28			
	58-80	2-15	1.35-1.70	0.60-2.00	0.11-0.19	0.0-2.9	0.0-0.5	.28	.28			
RbA:												
Robago----------------	0-3	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	3	86
	3-4	5-15	1.25-1.55	0.60-2.00	0.08-0.18	0.0-2.9	2.0-4.0	.24	.24			
	4-12	2-15	1.30-1.60	0.60-2.00	0.11-0.18	0.0-2.9	0.5-1.0	.24	.24			
	12-18	5-15	1.40-1.70	0.60-2.00	0.10-0.14	0.0-2.9	1.0-2.0	.24	.24			
	18-26	5-15	1.40-1.70	0.60-2.00	0.10-0.14	0.0-2.9	0.0-0.5	.24	.24			
	26-35	8-18	1.40-1.70	0.60-2.00	0.10-0.14	0.0-2.9	0.0-0.5	.24	.24			
	35-80	5-15	1.45-1.70	0.60-2.00	0.10-0.15	0.0-2.9	0.0-0.5	.24	.24			
RcA:												
Roscommon-------------	0-6	0-0	0.20-0.30	0.20-6.00	0.35-0.45	---	40-60	.10	.10	5	2	134
	6-60	0-3	1.45-1.70	6.00-20	0.05-0.09	0.0-2.9	---	.17	.17			
RoB:												
Rosholt---------------	0-4	4-10	1.50-1.60	0.60-6.00	0.10-0.18	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	4-10	3-12	1.70-1.80	0.60-6.00	0.10-0.22	0.0-2.9	0.0-1.0	.24	.24			
	10-22	6-15	1.65-1.75	0.60-6.00	0.09-0.19	0.0-2.9	0.0-0.5	.24	.24			
	22-30	4-12	1.55-1.65	0.60-6.00	0.04-0.16	0.0-2.9	0.0-0.5	.10	.17			
	30-60	0-5	1.50-1.80	6.00-60	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
RoC:												
Rosholt---------------	0-4	4-10	1.50-1.60	0.60-6.00	0.10-0.18	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	4-10	3-12	1.70-1.80	0.60-6.00	0.10-0.22	0.0-2.9	0.0-1.0	.24	.24			
	10-22	6-15	1.65-1.75	0.60-6.00	0.09-0.19	0.0-2.9	0.0-0.5	.24	.24			
	22-30	4-12	1.55-1.65	0.60-6.00	0.04-0.16	0.0-2.9	0.0-0.5	.10	.17			
	30-60	0-5	1.50-1.80	6.00-60	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
RoD:												
Rosholt	0-4	4-10	1.50-1.60	0.60-6.00	0.10-0.18	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	4-10	3-12	1.70-1.80	0.60-6.00	0.10-0.22	0.0-2.9	0.0-1.0	.24	.24			
	10-22	6-15	1.65-1.75	0.60-6.00	0.09-0.19	0.0-2.9	0.0-0.5	.24	.24			
	22-30	4-12	1.55-1.65	0.60-6.00	0.04-0.16	0.0-2.9	0.0-0.5	.10	.17			
	30-60	0-5	1.50-1.80	6.00-60	0.02-0.04	0.0-2.9	0.0-0.5	.10	.10			
RsB:												
Rousseau	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15			
	4-34	0-10	1.30-1.60	6.00-20	0.06-0.08	0.0-2.9	0.6-1.0	.15	.15			
	34-60	0-10	1.50-1.65	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
RsC:												
Rousseau	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15			
	4-34	0-10	1.30-1.60	6.00-20	0.06-0.08	0.0-2.9	0.6-1.0	.15	.15			
	34-60	0-10	1.50-1.65	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
RsD:												
Rousseau	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-4	0-10	1.30-1.55	6.00-20	0.07-0.09	0.0-2.9	0.0-1.0	.15	.15			
	4-34	0-10	1.30-1.60	6.00-20	0.06-0.08	0.0-2.9	0.6-1.0	.15	.15			
	34-60	0-10	1.50-1.65	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			
ScA:												
Scott Lake	0-3	6-15	1.35-1.70	0.60-2.00	0.10-0.15	0.0-2.9	1.0-3.0	.24	.24	4	3	86
	3-13	6-13	1.40-1.70	0.60-2.00	0.06-0.19	0.0-2.9	0.0-1.0	.32	.32			
	13-23	8-15	1.40-1.70	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.32	.32			
	23-34	1-10	1.40-1.70	0.60-2.00	0.06-0.12	0.0-2.9	0.0-0.5	.32	.32			
	34-60	1-6	1.50-1.80	6.00-60	0.01-0.08	0.0-2.9	0.0-0.5	.10	.10			
SfB:												
Shawano	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-2	2-5	1.00-1.35	6.00-20	0.08-0.10	0.0-2.9	0.5-1.0	.15	.15			
	2-26	1-8	1.45-1.70	6.00-20	0.07-0.12	0.0-2.9	---	.15	.15			
	26-61	1-3	1.50-1.70	6.00-20	0.05-0.08	0.0-2.9	---	.15	.15			
SfC:												
Shawano	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-2	2-5	1.00-1.35	6.00-20	0.08-0.10	0.0-2.9	0.5-1.0	.15	.15			
	2-26	1-8	1.45-1.70	6.00-20	0.07-0.12	0.0-2.9	---	.15	.15			
	26-61	1-3	1.50-1.70	6.00-20	0.05-0.08	0.0-2.9	---	.15	.15			
SfD:												
Shawano	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-2	2-5	1.00-1.35	6.00-20	0.08-0.10	0.0-2.9	0.5-1.0	.15	.15			
	2-26	1-8	1.45-1.70	6.00-20	0.07-0.12	0.0-2.9	---	.15	.15			
	26-61	1-3	1.50-1.70	6.00-20	0.05-0.08	0.0-2.9	---	.15	.15			
SuA:												
Sunia	0-5	3-11	1.35-1.70	0.60-6.00	0.13-0.15	0.0-2.9	0.5-2.0	.24	.24	3	3	86
	5-9	2-12	1.40-1.70	0.60-6.00	0.12-0.17	0.0-2.9	0.5-1.0	.24	.24			
	9-19	2-10	1.40-1.70	0.60-6.00	0.12-0.15	0.0-2.9	0.5-1.0	.24	.24			
	19-30	2-8	1.45-1.65	2.00-20	0.04-0.11	0.0-2.9	0.0-0.5	.10	.10			
	30-60	0-3	1.55-1.70	6.00-20	0.03-0.06	0.0-2.9	0.0-0.5	.10	.10			
TlC:												
Tilleda	0-4	4-15	1.35-1.55	0.60-2.00	0.13-0.18	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	4-17	16-25	1.55-1.65	0.60-2.00	0.12-0.19	3.0-5.9	---	.32	.32			
	17-53	18-35	1.55-1.65	0.60-2.00	0.12-0.19	3.0-5.9	---	.32	.32			
	53-60	15-35	1.60-1.70	0.60-2.00	0.07-0.19	3.0-5.9	---	.32	.32			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
TlD:												
Tilleda---------------	0-4	4-15	1.35-1.55	0.60-2.00	0.13-0.18	0.0-2.9	1.0-3.0	.24	.24	5	3	86
	4-17	16-25	1.55-1.65	0.60-2.00	0.12-0.19	3.0-5.9	---	.32	.32			
	17-53	18-35	1.55-1.65	0.60-2.00	0.12-0.19	3.0-5.9	---	.32	.32			
	53-60	15-35	1.60-1.70	0.60-2.00	0.07-0.19	3.0-5.9	---	.32	.32			
TmA:												
Tipler----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	4	3	86
	1-3	3-10	1.35-1.70	0.60-2.00	0.10-0.15	0.0-2.9	0.5-1.0	.24	.24			
	3-23	5-15	1.40-1.65	0.60-2.00	0.09-0.19	0.0-2.9	1.0-2.0	.24	.24			
	23-33	6-17	1.40-1.65	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	33-60	0-3	1.55-1.80	6.00-60	0.01-0.06	0.0-2.9	0.0-0.5	.15	.10			
ToB:												
Tourtillotte----------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-3	1-7	1.35-1.65	6.00-20	0.10-0.12	0.0-2.9	0.5-2.0	.17	.17			
	3-25	0-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.5-1.0	.17	.17			
	25-33	0-7	1.45-1.65	6.00-20	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	33-56	0-5	1.55-1.80	6.00-20	0.03-0.07	0.0-2.9	0.0-0.5	.15	.15			
	56-80	2-18	1.40-1.70	0.20-0.60	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
ToC:												
Tourtillotte----------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	1-3	1-7	1.35-1.65	6.00-20	0.10-0.12	0.0-2.9	0.5-2.0	.17	.17			
	3-25	0-7	1.45-1.65	6.00-20	0.05-0.13	0.0-2.9	0.5-1.0	.17	.17			
	25-33	0-7	1.45-1.65	6.00-20	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	33-56	0-5	1.55-1.80	6.00-20	0.03-0.07	0.0-2.9	0.0-0.5	.15	.15			
	56-80	2-18	1.40-1.70	0.20-0.60	0.10-0.18	0.0-2.9	0.0-0.5	.32	.32			
UdD:												
Udipsamments (earthen dam)-----------------	0-62	0-5	1.45-1.65	6.00-20	0.04-0.06	0.0-2.9	0.0-0.5	.15	.15	5	1	220
VsB:												
Vilas-----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-4	1-5	1.35-1.65	6.00-20	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	4-16	2-6	1.50-1.65	6.00-20	0.07-0.12	0.0-2.9	1.0-2.0	.17	.17			
	16-61	0-3	1.50-1.70	6.00-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
VsC:												
Vilas-----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-4	1-5	1.35-1.65	6.00-20	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	4-16	2-6	1.50-1.65	6.00-20	0.07-0.12	0.0-2.9	1.0-2.0	.17	.17			
	16-61	0-3	1.50-1.70	6.00-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
VsD:												
Vilas-----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-4	1-5	1.35-1.65	6.00-20	0.09-0.12	0.0-2.9	0.5-1.0	.17	.17			
	4-16	2-6	1.50-1.65	6.00-20	0.07-0.12	0.0-2.9	1.0-2.0	.17	.17			
	16-61	0-3	1.50-1.70	6.00-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
W.												
Water												
WaA:												
Wainola---------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	2	134
	1-3	0-10	1.35-1.50	6.00-20	0.10-0.12	0.0-2.9	2.0-4.0	.17	.17			
	3-7	2-12	1.35-1.50	6.00-20	0.06-0.11	0.0-2.9	0.6-1.0	.15	.15			
	7-37	2-12	1.35-1.45	6.00-20	0.06-0.11	0.0-2.9	0.0-0.5	.15	.15			
	37-61	0-10	1.25-1.50	6.00-20	0.05-0.07	0.0-2.9	0.0-0.5	.15	.15			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and component name	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	g/cc	In/hr	In/in	Pct	Pct					
WkB:												
Wayka-----------------	0-1	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	1-3	3-15	1.35-1.50	0.60-2.00	0.15-0.18	0.0-2.9	0.5-2.0	.24	.24			
	3-17	3-15	1.40-1.70	0.60-2.00	0.12-0.19	0.0-2.9	0.5-1.0	.24	.24			
	17-21	2-18	1.35-1.70	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.17	.24			
	21-27	6-18	1.40-1.70	0.60-2.00	0.08-0.19	0.0-2.9	0.0-0.5	.17	.24			
	27	---	---	---	---	---	---	---	---			
Rock outcrop.												
WrA:												
Worcester-------------	0-3	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	4	3	86
	3-6	5-15	1.35-1.70	0.60-2.00	0.10-0.18	0.0-2.9	1.0-3.0	.24	.24			
	6-17	5-15	1.40-1.70	0.60-2.00	0.06-0.19	0.0-2.9	1.0-2.0	.24	.24			
	17-29	8-17	1.40-1.70	0.60-2.00	0.06-0.19	0.0-2.9	0.0-0.5	.24	.24			
	29-35	3-8	1.45-1.70	6.00-60	0.02-0.11	0.0-2.9	0.0-0.5	.10	.17			
	35-63	0-3	1.50-1.80	6.00-60	0.01-0.07	0.0-2.9	0.0-0.5	.10	.15			
WtA:												
Wormet----------------	0-3	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	3	3	86
	3-7	5-15	1.35-1.70	0.60-2.00	0.10-0.19	0.0-2.9	2.0-5.0	.24	.24			
	7-16	5-15	1.40-1.70	0.60-6.00	0.06-0.18	0.0-2.9	0.5-2.0	.24	.24			
	16-28	5-15	1.40-1.70	0.60-6.00	0.06-0.18	0.0-2.9	1.0-2.0	.24	.24			
	28-63	0-3	1.50-1.80	6.00-60	0.01-0.07	0.0-2.9	0.0-0.5	.10	.15			
WuA:												
Wurtsmith-------------	0-2	---	0.15-0.30	6.00-20	0.55-0.65	---	65-85	---	---	5	1	250
	2-5	0-5	1.50-1.65	6.00-20	0.07-0.09	0.0-2.9	0.5-2.0	.15	.15			
	5-44	0-5	1.35-1.65	6.00-60	0.05-0.08	0.0-2.9	0.0-0.5	.15	.15			
	44-62	0-4	1.50-1.65	6.00-60	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			

Table 20.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
AfB:					
Aftad----------------	0-4	4.0-15	---	5.1-7.3	0
	4-12	2.0-10	---	4.5-6.5	0
	12-28	2.0-15	---	4.5-6.5	0
	28-60	0.0-10	---	5.1-6.5	0
AnB:					
Annalake-------------	0-1	---	80-120	4.5-7.8	---
	1-3	3.0-20	---	4.5-7.8	0
	3-12	1.0-15	---	4.5-7.8	0
	12-25	---	3.0-15	4.5-6.0	0
	25-40	2.0-15	---	4.5-7.3	0
	40-62	1.0-15	---	5.1-8.4	0-10
AtB:					
Antigo---------------	0-4	4.0-20	---	4.5-6.5	0
	4-12	3.0-15	---	4.5-6.5	0
	12-24	3.0-15	---	4.5-6.5	0
	24-27	0.0-15	---	4.5-6.5	0
	27-60	0.0-6.0	---	5.1-6.5	0
AuA:					
Au Gres--------------	0-1	---	80-120	3.5-7.3	---
	1-3	---	80-120	3.5-7.3	---
	3-7	---	5.0-15	3.5-7.3	0
	7-21	---	2.0-5.0	4.5-7.3	0
	21-63	1.0-2.0	---	5.1-7.3	0
CeB:					
Cress----------------	0-3	2.0-20	---	4.5-7.3	0
	3-14	1.0-15	---	4.5-6.5	0
	14-26	---	0.0-7.0	4.5-6.0	0
	26-60	0.0-7.0	---	5.1-6.5	0
CeC:					
Cress----------------	0-3	2.0-20	---	4.5-7.3	0
	3-14	1.0-15	---	4.5-6.5	0
	14-26	---	0.0-7.0	4.5-6.0	0
	26-60	0.0-7.0	---	5.1-6.5	0
CeD:					
Cress----------------	0-3	2.0-20	---	4.5-7.3	0
	3-14	1.0-15	---	4.5-6.5	0
	14-26	---	0.0-7.0	4.5-6.0	0
	26-60	0.0-7.0	---	5.1-6.5	0
CmA:					
Crex-----------------	0-3	---	1.0-20	3.5-7.3	0
	3-37	---	0.0-7.0	3.5-6.0	0
	37-60	0.0-4.0	---	5.1-7.3	0
CrB:					
Cromwell-------------	0-21	---	4.0-13	4.5-6.0	0
	21-60	0.0-5.0	---	5.1-7.3	0
CrC:					
Cromwell-------------	0-21	---	4.0-13	4.5-6.0	0
	21-60	0.0-5.0	---	5.1-7.3	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
CrD:					
Cromwell-------------	0-21	---	4.0-13	4.5-6.0	0
	21-60	0.0-5.0	---	5.1-7.3	0
CsA:					
Croswell-------------	0-2	---	80-120	3.5-6.5	---
	2-4	---	1.0-5.0	3.5-6.5	0
	4-26	---	1.0-4.0	3.5-7.3	0
	26-62	1.0-2.0	---	4.5-8.4	0
FeB:					
Frechette------------	0-4	5.0-15	---	4.5-6.5	0
	4-12	3.0-10	---	4.5-6.5	0
	12-45	5.0-20	---	5.1-6.5	0
	45-63	5.0-25	---	5.1-7.3	0
	63-80	5.0-25	---	7.4-8.4	10-30
FeC:					
Frechette------------	0-4	5.0-15	---	4.5-6.5	0
	4-12	3.0-10	---	4.5-6.5	0
	12-45	5.0-20	---	5.1-6.5	0
	45-63	5.0-25	---	5.1-7.3	0
	63-80	5.0-25	---	7.4-8.4	10-30
FeD:					
Frechette------------	0-4	5.0-15	---	4.5-6.5	0
	4-12	3.0-10	---	4.5-6.5	0
	12-45	5.0-20	---	5.1-6.5	0
	45-63	5.0-25	---	5.1-7.3	0
	63-80	5.0-25	---	7.4-8.4	10-30
FrB:					
Frechette------------	0-4	5.0-15	---	4.5-6.5	0
	4-12	3.0-10	---	4.5-6.5	0
	12-45	5.0-20	---	5.1-6.5	0
	45-63	5.0-25	---	5.1-7.3	0
	63-80	5.0-25	---	7.4-8.4	10-30
FrC:					
Frechette------------	0-4	5.0-15	---	4.5-6.5	0
	4-12	3.0-10	---	4.5-6.5	0
	12-45	5.0-20	---	5.1-6.5	0
	45-63	5.0-25	---	5.1-7.3	0
	63-80	5.0-25	---	7.4-8.4	10-30
FrD:					
Frechette------------	0-4	5.0-15	---	4.5-6.5	0
	4-12	3.0-10	---	4.5-6.5	0
	12-45	5.0-20	---	5.1-6.5	0
	45-63	5.0-25	---	5.1-7.3	0
	63-80	5.0-25	---	7.4-8.4	10-30
GaB:					
Grayling-------------	0-2	---	80-120	3.5-5.5	---
	2-5	---	2.0-14	3.5-5.5	0
	5-26	---	1.0-4.0	3.5-6.5	0
	26-62	---	1.0-2.0	3.5-6.5	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
GaC:					
Grayling	0-2	---	80-120	3.5-5.5	---
	2-5	---	2.0-14	3.5-5.5	0
	5-26	---	1.0-4.0	3.5-6.5	0
	26-62	---	1.0-2.0	3.5-6.5	0
GaD:					
Grayling	0-2	---	80-120	3.5-5.5	---
	2-5	---	2.0-14	3.5-5.5	0
	5-26	---	1.0-4.0	3.5-6.5	0
	26-62	---	1.0-2.0	3.5-6.5	0
GyB:					
Grayling	0-2	---	80-120	3.5-5.5	---
	2-5	---	2.0-14	3.5-5.5	0
	5-26	---	1.0-4.0	3.5-6.5	0
	26-62	---	1.0-2.0	3.5-6.5	0
GyC:					
Grayling	0-2	---	80-120	3.5-5.5	---
	2-5	---	2.0-14	3.5-5.5	0
	5-26	---	1.0-4.0	3.5-6.5	0
	26-62	---	1.0-2.0	3.5-6.5	0
GyD:					
Grayling	0-2	---	80-120	3.5-5.5	---
	2-5	---	2.0-14	3.5-5.5	0
	5-26	---	1.0-4.0	3.5-6.5	0
	26-62	---	1.0-2.0	3.5-6.5	0
IgA:					
Ingalls	0-2	---	80-120	4.5-7.3	---
	2-5	3.0-15	---	4.5-7.3	0
	5-26	1.0-10	---	4.5-7.3	0
	26-33	1.0-10	---	5.1-5.5	0
	33-60	1.0-15	---	5.6-8.4	0
IsB:					
Iosco	0-2	---	80-120	5.1-7.3	---
	2-4	4.0-10	---	5.1-7.3	0
	4-35	2.0-10	---	5.1-6.5	0
	35-42	4.0-10	---	6.1-7.8	3-6
	42-62	8.0-20	---	6.1-8.4	15-30
IxB:					
Ishpeming	0-2	---	80-120	4.5-6.5	---
	2-7	3.0-10	---	4.5-6.5	0
	7-27	1.0-5.0	---	4.5-6.5	0
	27-47	---	---	---	---
Rock outcrop.					
IxC:					
Ishpeming	0-2	---	80-120	4.5-6.5	---
	2-7	3.0-10	---	4.5-6.5	0
	7-27	1.0-5.0	---	4.5-6.5	0
	27-47	---	---	---	---
Rock outcrop.					

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
KaB:					
Karlin---------------	0-1	---	80-120	3.6-6.5	---
	1-3	---	3.0-15	3.6-6.5	0
	3-15	---	3.0-15	3.6-6.5	0
	15-33	1.0-10	---	4.5-6.5	0
	33-60	1.0-4.0	---	5.6-7.3	0
KaC:					
Karlin---------------	0-1	---	80-120	3.6-6.5	---
	1-3	---	3.0-15	3.6-6.5	0
	3-15	---	3.0-15	3.6-6.5	0
	15-33	1.0-10	---	4.5-6.5	0
	33-60	1.0-4.0	---	5.6-7.3	0
KaD:					
Karlin---------------	0-1	---	80-120	3.6-6.5	---
	1-3	---	3.0-15	3.6-6.5	0
	3-15	---	3.0-15	3.6-6.5	0
	15-33	1.0-10	---	4.5-6.5	0
	33-60	1.0-4.0	---	5.6-7.3	0
KeC:					
Kennan---------------	0-2	---	80-120	4.5-7.3	---
	2-4	---	---	4.5-7.3	---
	4-15	---	---	4.5-7.3	---
	15-21	---	---	4.5-7.3	---
	21-66	---	---	4.5-7.3	---
	66-80	---	---	5.1-7.3	---
KeD:					
Kennan---------------	0-2	---	80-120	4.5-7.3	---
	2-4	---	---	4.5-7.3	---
	4-15	---	---	4.5-7.3	---
	15-21	---	---	4.5-7.3	---
	21-66	---	---	4.5-7.3	---
	66-80	---	---	5.1-7.3	---
KoC:					
Kennan---------------	0-2	---	80-120	4.5-7.3	---
	2-4	---	---	4.5-7.3	---
	4-15	---	---	4.5-7.3	---
	15-21	---	---	4.5-7.3	---
	21-66	---	---	4.5-7.3	---
	66-80	---	---	5.1-7.3	---
KoD:					
Kennan---------------	0-2	---	80-120	4.5-7.3	---
	2-4	---	---	4.5-7.3	---
	4-15	---	---	4.5-7.3	---
	15-21	---	---	4.5-7.3	---
	21-66	---	---	4.5-7.3	---
	66-80	---	---	5.1-7.3	---
KxB:					
Keshena--------------	0-3	5.0-20	---	4.5-7.3	0
	3-19	2.0-15	---	4.5-7.3	0
	19-49	3.0-25	---	5.1-7.3	0
	49-75	4.0-30	---	5.1-7.3	0
	75-80	2.0-30	---	7.4-8.4	10-30

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbonate
	In	meq/100 g	meq/100 g	pH	Pct
LaB:					
Lablatz	0-4	---	80-120	4.5-6.0	---
	4-7	5.0-15	---	4.5-6.0	0
	7-16	3.0-10	---	4.5-6.0	0
	16-30	5.0-20	---	4.5-6.5	0
	30-41	5.0-25	---	4.5-7.3	0
	41-64	5.0-25	---	7.4-8.4	10-30
LDF.					
Landfill					
LoA:					
Loxley	0-10	---	50-100	2.0-4.4	0
	10-60	---	50-120	2.0-4.4	0
LuA:					
Lupton	0-7	140-180	---	5.6-7.8	0
	7-60	140-180	---	5.6-7.8	0
Markey	0-28	150-230	---	5.6-7.8	---
	28-60	1.0-3.0	---	5.6-8.4	0-5
Cathro	0-8	150-230	---	4.5-7.8	0
	8-37	150-230	---	4.5-7.8	0
	37-60	2.0-20	---	5.6-8.4	5-25
M-W.					
Miscellaneous water					
MaB:					
Mahtomedi	0-4	2.0-11	---	5.1-6.5	---
	4-20	0.0-6.0	---	5.1-6.5	---
	20-38	0.0-6.0	---	5.1-6.5	---
	38-60	0.0-6.0	---	5.1-7.8	0-15
MaC:					
Mahtomedi	0-4	2.0-11	---	5.1-6.5	---
	4-20	0.0-6.0	---	5.1-6.5	---
	20-38	0.0-6.0	---	5.1-6.5	---
	38-60	0.0-6.0	---	5.1-7.8	0-15
MaD:					
Mahtomedi	0-4	2.0-11	---	5.1-6.5	---
	4-20	0.0-6.0	---	5.1-6.5	---
	20-38	0.0-6.0	---	5.1-6.5	---
	38-60	0.0-6.0	---	5.1-7.8	0-15
MoC:					
Menominee	0-2	---	80-120	3.5-6.5	---
	2-4	---	2.0-10	3.5-6.5	---
	4-27	1.0-6.0	---	4.5-7.8	---
	27-60	5.0-20	---	5.1-7.8	0-10
	60-80	5.0-25	---	6.6-8.4	20-30
MoD:					
Menominee	0-2	---	80-120	3.5-6.5	---
	2-4	---	2.0-10	3.5-6.5	---
	4-27	1.0-6.0	---	4.5-7.8	---
	27-60	5.0-20	---	5.1-7.8	0-10
	60-80	5.0-25	---	6.6-8.4	20-30

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
MqB:					
Mequithy	0-3	5.0-20	---	4.5-7.3	0
	3-4	---	2.0-15	4.5-6.0	0
	4-13	---	3.0-15	4.5-6.0	0
	13-21	1.0-15	---	4.5-6.5	0
	21-27	1.0-15	---	4.5-6.5	0
	27-48	---	---	---	0
Rock outcrop.					
MqC:					
Mequithy	0-3	5.0-20	---	4.5-7.3	0
	3-4	---	2.0-15	4.5-6.0	0
	4-13	---	3.0-15	4.5-6.0	0
	13-21	1.0-15	---	4.5-6.5	0
	21-27	1.0-15	---	4.5-6.5	0
	27-48	---	---	---	0
Rock outcrop.					
MuA:					
Minocqua	0-6	120-190	---	4.5-7.8	0
	6-30	2.0-20	---	4.5-7.8	0
	30-38	1.0-9.0	---	4.5-7.8	0
	38-66	0.0-3.0	---	4.5-7.8	0
MwB:					
Moodig	0-2	---	80-120	4.5-6.5	---
	2-5	3.0-15	---	4.5-6.5	0
	5-14	2.0-15	---	4.5-6.5	0
	14-25	1.0-15	---	4.5-6.5	0
	25-49	1.0-15	---	4.5-6.5	0
	49-62	1.0-10	---	5.1-6.5	0
MxB:					
Morganlake	0-2	---	80-120	5.1-7.3	---
	2-4	2.0-15	---	5.1-7.3	0
	4-26	2.0-15	---	5.1-6.0	0
	26-36	1.0-10	---	5.1-6.0	0
	36-65	4.0-30	---	5.6-8.4	0-30
	65-80	4.0-30	---	5.6-8.4	0-40
MzB:					
Moshawquit	0-1	---	80-120	4.5-6.5	---
	1-3	---	---	4.5-6.5	---
	3-26	---	---	4.5-6.5	---
	26-48	---	---	5.1-7.3	---
	48-60	0.0-1.0	---	6.1-8.4	---
MzC:					
Moshawquit	0-1	---	80-120	4.5-6.5	---
	1-3	---	---	4.5-6.5	---
	3-26	---	---	4.5-6.5	---
	26-48	---	---	5.1-7.3	---
	48-60	0.0-1.0	---	6.1-8.4	---
NeA:					
Neconish	0-1	---	80-120	4.5-6.0	---
	1-4	---	1.0-9.0	4.5-6.0	0
	4-36	---	0.0-7.0	5.1-6.5	0
	36-60	0.0-4.0	---	5.6-6.5	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
NoB:					
Neopit	0-1	---	80-120	4.5-6.5	---
	1-4	5.0-20	---	4.5-6.5	0
	4-12	2.0-15	---	4.5-6.5	0
	12-20	1.0-15	---	4.5-6.5	0
	20-67	1.0-15	---	4.5-6.5	0
	67-80	0.0-9.0	---	5.6-7.3	0
NpB:					
Neopit	0-1	---	80-120	4.5-6.5	---
	1-4	5.0-20	---	4.5-6.5	0
	4-12	2.0-15	---	4.5-6.5	0
	12-20	1.0-15	---	4.5-6.5	0
	20-67	1.0-15	---	4.5-6.5	0
	67-80	0.0-9.0	---	5.6-7.3	0
NsA:					
Noseum	0-1	---	80-120	4.5-6.0	---
	1-3	---	3.0-15	4.5-6.0	0
	3-14	---	2.0-10	4.5-6.0	0
	14-32	1.0-10	---	4.5-6.5	0
	32-60	1.0-4.0	---	5.6-6.5	0
PaB:					
Padus	0-1	---	80-120	4.5-7.3	---
	1-4	3.0-15	---	4.5-7.3	0
	4-13	3.0-15	3.0-15	4.5-6.0	0
	13-22	3.0-15	3.0-15	4.5-6.0	0
	22-27	1.0-15	---	4.5-6.5	0
	27-31	0.0-3.0	---	5.1-6.5	0
	31-60	0.0-3.0	---	5.1-6.5	0
PaC:					
Padus	0-1	---	80-120	4.5-7.3	---
	1-4	3.0-15	---	4.5-7.3	0
	4-13	3.0-15	3.0-15	4.5-6.0	0
	13-22	3.0-15	3.0-15	4.5-6.0	0
	22-27	1.0-15	---	4.5-6.5	0
	27-31	0.0-3.0	---	5.1-6.5	0
	31-60	0.0-3.0	---	5.1-6.5	0
PaD:					
Padus	0-1	---	80-120	4.5-7.3	---
	1-4	3.0-15	---	4.5-7.3	0
	4-13	3.0-15	3.0-15	4.5-6.0	0
	13-22	3.0-15	3.0-15	4.5-6.0	0
	22-27	1.0-15	---	4.5-6.5	0
	27-31	0.0-3.0	---	5.1-6.5	0
	31-60	0.0-3.0	---	5.1-6.5	0
PbB:					
Padwet	0-3	5.0-15	---	4.5-7.3	0
	3-5	2.0-15	---	4.5-7.3	0
	5-22	---	3.0-15	4.5-6.0	0
	22-38	1.0-15	---	4.5-6.5	0
	38-60	0.0-3.0	---	5.1-6.5	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
PeB:					
Pecore	0-2	---	80-120	4.5-6.5	---
	2-4	---	---	4.5-6.5	---
	4-10	---	---	4.5-6.5	---
	10-27	---	---	5.1-6.5	---
	27-47	---	---	5.1-7.3	---
	47-62	---	1.0-2.0	7.4-8.4	10-30
PeC:					
Pecore	0-2	---	80-120	4.5-6.5	---
	2-4	---	---	4.5-6.5	---
	4-10	---	---	4.5-6.5	---
	10-27	---	---	5.1-6.5	---
	27-47	---	---	5.1-7.3	---
	47-62	---	1.0-2.0	7.4-8.4	10-30
PeD:					
Pecore	0-2	---	80-120	4.5-6.5	---
	2-4	---	---	4.5-6.5	---
	4-10	---	---	4.5-6.5	---
	10-27	---	---	5.1-6.5	---
	27-47	---	---	5.1-7.3	---
	47-62	---	1.0-2.0	7.4-8.4	10-30
PnB:					
Pence	0-2	---	80-120	4.5-7.3	---
	2-5	3.0-15	---	4.5-7.3	0
	5-14	---	2.0-15	4.5-6.0	0
	14-18	0.0-10	---	4.5-6.5	0
	18-62	0.0-4.0	---	5.1-6.5	0
PnC:					
Pence	0-2	---	80-120	4.5-7.3	---
	2-5	3.0-15	---	4.5-7.3	0
	5-14	---	2.0-15	4.5-6.0	0
	14-18	0.0-10	---	4.5-6.5	0
	18-62	0.0-4.0	---	5.1-6.5	0
PnD:					
Pence	0-2	---	80-120	4.5-7.3	---
	2-5	3.0-15	---	4.5-7.3	0
	5-14	---	2.0-15	4.5-6.0	0
	14-18	0.0-10	---	4.5-6.5	0
	18-62	0.0-4.0	---	5.1-6.5	0
PrB:					
Perote	0-2	---	80-120	4.5-6.6	---
	2-4	5.0-15	---	4.5-6.5	0
	4-11	3.0-10	---	4.5-6.5	0
	11-29	5.0-20	---	5.1-6.5	0
	29-51	3.0-10	---	5.1-7.3	0
	51-60	---	1.0-2.0	7.4-8.4	10-30
PrC:					
Perote	0-2	---	80-120	4.5-6.5	---
	2-4	5.0-15	---	4.5-6.5	0
	4-11	3.0-10	---	4.5-6.5	0
	11-29	5.0-20	---	5.1-6.5	0
	29-51	3.0-10	---	5.1-7.3	0
	51-60	---	1.0-2.0	7.4-8.4	10-30

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
PrD:					
Perote	0-2	---	80-120	4.5-6.5	---
	2-4	5.0-15	---	4.5-6.5	0
	4-11	3.0-10	---	4.5-6.5	0
	11-29	5.0-20	---	5.1-6.5	0
	29-51	3.0-10	---	5.1-7.3	0
	51-60	---	1.0-2.0	7.4-8.4	10-30
PsB:					
Peshtigo	0-5	---	---	4.5-6.5	---
	5-11	5.0-15	---	4.5-6.5	0
	11-29	5.0-20	---	5.1-6.5	0
	29-62	5.0-25	---	5.1-7.3	0
	62-80	5.0-25	---	7.4-8.4	10-30
Pt.					
Pits, gravel					
RaB:					
Rabe	0-1	---	80-120	4.5-6.5	---
	1-2	---	---	4.5-6.5	---
	2-25	---	---	4.5-6.5	---
	25-35	---	---	4.5-6.5	---
	35-58	---	---	5.1-7.8	---
	58-80	---	---	7.4-8.4	10-30
RaC:					
Rabe	0-1	---	80-120	4.5-6.5	---
	1-2	---	---	4.5-6.5	---
	2-25	---	---	4.5-6.5	---
	25-35	---	---	4.5-6.5	---
	35-58	---	---	5.1-7.8	---
	58-80	---	---	7.4-8.4	10-30
RaD:					
Rabe	0-1	---	80-120	4.5-6.5	---
	1-2	---	---	4.5-6.5	---
	2-25	---	---	4.5-6.5	---
	25-35	---	---	4.5-6.5	---
	35-58	---	---	5.1-7.8	---
	58-80	---	---	7.4-8.4	10-30
RbA:					
Robago	0-3	---	80-120	3.5-7.3	---
	3-4	---	5.0-20	3.5-7.3	0
	4-12	---	1.0-15	3.5-6.0	0
	12-18	---	3.0-15	3.5-6.0	0
	18-26	1.0-15	---	5.1-6.5	0
	26-35	2.0-15	---	5.6-7.3	0
	35-80	1.0-15	---	6.1-7.3	0
RcA:					
Roscommon	0-6	80-120	---	4.5-7.8	0
	6-60	1.0-4.0	---	5.6-8.4	0-10
RoB:					
Rosholt	0-4	3.0-15	---	4.5-7.3	0
	4-10	1.0-10	---	4.5-6.5	0
	10-22	1.0-15	---	4.5-6.5	0
	22-30	1.0-10	---	4.5-6.5	0
	30-60	0.0-5.0	---	5.1-6.5	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
RoC:					
Rosholt	0-4	3.0-15	---	4.5-7.3	0
	4-10	1.0-10	---	4.5-6.5	0
	10-22	1.0-15	---	4.5-6.5	0
	22-30	1.0-10	---	4.5-6.5	0
	30-60	0.0-5.0	---	5.1-6.5	0
RoD:					
Rosholt	0-4	3.0-15	---	4.5-7.3	0
	4-10	1.0-10	---	4.5-6.5	0
	10-22	1.0-15	---	4.5-6.5	0
	22-30	1.0-10	---	4.5-6.5	0
	30-60	0.0-5.0	---	5.1-6.5	0
RsB:					
Rousseau	0-1	---	80-120	4.5-6.0	---
	1-4	---	3.0-10	4.5-6.0	0
	4-34	1.0-5.0	---	4.5-6.5	0
	34-60	1.0-2.0	---	5.1-6.5	0
RsC:					
Rousseau	0-1	---	80-120	4.5-6.0	---
	1-4	---	3.0-10	4.5-6.0	0
	4-34	1.0-5.0	---	4.5-6.5	0
	34-60	1.0-2.0	---	5.1-6.5	0
RsD:					
Rousseau	0-1	---	80-120	4.5-6.0	---
	1-4	---	3.0-10	4.5-6.0	0
	4-34	1.0-5.0	---	4.5-6.5	0
	34-60	1.0-2.0	---	5.1-6.5	0
ScA:					
Scott Lake	0-3	3.0-20	---	4.5-6.5	0
	3-13	1.0-15	---	4.5-6.5	0
	13-23	2.0-15	---	4.5-6.5	0
	23-34	2.0-15	---	4.5-6.5	0
	34-60	0.0-6.0	---	4.5-7.3	0
SfB:					
Shawano	0-1	---	80-120	4.5-7.3	---
	1-2	---	---	4.5-7.3	---
	2-26	---	---	5.1-6.5	---
	26-61	---	---	5.6-7.8	---
SfC:					
Shawano	0-1	---	80-120	4.5-7.3	---
	1-2	---	---	4.5-7.3	---
	2-26	---	---	5.1-6.5	---
	26-61	---	---	5.6-7.8	---
SfD:					
Shawano	0-1	---	80-120	4.5-7.3	---
	1-2	---	---	4.5-7.3	---
	2-26	---	---	5.1-6.5	---
	26-61	---	---	5.6-7.8	---

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
SuA:					
Sunia	0-5	3.0-15	---	4.5-6.0	0
	5-9	1.0-15	---	5.1-6.0	0
	9-19	1.0-15	---	5.1-6.0	0
	19-30	---	3.0-15	5.1-6.5	0
	30-60	3.0-15	---	5.6-6.5	0
TlC:					
Tilleda	0-4	---	---	5.1-7.3	---
	4-17	---	---	5.1-7.3	---
	17-53	---	---	5.1-7.8	---
	53-60	---	---	6.6-8.4	---
TlD:					
Tilleda	0-4	---	---	5.1-7.3	---
	4-17	---	---	5.1-7.3	---
	17-53	---	---	5.1-7.8	---
	53-60	---	---	6.6-8.4	---
TmA:					
Tipler	0-1	---	80-120	4.5-7.3	---
	1-3	5.0-15	---	4.5-7.3	0
	3-23	---	2.0-15	4.5-6.0	0
	23-33	1.0-15	---	5.1-6.5	0
	33-60	0.0-3.0	---	5.1-6.5	0
ToB:					
Tourtillotte	0-1	---	80-120	4.5-6.0	---
	1-3	---	1.0-10	4.5-6.0	0
	3-25	---	2.0-10	4.5-6.0	0
	25-33	---	0.0-5.0	5.1-6.5	0
	33-56	---	---	5.1-6.5	---
	56-80	2.0-20	---	5.1-7.3	0
ToC:					
Tourtillotte	0-1	---	80-120	4.5-6.0	---
	1-3	---	1.0-10	4.5-6.0	0
	3-25	---	2.0-10	4.5-6.0	0
	25-33	---	0.0-5.0	5.1-6.5	0
	33-56	---	---	5.1-6.5	---
	56-80	2.0-20	---	5.1-7.3	0
UdD:					
Udipsamments (earthen dam)	0-62	---	1.0-2.0	3.5-6.5	0
VsB:					
Vilas	0-1	---	80-120	4.5-7.3	---
	1-4	2.0-10	---	4.5-7.3	0
	4-16	2.0-9.0	---	4.5-6.5	0
	16-61	0.0-3.0	---	4.5-6.5	0
VsC:					
Vilas	0-1	---	80-120	4.5-7.3	---
	1-4	2.0-10	---	4.5-7.3	0
	4-16	2.0-9.0	---	4.5-6.5	0
	16-61	0.0-3.0	---	4.5-6.5	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and component name	Depth	Cation-exchange capacity	Effective cation-exchange capacity	Soil reaction	Calcium carbon-ate
	In	meq/100 g	meq/100 g	pH	Pct
VsD:					
Vilas	0-1	---	80-120	4.5-7.3	---
	1-4	2.0-10	---	4.5-7.3	0
	4-16	2.0-9.0	---	4.5-6.5	0
	16-61	0.0-3.0	---	4.5-6.5	0
W.					
Water					
WaA:					
Wainola	0-1	---	80-120	4.5-6.5	---
	1-3	5.0-15	---	4.5-6.5	0
	3-7	---	1.0-5.0	4.5-6.0	0
	7-37	1.0-5.0	---	4.5-6.5	0
	37-61	1.0-5.0	---	5.1-7.3	0
WkB:					
Wayka	0-1	---	80-120	3.6-5.5	---
	1-3	10-25	---	4.5-6.0	0
	3-17	1.0-10	---	4.5-6.0	0
	17-21	1.0-10	---	5.1-6.5	0
	21-27	1.0-15	---	5.1-7.3	0
Rock outcrop.					
WrA:					
Worcester	0-3	---	80-120	4.5-7.3	---
	3-6	3.0-20	---	4.5-7.3	0
	6-17	---	3.0-15	4.5-6.0	0
	17-29	2.0-15	---	4.5-6.5	0
	29-35	1.0-7.0	---	4.5-6.5	0
	35-63	0.0-2.0	---	5.1-6.5	0
WtA:					
Wormet	0-3	---	80-120	4.5-6.0	---
	3-7	---	5.0-25	4.5-6.0	0
	7-16	---	2.0-15	4.5-6.0	0
	16-28	---	3.0-15	4.5-6.0	0
	28-63	0.0-3.0	---	5.1-6.5	0
WuA:					
Wurtsmith	0-2	---	80-120	3.5-7.3	---
	2-5	---	1.0-9.0	3.5-7.3	0
	5-44	---	0.0-7.0	3.5-6.0	0
	44-62	0.0-4.0	---	3.5-7.3	0

Table 21.--Soil Moisture Status by Depth

(Depths of layers are in feet. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
AfB:													
Aftad-----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.8: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-0.5: Dry	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-6.0: Moist
		---	---	2.8-3.2: Wet	2.5-3.2: Wet	2.5-3.2: Wet	---	0.5-6.0: Moist	0.5-6.0: Moist	3.0-3.2: Wet	3.0-3.2: Wet	3.0-3.2: Wet	---
		---	---	3.2-6.0: Moist	3.2-6.0: Moist	3.2-6.0: Moist	---	---	---	3.2-6.0: Moist	3.2-6.0: Moist	3.2-6.0: Moist	---
AnB:													
Annalake--------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.8: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-0.5: Dry	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-6.0: Moist
		---	---	2.8-3.2: Wet	2.5-3.2: Wet	2.5-3.2: Wet	---	0.5-6.0: Moist	0.5-6.0: Moist	3.0-3.2: Wet	3.0-3.2: Wet	3.0-3.2: Wet	---
		---	---	3.2-6.0: Moist	3.2-6.0: Moist	3.2-6.0: Moist	---	---	---	3.2-6.0: Moist	3.2-6.0: Moist	3.2-6.0: Moist	---
AtB:													
Antigo----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.5: Dry	0.0-1.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	1.5-6.0: Moist	1.0-1.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	1.5-6.0: Moist	---	---	---
AuA:													
Au Gres---------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-0.5: Moist	0.0-1.0: Moist	0.0-1.8: Moist	0.0-1.8: Moist	0.0-1.8: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-6.0: Moist
		---	---	1.0-6.0: Wet	0.5-6.0: Wet	0.5-6.0: Wet	1.0-6.0: Wet	1.8-6.0: Wet	1.8-6.0: Wet	1.8-6.0: Wet	1.0-6.0: Wet	1.0-6.0: Wet	---
CeB:													
Cress-----------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.5: Dry	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	2.5-6.0: Moist	1.0-2.5: Dry	1.5-2.0: Dry	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	2.0-6.0: Moist	---	---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydrologic group	January	February	March	April	May	June	July	August	September	October	November	December
CeC: Cress-----------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-0.5: Moist 0.5-3.0: Dry 3.0-6.0: Moist	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
CeD: Cress-----------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-0.5: Moist 0.5-3.0: Dry 3.0-6.0: Moist	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
CmA: Crex------------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-1.0: Dry 1.0-4.0: Moist 4.0-6.0: Wet	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-6.0: Moist --- ---
CrB: Cromwell--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
CrC: Cromwell--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-0.5: Moist 0.5-3.0: Dry 3.0-6.0: Moist	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
CrD: Cromwell--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-0.5: Moist 0.5-3.0: Dry 3.0-6.0: Moist	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
CsA: Croswell	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-1.0: Dry 1.0-4.0: Moist 4.0-6.0: Wet	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-6.0: Moist --- ---
FeB: Frechette	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
FeC: Frechette	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
FeD: Frechette	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
FrB: Frechette	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
FrC: Frechette	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
FrD:													
Frechette-------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
GaB:													
Grayling--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-2.0: Dry 2.0-6.0: Moist ---	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
GaC:													
Grayling--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
GaD:													
Grayling--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
GyB:													
Grayling--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-2.0: Dry 2.0-6.0: Moist ---	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
GyC:													
Grayling--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
GyD:													
Grayling	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
IgA:													
Ingalls	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-0.5: Moist 0.5-6.0: Wet ---	0.0-0.5: Moist 0.5-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-0.5: Dry 0.5-2.5: Moist 2.5-6.0: Wet	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.2: Moist 1.2-6.0: Wet ---	0.0-6.0: Moist --- ---
IsB:													
Iosco	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-0.8: Moist 0.8-6.0: Wet ---	0.0-0.8: Moist 0.8-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-0.5: Dry 0.5-2.5: Moist 2.5-6.0: Wet	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.2: Moist 1.2-6.0: Wet ---	0.0-6.0: Moist --- ---
IxB:													
Ishpeming	A	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-2.0: Dry 2.0-3.5: Moist ---	0.0-2.0: Dry 2.0-3.5: Moist ---	0.0-1.0: Moist 1.0-2.0: Dry 2.0-3.5: Moist	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---
Rock outcrop.													
IxC:													
Ishpeming	A	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-2.0: Dry 2.0-3.5: Moist ---	0.0-2.0: Dry 2.0-3.5: Moist ---	0.0-1.0: Moist 1.0-2.0: Dry 2.0-3.5: Moist	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---
Rock outcrop.													

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
KaB:													
Karlin	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
KaC:													
Karlin	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-0.5: Moist 0.5-3.0: Dry 3.0-6.0: Moist	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
KaD:													
Karlin	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-0.5: Moist 0.5-3.0: Dry 3.0-6.0: Moist	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
KeC:													
Kennan	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
KeD:													
Kennan	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
KoC:													
Kennan	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
KoD:													
Kennan----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
KxB:													
Keshena---------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-4.2: Wet 4.2-6.0: Moist	0.0-2.5: Moist 2.5-4.2: Wet 4.2-6.0: Moist	0.0-2.5: Moist 2.5-4.2: Wet 4.2-6.0: Moist	0.0-3.0: Moist 3.0-4.2: Wet 4.2-6.0: Moist	0.0-6.0: Moist --- ---	0.0-1.5: Dry 1.5-6.0: Moist ---	0.0-6.0: Moist --- ---	0.0-3.0: Moist 3.0-4.2: Wet 4.2-6.0: Moist	0.0-3.0: Moist 3.0-4.2: Wet 4.2-6.0: Moist	0.0-6.0: Moist --- ---
LaB:													
Lablatz---------	C	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.0: Moist	0.0-0.8: Moist 0.8-6.0: Wet ---	0.0-0.8: Moist 0.8-6.0: Wet ---	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.0: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.0: Moist	0.0-1.2: Moist 1.2-2.0: Wet 2.0-6.0: Moist	0.0-6.0: Moist --- ---
LDF. Landfill													
LoA:													
Loxley----------	A/D	0.0-1.5: Moist 1.5-6.0: Wet	0.0-1.5: Moist 1.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-0.5: Moist 0.5-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-0.5: Moist 0.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-1.5: Moist 1.5-6.0: Wet
LuA:													
Lupton----------	A/D	0.0-1.5: Moist 1.5-6.0: Wet	0.0-1.5: Moist 1.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-0.5: Moist 0.5-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-0.5: Moist 0.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-1.5: Moist 1.5-6.0: Wet
Markey----------	A/D	0.0-1.5: Moist 1.5-6.0: Wet	0.0-1.5: Moist 1.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-0.5: Moist 0.5-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-0.5: Moist 0.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-1.5: Moist 1.5-6.0: Wet

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
LuA:													
Cathro----------	A/D	0.0-1.5: Moist 1.5-6.0: Wet	0.0-1.5: Moist 1.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-0.5: Moist 0.5-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-0.5: Moist 0.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-1.5: Moist 1.5-6.0: Wet
M-W. Miscellaneous water													
MaB:													
Mahtomedi-------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-2.0: Dry 2.0-6.0: Moist ---	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
MaC:													
Mahtomedi-------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
MaD:													
Mahtomedi-------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
MoC:													
Menominee-------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-0.5: Moist 0.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
MoD: Menominee-------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-0.5: Moist 0.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
MqB: Mequithy--------	B	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-1.5: Dry 1.5-3.5: Moist ---	0.0-1.0: Moist 1.0-1.5: Dry 1.5-3.5: Moist	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---
Rock outcrop.													
MqC: Mequithy--------	B	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-1.5: Dry 1.5-3.5: Moist ---	0.0-1.0: Moist 1.0-1.5: Dry 1.5-3.5: Moist	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---	0.0-3.5: Moist --- ---
Rock outcrop.													
MuA: Minocqua--------	B/D	0.0-1.5: Moist 1.5-6.0: Wet	0.0-1.5: Moist 1.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-0.5: Moist 0.5-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-0.5: Moist 0.5-6.0: Wet	0.0-6.0: Wet ---	0.0-6.0: Wet ---	0.0-1.5: Moist 1.5-6.0: Wet
MwB: Moodig----------	C	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.0: Moist	0.0-0.8: Moist 0.8-6.0: Wet ---	0.0-0.8: Moist 0.8-6.0: Wet ---	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-1.5: Moist 1.5-2.0: Wet 2.0-6.0: Moist	0.0-1.0: Moist 1.0-2.0: Wet 2.0-6.0: Moist	0.0-1.2: Moist 1.2-2.0: Wet 2.0-6.0: Moist	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
MxB:													
Morganlake------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-3.0: Wet 3.0-6.0: Moist	0.0-2.5: Moist 2.5-3.0: Wet 3.0-6.0: Moist	0.0-2.5: Moist 2.5-3.0: Wet 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-1.5: Dry 1.5-6.0: Moist ---	0.0-0.5: Moist 0.5-1.0: Dry 1.0-6.0: Moist	0.0-2.5: Moist 2.5-3.0: Wet 3.0-6.0: Moist	0.0-2.5: Moist 2.5-3.0: Wet 3.0-6.0: Moist	0.0-6.0: Moist --- ---
MzB:													
Moshawquit------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.0: Dry 2.0-6.0: Moist ---	0.0-1.0: Moist 1.0-2.0: Dry 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
MzC:													
Moshawquit------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-0.5: Moist 0.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
NeA:													
Neconish--------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-1.0: Dry 1.0-4.0: Moist 4.0-6.0: Wet	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-6.0: Moist --- ---
NoB:													
Neopit----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-5.6: Wet 5.6-6.0: Moist	0.0-2.5: Moist 2.5-5.6: Wet 5.6-6.0: Moist	0.0-2.5: Moist 2.5-5.6: Wet 5.6-6.0: Moist	0.0-3.0: Moist 3.0-5.6: Wet 5.6-6.0: Moist	0.0-6.0: Moist --- ---	0.0-1.5: Dry 1.5-6.0: Moist ---	0.0-6.0: Moist --- ---	0.0-3.0: Moist 3.0-5.6: Wet 5.6-6.0: Moist	0.0-3.0: Moist 3.0-5.6: Wet 5.6-6.0: Moist	0.0-6.0: Moist --- ---
NpB:													
Neopit----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-5.6: Wet 5.6-6.0: Moist	0.0-2.5: Moist 2.5-5.6: Wet 5.6-6.0: Moist	0.0-2.5: Moist 2.5-5.6: Wet 5.6-6.0: Moist	0.0-3.0: Moist 3.0-5.6: Wet 5.6-6.0: Moist	0.0-6.0: Moist --- ---	0.0-1.5: Dry 1.5-6.0: Moist ---	0.0-6.0: Moist --- ---	0.0-3.0: Moist 3.0-5.6: Wet 5.6-6.0: Moist	0.0-3.0: Moist 3.0-5.6: Wet 5.6-6.0: Moist	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
NsA:													
Noseum----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-1.0: Dry 1.0-3.5: Moist 3.5-6.0: Wet	0.0-1.5: Dry 1.5-3.5: Moist 3.5-6.0: Wet	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-6.0: Moist --- ---
PaB:													
Padus-----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.0: Dry 2.0-6.0: Moist ---	0.0-1.0: Moist 1.0-2.0: Dry 2.0-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
PaC:													
Padus-----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
PaD:													
Padus-----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
PbB:													
Padwet----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-3.2: Wet 3.2-6.0: Moist	0.0-2.5: Moist 2.5-3.2: Wet 3.2-6.0: Moist	0.0-2.5: Moist 2.5-3.2: Wet 3.2-6.0: Moist	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-3.0: Moist 3.0-3.2: Wet 3.2-6.0: Moist	0.0-3.0: Moist 3.0-3.2: Wet 3.2-6.0: Moist	0.0-3.0: Moist 3.0-3.2: Wet 3.2-6.0: Moist	0.0-6.0: Moist --- ---
PeB:													
Pecore----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
PeC:													
Pecore----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.5: Dry	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	2.5-6.0: Moist	1.5-2.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	---	---	---
PeD:													
Pecore----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.5: Dry	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	2.5-6.0: Moist	1.5-2.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	---	---	---
PnB:													
Pence-----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.5: Dry	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	2.5-6.0: Moist	1.0-2.5: Dry	1.5-2.0: Dry	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	2.0-6.0: Moist	---	---
PnC:													
Pence-----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-3.0: Dry	0.0-0.5: Moist	0.0-1.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	3.0-6.0: Moist	0.5-3.0: Dry	1.0-2.5: Dry	---	---
		---	---	---	---	---	---	---	---	3.0-6.0: Moist	2.5-6.0: Moist	---	---
PnD:													
Pence-----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-3.0: Dry	0.0-0.5: Moist	0.0-1.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	3.0-6.0: Moist	0.5-3.0: Dry	1.0-2.5: Dry	---	---
		---	---	---	---	---	---	---	---	3.0-6.0: Moist	2.5-6.0: Moist	---	---
PrB:													
Perote----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.5: Dry	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	2.5-6.0: Moist	1.5-2.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	---	---	---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
PrC:													
Perote----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.5: Dry	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	2.5-6.0: Moist	1.5-2.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	---	---	---
PrD:													
Perote----------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.5: Dry	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	---	2.5-6.0: Moist	1.5-2.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	---	---	---
PsB:													
Peshtigo--------	C	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.0: Moist	0.0-1.5: Moist	0.0-1.0: Moist	0.0-1.2: Moist	0.0-6.0: Moist
		---	---	1.0-2.4: Wet	1.0-2.4: Wet	1.0-2.4: Wet	1.0-2.4: Wet	1.5-2.4: Wet	---	1.5-2.4: Wet	1.0-2.4: Wet	1.2-2.4: Wet	---
		---	---	2.4-6.0: Moist	2.4-6.0: Moist	2.4-6.0: Moist	2.4-6.0: Moist	2.4-6.0: Moist	---	2.4-6.0: Moist	2.4-6.0: Moist	2.4-6.0: Moist	---
Pt.													
Pits, gravel													
RaB:													
Rabe------------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-2.0: Dry	0.0-1.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	0.5-6.0: Moist	2.0-6.0: Moist	1.0-2.0: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.0-6.0: Moist	---	---	---
RaC:													
Rabe------------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-2.5: Dry	0.0-0.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	0.5-6.0: Moist	2.5-6.0: Moist	0.5-2.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	---	---	---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
RaD:													
Rabe	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-2.5: Dry	0.0-0.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	0.5-6.0: Moist	2.5-6.0: Moist	0.5-2.5: Dry	---	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	---	---	---
RbA:													
Robago	B	0.0-6.0: Moist	0.0-6.0: 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	0.0-0.5: Dry	0.0-2.0: Moist	0.0-1.0: Moist	0.0-1.2: Moist	0.0-6.0: Moist
		---	---	1.0-6.0: Wet	0.5-6.0: Wet	0.5-6.0: Wet	1.0-6.0: Wet	2.0-6.0: Wet	0.5-2.0: Moist	2.0-6.0: Wet	1.0-6.0: Wet	1.2-6.0: Wet	---
		---	---	---	---	---	---	---	2.0-6.0: Wet	---	---	---	---
RcA:													
Roscommon	A/D	0.0-1.5: Moist	0.0-1.5: Moist	0.0-6.0: Wet	0.0-6.0: Wet	0.0-6.0: Wet	0.0-6.0: Wet	0.0-0.5: Moist	0.0-1.0: Moist	0.0-0.5: Moist	0.0-6.0: Wet	0.0-6.0: Wet	0.0-1.5: Moist
		1.5-6.0: Wet	1.5-6.0: Wet	---	---	---	---	0.5-6.0: Wet	1.0-6.0: Wet	0.5-6.0: Wet	---	---	1.5-6.0: Wet
RoB:													
Rosholt	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-2.0: Dry	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	0.5-6.0: Moist	2.0-6.0: Moist	1.0-2.0: Dry	1.5-2.0: Dry	---	---
		---	---	---	---	---	---	---	---	2.0-6.0: Moist	2.0-6.0: Moist	---	---
RoC:													
Rosholt	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-2.5: Dry	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	0.5-6.0: Moist	2.5-6.0: Moist	1.0-2.5: Dry	1.5-2.0: Dry	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	2.0-6.0: Moist	---	---
RoD:													
Rosholt	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-0.5: Dry	0.0-2.5: Dry	0.0-1.0: Moist	0.0-1.5: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	0.5-6.0: Moist	2.5-6.0: Moist	1.0-2.5: Dry	1.5-2.0: Dry	---	---
		---	---	---	---	---	---	---	---	2.5-6.0: Moist	2.0-6.0: Moist	---	---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
RsB:													
Rousseau--------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.0: Moist	0.0-2.0: Dry	0.0-1.5: Moist	0.0-2.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	1.0-2.5: Dry	2.0-6.0: Moist	1.5-2.0: Dry	2.0-3.0: Dry	---	---
		---	---	---	---	---	---	2.5-6.0: Moist	---	2.0-6.0: Moist	3.0-6.0: Moist	---	---
RsC:													
Rousseau--------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.0: Moist	0.0-3.0: Dry	0.0-1.5: Moist	0.0-2.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	1.0-2.5: Dry	3.0-6.0: Moist	1.5-3.0: Dry	2.0-3.0: Dry	---	---
		---	---	---	---	---	---	2.5-6.0: Moist	---	3.0-6.0: Moist	3.0-6.0: Moist	---	---
RsD:													
Rousseau--------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.0: Moist	0.0-3.0: Dry	0.0-1.5: Moist	0.0-2.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	1.0-2.5: Dry	3.0-6.0: Moist	1.5-3.0: Dry	2.0-3.0: Dry	---	---
		---	---	---	---	---	---	2.5-6.0: Moist	---	3.0-6.0: Moist	3.0-6.0: Moist	---	---
ScA:													
Scott Lake------	B	0.0-6.0: Moist	0.0-6.0: Moist	0.0-2.8: Moist	0.0-2.5: Moist	0.0-2.5: Moist	0.0-3.0: Moist	0.0-1.0: Dry	0.0-1.5: Dry	0.0-3.0: Moist	0.0-3.0: Moist	0.0-3.0: Moist	0.0-6.0: Moist
		---	---	2.8-6.0: Wet	2.5-6.0: Wet	2.5-6.0: Wet	3.0-6.0: Wet	1.0-3.5: Moist	1.5-3.5: Moist	3.0-6.0: Wet	3.0-6.0: Wet	3.0-6.0: Wet	---
		---	---	---	---	---	---	3.5-6.0: Wet	3.5-6.0: Wet	---	---	---	---
SfB:													
Shawano---------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.0: Moist	0.0-2.0: Dry	0.0-1.5: Moist	0.0-2.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	1.0-2.5: Dry	2.0-6.0: Moist	1.5-2.0: Dry	2.0-3.0: Dry	---	---
		---	---	---	---	---	---	2.5-6.0: Moist	---	2.0-6.0: Moist	3.0-6.0: Moist	---	---
SfC:													
Shawano---------	A	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist	0.0-1.0: Moist	0.0-3.0: Dry	0.0-1.5: Moist	0.0-2.0: Moist	0.0-6.0: Moist	0.0-6.0: Moist
		---	---	---	---	---	---	1.0-2.5: Dry	3.0-6.0: Moist	1.5-3.0: Dry	2.0-3.0: Dry	---	---
		---	---	---	---	---	---	2.5-6.0: Moist	---	3.0-6.0: Moist	3.0-6.0: Moist	---	---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
SfD: Shawano---------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
SuA: Sunia-----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-1.0: Dry 1.0-3.5: Moist 3.5-6.0: Wet	0.0-1.5: Dry 1.5-3.5: Moist 3.5-6.0: Wet	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-6.0: Moist --- ---
TlC: Tilleda---------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
TlD: Tilleda---------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.5: Dry 2.5-6.0: Moist ---	0.0-1.5: Moist 1.5-2.5: Dry 2.5-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
TmA: Tipler----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-1.0: Dry 1.0-3.5: Moist 3.5-6.0: Wet	0.0-1.5: Dry 1.5-3.5: Moist 3.5-6.0: Wet	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-6.0: Moist --- ---
ToB: Tourtillotte----	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-4.6: Wet 4.6-6.0: Moist	0.0-2.5: Moist 2.5-4.6: Wet 4.6-6.0: Moist	0.0-2.5: Moist 2.5-4.6: Wet 4.6-6.0: Moist	0.0-6.0: Moist --- ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-0.5: Dry 0.5-6.0: Moist ---	0.0-2.8: Moist 2.8-4.6: Wet 4.6-6.0: Moist	0.0-2.5: Moist 2.5-4.6: Wet 4.6-6.0: Moist	0.0-2.8: Moist 2.8-4.6: Wet 4.6-6.0: Moist	0.0-6.0: Moist --- ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydro-logic group	January	February	March	April	May	June	July	August	September	October	November	December
ToC:													
Tourtillotte----	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-4.6: Wet 4.6-6.0: Moist	0.0-2.5: Moist 2.5-4.6: Wet 4.6-6.0: Moist	0.0-2.5: Moist 2.5-4.6: Wet 4.6-6.0: Moist	0.0-6.0: Moist --- ---	0.0-1.0: Dry 1.0-6.0: Moist ---	0.0-1.0: Dry 1.0-6.0: Moist ---	0.0-3.0: Moist 3.0-4.6: Wet 4.6-6.0: Moist	0.0-2.8: Moist 2.8-4.6: Wet 4.6-6.0: Moist	0.0-3.0: Moist 3.0-4.6: Wet 4.6-6.0: Moist	0.0-6.0: Moist --- ---
UdD. Udipsamments (earthen dam)													
VsB:													
Vilas-----------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-2.0: Dry 2.0-6.0: Moist ---	0.0-1.5: Moist 1.5-2.0: Dry 2.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
VsC:													
Vilas-----------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
VsD:													
Vilas-----------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-2.5: Dry 2.5-6.0: Moist	0.0-3.0: Dry 3.0-6.0: Moist ---	0.0-1.5: Moist 1.5-3.0: Dry 3.0-6.0: Moist	0.0-2.0: Moist 2.0-3.0: Dry 3.0-6.0: Moist	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---
W. Water													
WaA:													
Wainola---------	B	0.0-6.0: Moist ---	0.0-6.0: Moist ---	0.0-1.0: Moist 1.0-6.0: Wet	0.0-0.5: Moist 0.5-6.0: Wet	0.0-0.5: Moist 0.5-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-1.8: Moist 1.8-6.0: Wet	0.0-1.8: Moist 1.8-6.0: Wet	0.0-1.8: Moist 1.8-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-1.0: Moist 1.0-6.0: Wet	0.0-6.0: Moist ---

Table 21.--Soil Moisture Status by Depth--Continued

Map symbol and component name	Hydrologic group	January	February	March	April	May	June	July	August	September	October	November	December
WkB:													
Wayka-----------	C	0.0-2.2: Moist ---	0.0-2.2: Moist ---	0.0-1.5: Moist 1.5-2.2: Wet	0.0-0.5: Moist 0.5-2.2: Wet	0.0-0.5: Moist 0.5-2.2: Wet	0.0-0.8: Moist 0.8-2.2: Wet	0.0-1.5: Moist 1.5-2.2: Wet	0.0-2.2: Moist ---	0.0-0.8: Moist 0.8-2.2: Wet	0.0-0.6: Moist 0.6-2.2: Wet	0.0-1.0: Moist 1.0-2.2: Wet	0.0-2.2: Moist ---
Rock outcrop.													
WrA:													
Worcester-------	C	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.2: Moist 1.2-6.0: Wet ---	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-0.5: Dry 0.5-2.0: Moist 2.0-6.0: Wet	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.2: Moist 1.2-6.0: Wet ---	0.0-6.0: Moist --- ---
WtA:													
Wormet----------	B	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.2: Moist 1.2-6.0: Wet ---	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-0.5: Dry 0.5-2.0: Moist 2.0-6.0: Wet	0.0-2.0: Moist 2.0-6.0: Wet ---	0.0-1.0: Moist 1.0-6.0: Wet ---	0.0-1.2: Moist 1.2-6.0: Wet ---	0.0-6.0: Moist --- ---
WuA:													
Wurtsmith-------	A	0.0-6.0: Moist --- ---	0.0-6.0: Moist --- ---	0.0-2.8: Moist 2.8-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-2.5: Moist 2.5-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-1.0: Dry 1.0-4.0: Moist 4.0-6.0: Wet	0.0-0.5: Dry 0.5-3.5: Moist 3.5-6.0: Wet	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-3.0: Moist 3.0-6.0: Wet ---	0.0-6.0: Moist --- ---

Table 22.--Flooding Frequency and Duration

(Absence of an entry indicates that data were not estimated)

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
AfB:												
Aftad-----------	None	None	None	None	None	None	None	None	None	None	None	None
AnB:												
Annalake--------	None	None	None	None	None	None	None	None	None	None	None	None
AtB:												
Antigo----------	None	None	None	None	None	None	None	None	None	None	None	None
AuA:												
Au Gres---------	None	None	None	None	None	None	None	None	None	None	None	None
CeB:												
Cress-----------	None	None	None	None	None	None	None	None	None	None	None	None
CeC:												
Cress-----------	None	None	None	None	None	None	None	None	None	None	None	None
CeD:												
Cress-----------	None	None	None	None	None	None	None	None	None	None	None	None
CmA:												
Crex------------	None	None	None	None	None	None	None	None	None	None	None	None
CrB:												
Cromwell--------	None	None	None	None	None	None	None	None	None	None	None	None
CrC:												
Cromwell--------	None	None	None	None	None	None	None	None	None	None	None	None
CrD:												
Cromwell--------	None	None	None	None	None	None	None	None	None	None	None	None
CsA:												
Croswell--------	None	None	None	None	None	None	None	None	None	None	None	None
FeB:												
Frechette-------	None	None	None	None	None	None	None	None	None	None	None	None
FeC:												
Frechette-------	None	None	None	None	None	None	None	None	None	None	None	None

Table 22.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
FeD:												
Frechette-------	None	None	None	None	None	None	None	None	None	None	None	None
FrB:												
Frechette-------	None	None	None	None	None	None	None	None	None	None	None	None
FrC:												
Frechette-------	None	None	None	None	None	None	None	None	None	None	None	None
FrD:												
Frechette-------	None	None	None	None	None	None	None	None	None	None	None	None
GaB:												
Grayling--------	None	None	None	None	None	None	None	None	None	None	None	None
GaC:												
Grayling--------	None	None	None	None	None	None	None	None	None	None	None	None
GaD:												
Grayling--------	None	None	None	None	None	None	None	None	None	None	None	None
GyB:												
Grayling--------	None	None	None	None	None	None	None	None	None	None	None	None
GyC:												
Grayling--------	None	None	None	None	None	None	None	None	None	None	None	None
GyD:												
Grayling--------	None	None	None	None	None	None	None	None	None	None	None	None
IgA:												
Ingalls---------	None	None	None	None	None	None	None	None	None	None	None	None
IsB:												
Iosco-----------	None	None	None	None	None	None	None	None	None	None	None	None
IxB:												
Ishpeming-------	None	None	None	None	None	None	None	None	None	None	None	None
Rock outcrop.												
IxC:												
Ishpeming-------	None	None	None	None	None	None	None	None	None	None	None	None
Rock outcrop.												

Table 22.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
KaB:												
Karlin----------	None	None	None	None	None	None	None	None	None	None	None	None
KaC:												
Karlin----------	None	None	None	None	None	None	None	None	None	None	None	None
KaD:												
Karlin----------	None	None	None	None	None	None	None	None	None	None	None	None
KeC:												
Kennan----------	None	None	None	None	None	None	None	None	None	None	None	None
KeD:												
Kennan----------	None	None	None	None	None	None	None	None	None	None	None	None
KoC:												
Kennan----------	None	None	None	None	None	None	None	None	None	None	None	None
KoD:												
Kennan----------	None	None	None	None	None	None	None	None	None	None	None	None
KxB:												
Keshena---------	None	None	None	None	None	None	None	None	None	None	None	None
LaB:												
Lablatz---------	None	None	None	None	None	None	None	None	None	None	None	None
LDF.												
Landfill												
LoA:												
Loxley----------	None	None	None	None	None	None	None	None	None	None	None	None
LuA:												
Lupton----------	Rare	Rare	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Rare	Rare	Rare	Rare	Rare
Markey----------	Rare	Rare	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Rare	Rare	Rare	Rare	Rare
Cathro----------	Rare	Rare	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Rare	Rare	Rare	Rare	Rare
M-W.												
Miscellaneous water												

Table 22.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
MaB:												
Mahtomedi-------	None	None	None	None	None	None	None	None	None	None	None	None
MaC:												
Mahtomedi-------	None	None	None	None	None	None	None	None	None	None	None	None
MaD:												
Mahtomedi-------	None	None	None	None	None	None	None	None	None	None	None	None
MoC:												
Menominee-------	None	None	None	None	None	None	None	None	None	None	None	None
MoD:												
Menominee-------	None	None	None	None	None	None	None	None	None	None	None	None
MqB:												
Mequithy--------	None	None	None	None	None	None	None	None	None	None	None	None
Rock outcrop.												
MqC:												
Mequithy--------	None	None	None	None	None	None	None	None	None	None	None	None
Rock outcrop.												
MuA:												
Minocqua--------	Rare	Rare	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Rare	Rare	Rare	Rare	Rare
MwB:												
Moodig----------	None	None	None	None	None	None	None	None	None	None	None	None
MxB:												
Morganlake------	None	None	None	None	None	None	None	None	None	None	None	None
MzB:												
Moshawquit------	None	None	None	None	None	None	None	None	None	None	None	None
MzC:												
Moshawquit------	None	None	None	None	None	None	None	None	None	None	None	None
NeA:												
Neconish--------	None	None	None	None	None	None	None	None	None	None	None	None
NoB:												
Neopit----------	None	None	None	None	None	None	None	None	None	None	None	None

Table 22.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
NpB:												
Neopit	None	None	None	None	None	None	None	None	None	None	None	None
NsA:												
Noseum	None	None	None	None	None	None	None	None	None	None	None	None
PaB:												
Padus	None	None	None	None	None	None	None	None	None	None	None	None
PaC:												
Padus	None	None	None	None	None	None	None	None	None	None	None	None
PaD:												
Padus	None	None	None	None	None	None	None	None	None	None	None	None
PbB:												
Padwet	None	None	None	None	None	None	None	None	None	None	None	None
PeB:												
Pecore	None	None	None	None	None	None	None	None	None	None	None	None
PeC:												
Pecore	None	None	None	None	None	None	None	None	None	None	None	None
PeD:												
Pecore	None	None	None	None	None	None	None	None	None	None	None	None
PnB:												
Pence	None	None	None	None	None	None	None	None	None	None	None	None
PnC:												
Pence	None	None	None	None	None	None	None	None	None	None	None	None
PnD:												
Pence	None	None	None	None	None	None	None	None	None	None	None	None
PrB:												
Perote	None	None	None	None	None	None	None	None	None	None	None	None
PrC:												
Perote	None	None	None	None	None	None	None	None	None	None	None	None
PrD:												
Perote	None	None	None	None	None	None	None	None	None	None	None	None
PsB:												
Peshtigo	None	None	None	None	None	None	None	None	None	None	None	None

Table 22.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
Pt. Pits, gravel												
RaB: Rabe	None	None	None	None	None	None	None	None	None	None	None	None
RaC: Rabe	None	None	None	None	None	None	None	None	None	None	None	None
RaD: Rabe	None	None	None	None	None	None	None	None	None	None	None	None
RbA: Robago	None	None	None	None	None	None	None	None	None	None	None	None
RcA: Roscommon	Rare	Rare	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Frequent Long	Rare	Rare	Rare	Rare	Rare
RoB: Rosholt	None	None	None	None	None	None	None	None	None	None	None	None
RoC: Rosholt	None	None	None	None	None	None	None	None	None	None	None	None
RoD: Rosholt	None	None	None	None	None	None	None	None	None	None	None	None
RsB: Rousseau	None	None	None	None	None	None	None	None	None	None	None	None
RsC: Rousseau	None	None	None	None	None	None	None	None	None	None	None	None
RsD: Rousseau	None	None	None	None	None	None	None	None	None	None	None	None
ScA: Scott Lake	None	None	None	None	None	None	None	None	None	None	None	None
SfB: Shawano	None	None	None	None	None	None	None	None	None	None	None	None
SfC: Shawano	None	None	None	None	None	None	None	None	None	None	None	None

Table 22.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
SfD:												
Shawano---------	None	None	None	None	None	None	None	None	None	None	None	None
SuA:												
Sunia-----------	None	None	None	None	None	None	None	None	None	None	None	None
TlC:												
Tilleda---------	None	None	None	None	None	None	None	None	None	None	None	None
TlD:												
Tilleda---------	None	None	None	None	None	None	None	None	None	None	None	None
TmA:												
Tipler----------	None	None	None	None	None	None	None	None	None	None	None	None
ToB:												
Tourtillotte----	None	None	None	None	None	None	None	None	None	None	None	None
ToC:												
Tourtillotte----	None	None	None	None	None	None	None	None	None	None	None	None
UdD:												
Udipsamments (earthen dam)--	None	None	None	None	None	None	None	None	None	None	None	None
VsB:												
Vilas-----------	None	None	None	None	None	None	None	None	None	None	None	None
VsC:												
Vilas-----------	None	None	None	None	None	None	None	None	None	None	None	None
VsD:												
Vilas-----------	None	None	None	None	None	None	None	None	None	None	None	None
W.												
Water												
WaA:												
Wainola---------	None	None	None	None	None	None	None	None	None	None	None	None
WkB:												
Wayka-----------	None	None	None	None	None	None	None	None	None	None	None	None
Rock outcrop.												

Table 22.--Flooding Frequency and Duration--Continued

Map symbol and component name	January	February	March	April	May	June	July	August	September	October	November	December
WrA:												
Worcester-------	None	None	None	None	None	None	None	None	None	None	None	None
WtA:												
Wormet----------	None	None	None	None	None	None	None	None	None	None	None	None
WuA:												
Wurtsmith-------	None	None	None	None	None	None	None	None	None	None	None	None

Table 23.--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 component 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			
AfB:									
Aftad	---	>80	---	---	---	---	Moderate	Low	Moderate
AnB:									
Annalake	---	>80	---	---	---	---	Moderate	Moderate	Low
AtB:									
Antigo	---	>80	---	---	---	---	High	Moderate	High
AuA:									
Au Gres	---	>80	---	---	---	---	Moderate	Low	Moderate
CeB:									
Cress	---	>80	---	---	---	---	Low	Low	Moderate
CeC:									
Cress	---	>80	---	---	---	---	Low	Low	Moderate
CeD:									
Cress	---	>80	---	---	---	---	Low	Low	Moderate
CmA:									
Crex	---	>80	---	---	---	---	Low	Low	High
CrB:									
Cromwell	---	>80	---	---	---	---	Low	Low	Moderate
CrC:									
Cromwell	---	>80	---	---	---	---	Low	Low	Moderate
CrD:									
Cromwell	---	>80	---	---	---	---	Low	Low	Moderate
CsA:									
Croswell	---	>80	---	---	---	---	Low	Low	Moderate
FeB:									
Frechette	---	>80	---	---	---	---	Moderate	Low	Moderate
FeC:									
Frechette	---	>80	---	---	---	---	Moderate	Low	Moderate

Table 23.--Soil Features--Continued

Map symbol and component name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In			
FeD:									
Frechette	---	>80	---	---	---	---	Moderate	Low	Moderate
FrB:									
Frechette	---	>80	---	---	---	---	Moderate	Low	Moderate
FrC:									
Frechette	---	>80	---	---	---	---	Moderate	Low	Moderate
FrD:									
Frechette	---	>80	---	---	---	---	Moderate	Low	Moderate
GaB:									
Grayling	---	>80	---	---	---	---	Low	Low	Moderate
GaC:									
Grayling	---	>80	---	---	---	---	Low	Low	Moderate
GaD:									
Grayling	---	>80	---	---	---	---	Low	Low	Moderate
GyB:									
Grayling	---	>80	---	---	---	---	Low	Low	Moderate
GyC:									
Grayling	---	>80	---	---	---	---	Low	Low	Moderate
GyD:									
Grayling	---	>80	---	---	---	---	Low	Low	Moderate
IgA:									
Ingalls	---	>80	---	---	---	---	Moderate	Moderate	Moderate
IsB:									
Iosco	---	>80	---	---	---	---	Moderate	High	Low
IxB:									
Ishpeming	Bedrock (lithic)	20-40	---	---	---	---	Low	Low	High
Rock outcrop	Bedrock (lithic)	0	---	---	---	---	---	---	---
IxC:									
Ishpeming	Bedrock (lithic)	20-40	---	---	---	---	Low	Low	High
Rock outcrop	Bedrock (lithic)	0	---	---	---	---	---	---	---

Table 23.--Soil Features--Continued

Map symbol and component 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			
KaB:									
Karlin	---	>80	---	---	---	---	Low	Low	High
KaC:									
Karlin	---	>80	---	---	---	---	Low	Low	High
KaD:									
Karlin	---	>80	---	---	---	---	Low	Low	High
KeC:									
Kennan	---	>80	---	---	---	---	Moderate	Low	High
KeD:									
Kennan	---	>80	---	---	---	---	Moderate	Low	High
KoC:									
Kennan	---	>80	---	---	---	---	Moderate	Low	High
KoD:									
Kennan	---	>80	---	---	---	---	Moderate	Low	High
KxB:									
Keshena	---	>80	---	---	---	---	Moderate	Moderate	Moderate
LaB:									
Lablatz	---	>80	---	---	---	---	High	Moderate	Moderate
LDF.									
Landfill									
LoA:									
Loxley	---	>80	---	---	6-18	50-55	High	High	High
LuA:									
Lupton	---	>80	---	---	6-18	50-55	High	High	Low
Markey	---	>80	---	---	4-12	25-30	High	High	Low
Cathro	---	>80	---	---	4-12	19-22	High	High	Low
M-W.									
Miscellaneous water									
MaB:									
Mahtomedi	---	>80	---	---	---	---	Low	Low	High

Table 23.--Soil Features--Continued

Map symbol and component 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			
MaC:									
Mahtomedi	---	>80	---	---	---	---	Low	Low	High
MaD:									
Mahtomedi	---	>80	---	---	---	---	Low	Low	High
MoC:									
Menominee	---	>80	---	---	---	---	Low	Low	Moderate
MoD:									
Menominee	---	>80	---	---	---	---	Low	Low	Moderate
MqB:									
Mequithy	Bedrock (lithic)	20-40	---	---	---	---	Moderate	Low	High
Rock outcrop	Bedrock (lithic)	0	---	Indurated	---	---	---	---	---
MqC:									
Mequithy	Bedrock (lithic)	20-40	---	---	---	---	Moderate	Low	High
Rock outcrop	Bedrock (lithic)	0	---	Indurated	---	---	---	---	---
MuA:									
Minocqua	---	>80	---	---	---	---	High	High	High
MwB:									
Moodig	---	>80	---	---	---	---	High	Moderate	High
MxB:									
Morganlake	---	>80	---	---	---	---	Low	Low	Moderate
MzB:									
Moshawquit	---	>80	---	---	---	---	Low	Low	Moderate
MzC:									
Moshawquit	---	>80	---	---	---	---	Low	Low	Moderate
NeA:									
Neconish	---	>80	---	---	---	---	Low	Low	High
NoB:									
Neopit	---	>80	---	---	---	---	Moderate	Moderate	High
NpB:									
Neopit	---	>80	---	---	---	---	Moderate	Moderate	High

Table 23.--Soil Features--Continued

Map symbol and component 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			
NsA:									
Noseum	---	>80	---	---	---	---	Low	Low	Moderate
PaB:									
Padus	---	>80	---	---	---	---	Moderate	Low	Moderate
PaC:									
Padus	---	>80	---	---	---	---	Moderate	Low	Moderate
PaD:									
Padus	---	>80	---	---	---	---	Moderate	Low	Moderate
PbB:									
Padwet	---	>80	---	---	---	---	Moderate	Moderate	High
PeB:									
Pecore	---	>80	---	---	---	---	Moderate	Low	Moderate
PeC:									
Pecore	---	>80	---	---	---	---	Moderate	Low	Moderate
PeD:									
Pecore	---	>80	---	---	---	---	Moderate	Low	Moderate
PnB:									
Pence	---	>80	---	---	---	---	Low	Low	Moderate
PnC:									
Pence	---	>80	---	---	---	---	Low	Low	Moderate
PnD:									
Pence	---	>80	---	---	---	---	Low	Low	Moderate
PrB:									
Perote	---	>80	---	---	---	---	Moderate	Low	Moderate
PrC:									
Perote	---	>80	---	---	---	---	Moderate	Low	Moderate
PrD:									
Perote	---	>80	---	---	---	---	Moderate	Low	Moderate
PsB:									
Peshtigo	---	>80	---	---	---	---	High	High	Moderate

Table 23.--Soil Features--Continued

Map symbol and component name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Thickness	Restrictive layer: Hardness	Subsidence: Initial	Subsidence: Total	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In	In			
Pt:									
Pits, gravel	---	---	---	---	---	---	Low	Moderate	Moderate
RaB:									
Rabe	---	>80	---	---	---	---	Low	Low	Moderate
RaC:									
Rabe	---	>80	---	---	---	---	Low	Low	Moderate
RaD:									
Rabe	---	>80	---	---	---	---	Low	Low	Moderate
RbA:									
Robago	---	>80	---	---	---	---	High	Moderate	Moderate
RcA:									
Roscommon	---	>80	---	---	---	---	Moderate	High	Low
RoB:									
Rosholt	---	>80	---	---	---	---	Moderate	Low	Moderate
RoC:									
Rosholt	---	>80	---	---	---	---	Moderate	Low	Moderate
RoD:									
Rosholt	---	>80	---	---	---	---	Moderate	Low	Moderate
RsB:									
Rousseau	---	>80	---	---	---	---	Low	Low	Moderate
RsC:									
Rousseau	---	>80	---	---	---	---	Low	Low	Moderate
RsD:									
Rousseau	---	>80	---	---	---	---	Low	Low	Moderate
ScA:									
Scott Lake	---	>80	---	---	---	---	Moderate	Low	High
SfB:									
Shawano	---	>80	---	---	---	---	Low	Low	High
SfC:									
Shawano	---	>80	---	---	---	---	Low	Low	High

Table 23.--Soil Features--Continued

Map symbol and component 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			
SfD:									
Shawano	---	>80	---	---	---	---	Low	Low	High
SuA:									
Sunia	---	>80	---	---	---	---	Low	Moderate	Moderate
TlC:									
Tilleda	---	>80	---	---	---	---	Moderate	Low	Moderate
TlD:									
Tilleda	---	>80	---	---	---	---	Moderate	Low	Moderate
TmA:									
Tipler	---	>80	---	---	---	---	Moderate	Moderate	High
ToB:									
Tourtillotte	---	>80	---	---	---	---	Low	Low	Moderate
ToC:									
Tourtillotte	---	>80	---	---	---	---	Low	Low	Moderate
UdD:									
Udipsamments (earthen dam)	---	>80	---	---	---	---	Low	Low	Moderate
VsB:									
Vilas	---	>80	---	---	---	---	Low	Low	High
VsC:									
Vilas	---	>80	---	---	---	---	Low	Low	High
VsD:									
Vilas	---	>80	---	---	---	---	Low	Low	High
W.									
Water									
WaA:									
Wainola	---	>80	---	---	---	---	Moderate	Low	Moderate
WkB:									
Wayka	Bedrock (lithic)	20-40	---	---	---	---	High	Moderate	Moderate
Rock outcrop	Bedrock (lithic)	0	---	---	---	---	---	---	---

Table 23.--Soil Features--Continued

Map symbol and component 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			
WrA:									
Worcester	---	>80	---	---	---	---	High	High	High
WtA:									
Wormet	---	>80	---	---	---	---	Moderate	Moderate	High
WuA:									
Wurtsmith	---	>80	---	---	---	---	Low	Low	High

Table 24.--Engineering Index Test Data

(Dashes indicate that data were not available. LL means liquid limit; PI, plasticity index; NP, nonplastic; and UN, Unified)

Soil name and location	Parent material	Report number	Horizon	Depth	Percentage passing sieve--* No. 4	No. 10	No. 40	No. 200	Percentage smaller than--* 0.05 mm	0.02 mm	0.005 mm	0.002 mm	LL	PI	Classification AASHTO	UN
				In									Pct			
Aftad fine	Dominantly	S93WI-078-														
sandy loam:	loamy	034-5	E/B	12-17	100	100	93	46	41	26	10	6	---	NP	A-4(2)	SM
SW1/4 SW1/4	lacustrine	034-6	B/E	17-28	100	100	94	57	51	36	19	14	19.2	3.2	A-4(4)	ML
sec. 31, T.	deposits.															
30 N., R. 13																
E.																
Antigo silt	Silty and loamy	S93WI-078-														
loam:	deposits	030-4	E/B	12-15	98	98	94	82	76	44	17	10	---	NP	A-4(8)	ML
NE1/4 SE1/4	underlain by	030-5	B/E	15-19	99	99	94	78	72	46	20	14	21.2	2.0	A-4(8)	ML
sec. 20, T.	sandy outwash.															
30 N., R. 13																
E.																
Frechette loam:	Dominantly	S96WI-078-														
SE1/4 SW1/4	calcareous,	735-3,4	Bw1,Bw2	3-14	92	92	83	35	31	24	11	6	19.7	NP	A-4(0)	SM
sec. 25, T. 29	loamy glacial	735-6	B/E	18-33	97	96	91	59	53	38	20	15	22.0	7.1	A-4(5)	CL
N., R. 15 E.	till.	735-9	C	72-90	95	92	82	35	29	15	5	2	12.9	NP	A-4(0)	SM
Frechette sandy	Dominantly	S96WI-078-														
loam:	calcareous,	736-4	Bw2	7-15	96	94	86	29	26	18	8	3	15.3	NP	A-2-4(0)	SM
NE1/4 SE1/4	loamy glacial	736-6	B/E1	26-37	98	96	87	36	32	24	14	9	16.9	1.7	A-4(0)	SM
sec. 31, T.	till.	736-8	Bt	52-70	96	93	80	32	28	19	9	6	14.7	NP	A-2-4(0)	SM
28 N., R. 15																
E.																
Frechette loam:	Dominantly	S96WI-078-														
NE1/4 SW1/4	calcareous,	737-2,3	Bw1,Bw2	4-12	93	90	82	42	33	17	6	3	18.4	NP	A-4(1)	SM
sec. 8, T. 30	loamy glacial	737-5	B/E1	18-30	98	96	84	34	30	20	10	8	14.7	NP	A-2-4(0)	SM
N., R. 16 E.	till.	737-8	C	63-80	96	93	80	30	26	15	4	3	11.6	NP	A-2-4(0)	SM
Frechette sandy	Dominantly	S94WI-078-														
loam:	calcareous,	395-4	E/B	12-21	98	96	89	39	30	26	9	5	11.4	NP	A-4(1)	SM
SW1/4 SW1/4	loamy glacial	395-6	Bt	30-51	98	97	89	48	46	35	20	12	19.3	5.5	A-4(3)	SM-SC
sec. 31, T.	till.	395-7	C	51-75	92	90	83	48	43	31	15	8	16.7	3.6	A-4(3)	SM
28 N., R. 15																
E.																

See footnote at end of table.

Table 24.--Engineering Index Test Data--Continued

Soil name and location	Parent material	Report number	Horizon	Depth	Percentage passing sieve--* No. 4	No. 10	No. 40	No. 200	Percentage smaller than--* 0.05 mm	0.02 mm	0.005 mm	0.002 mm	LL	PI	Classification AASHTO	UN
				In									Pct			
Frechette sandy loam: NE1/4 NE1/4 sec. 35, T. 29 N., R. 16 E.	Dominantly calcareous, loamy glacial till.	S94WI-078-														
		268-5	Bs2	7-15	94	93	87	38	33	22	8	5	16.1	NP	A-4(1)	SM
		268-8	Bt1	29-42	99	98	90	52	48	38	19	13	20.4	5.9	A-4(3)	ML
		268-10	C	53-90	99	98	93	58	51	33	9	4	16.2	NP	A-4(5)	ML
Grayling sand: SW1/4 SW1/4 sec. 24, T. 28 N., R. 16 E.	Sandy deposits	S93WI-078-														
		150-4,5	Bw1,Bw2	5-11	100	100	86	6	6	6	4	2	---	NP	A-3(0)	SP-SM
		150-8	C2	47-61	100	100	87	1	1	1	1	1	---	NP	A-3(0)	SP
Kennan loam: NW1/4 SE1/4 sec. 31, T. 30 N., R. 13 E.	Loamy deposits and the underlying loamy or sandy glacial till.	S93WI-078-														
		016-7	B/E	21-36	91	87	68	23	21	17	10	7	---	NP	A-2-4(0)	SM
		016-9	C	52-82	87	83	62	15	13	10	7	5	---	NP	A-2-4(0)	SM
Keshena loam: NW1/4 SE1/4 sec. 5, T. 28 N., R. 16 E.	Dominantly calcareous, loamy glacial till.	S96WI-078-														
		733-2,3	Bw1,Bw2	3-12	95	92	86	43	37	25	12	6	19.6	NP	A-4(2)	SM
		733-6	B/E2	30-49	98	97	92	58	54	44	24	17	26.4	12.3	A-6(9)	CL
		733-9	C	75-144	99	99	96	79	77	65	32	17	33.4	16.9	A-6(11)	CL
Lablatz loam: SW1/4 NE1/4 sec. 36, T. 29 N., R. 16 E.	Dominantly calcareous, loamy glacial till.	S94WI-078-														
		316-4,5	Bs1,Bs2	4-12	95	93	87	50	43	28	11	7	28.8	NP	A-4(3)	SM
		316-8	Bt1	23-32	99	98	92	51	48	36	19	13	23.0	8.2	A-4(3)	CL
		316-10	C	41-62	93	90	82	52	47	35	10	6	14.4	NP	A-4(3)	ML
Neconish fine sand: SE1/4 SE1/4 sec. 33, T. 29 N., R. 16 E.	Sandy deposits	S94WI-078-														
		420-3,4	Bs1,Bs2	4-11	100	100	98	21	11	8	5	4	---	NP	A-2-4(0)	SM
		420-6	BC	30-36	100	100	98	16	5	2	2	1	17.6	NP	A-2-4(0)	SM
		420-8	C2	50-61	100	100	97	10	4	2	1	1	18.8	NP	A-3(0)	SP-SM
Neopit loam: NW1/4 SE1/4 sec. 31, T. 30 N., R. 13 E.	Loamy deposits and the underlying loamy or sandy glacial till.	S93WI-078-														
		099-4	E	12-15	99	98	89	61	55	32	10	5	---	NP	A-4(5)	ML
		099-6	B/E1	21-27	99	98	88	53	46	31	15	10	19.8	4.4	A-4(4)	CL-ML
		099-8	B/E3	37-68	93	90	75	31	26	17	10	6	---	NP	A-2-4(0)	SM

See footnote at end of table.

Table 24.--Engineering Index Test Data--Continued

Soil name and location	Parent material	Report number	Horizon	Depth	Percentage passing sieve--* No. 4	No. 10	No. 40	No. 200	Percentage smaller than--* 0.05 mm	0.02 mm	0.005 mm	0.002 mm	LL	PI	Classification AASHTO	UN
				In									Pct			
Noseum fine	Loamy deposits	S93WI-078-														
sandy loam:	underlain by	151-3,4	Bs1,Bs2	3-14	96	96	94	42	33	21	11	8	---	NP	A-4(1)	SM
SE1/4 NW1/4	sandy outwash.	151-6,7	2BC1,													
sec. 34, T.			2BC2	19-27	100	100	100	28	13	4	3	1	---	NP	A-2-4(0)	SM
30 N., R. 13		151-10	2C2	44-70	100	100	100	6	3	2	2	1	---	NP	A-3(0)	SP-SM
E.																
Padus fine	Loamy deposits	S93WI-078-														
sandy loam:	underlain by	075-5	E/B	13-19	97	96	84	45	39	23	9	6	---	NP	A-4(2)	SM
NE1/4 NW1/4	sandy outwash.	075-7	Bt	22-29	94	91	71	27	26	18	10	7	---	NP	A-2-4(0)	SM
sec. 33, T.																
30 N., R. 13																
E.																
Pecore loam:	Loamy deposits	S96WI-078-														
NE1/4 SE1/4	underlain by	643-2,3	Bw1,Bw2	2-10	98	97	91	55	51	36	14	6	20.7	NP	A-4(4)	ML
sec. 5, T. 28	calcareous,	643-6	Bt1	27-37	99	99	97	74	70	57	36	26	38.6	21.6	A-6(12)	CL
N., R. 16 E.	sandy outwash.	643-8	2C	47-62	99	97	91	3	1	1	1	1	---	NP	A-3(0)	SP
Perote loam:	Loamy deposits	S96WI-078-														
NW1/4 NE1/4	underlain by	642-3	Bw2	4-11	96	95	89	45	37	23	10	6	19.0	NP	A-4(2)	SM
sec. 29, T. 29	calcareous,	642-5	B/E	16-29	100	99	95	58	52	39	23	17	23.8	NP	A-4(5)	ML
N., R. 16 E.	sandy outwash.	642-8	2C	51-62	88	86	62	2	2	1	1	1	---	NP	A-3(0)	SP
Peshtigo loam:	Dominantly	S94WI-078-														
NW1/4 NW1/4	calcareous,	397-2	E	5-11	84	81	71	39	37	26	12	7	19.5	NP	A-4(11)	SM
sec. 31, T. 28	loamy glacial	397-5	Bt1	29-46	99	99	95	69	67	62	41	28	35.3	17.5	A-6(10)	CL
N., R. 16 E.	till.															
Shawano fine	Sandy deposits	S93WI-078-														
sand:		183-5	Bw2	11-26	100	100	96	14	9	6	4	3	---	NP	A-2-4(0)	SM
SW1/4 SE1/4		183-7	C	31-61	100	100	98	10	3	2	1	1	---	NP	A-3(0)	SP-SM
sec. 34, T.																
28 N., R. 16																
E.																
Tilleda sandy	Dominantly	S94WI-078-														
loam:	calcareous,	391-3	E/B	10-17	99	98	90	41	37	29	16	10	13.1	NP	A-4(1)	SM
NW1/4 NW1/4	loamy glacial	391-6	Bt2	40-53	99	98	93	59	57	52	31	22	27.3	12.3	A-6(6)	CL
sec. 31, T.	till.	391-7	C	53-75	96	94	88	56	50	43	23	13	20.9	7.3	A-4(4)	CL
28 N., R. 16																
E.																

See footnote at end of table.

Table 24.--Engineering Index Test Data--Continued

Soil name and location	Parent material	Report number	Horizon	Depth	Percentage passing sieve--*: No. 4	No. 10	No. 40	No. 200	Percentage smaller than--*: 0.05 mm	0.02 mm	0.005 mm	0.002 mm	LL	PI	Classification: AASHTO	UN
				In									Pct			
Tourtillotte	Sandy deposits	S96WI-078-														
fine sand:	underlain by	644-4	Bw2	6-18	99	98	92	20	16	11	5	4	---	NP	A-2-4(0)	SM
NE1/4 SE1/4	silty, loamy,	644-7	C1	33-52	97	96	91	3	2	1	1	1	---	NP	A-3(0)	SP
sec. 29, T.	and sandy	644-9	2C3	56-71	100	100	98	83	70	32	8	4	21.9	NP	A-4(8)	ML
29 N., R. 16	lacustrine	644-10	2C4	71-83	100	100	99	37	15	4	2	2	20.0	NP	A-4(1)	SM
E.	sediment.															

* Mechanical analysis according to the AASHTO Designation T88-57. Results from this procedure can differ somewhat from the results obtained by the soil survey procedure of the Natural Resources Conservation Service (NRCS). In the AASHTO procedure, the fine material is analyzed by hydrometer method and the various grain-size fractions are calculated on the basis of all material up to and including that 3 inches in diameter. In the NRCS soil survey procedure, the fine material is analyzed by the pipette method and the material coarser than 2 millimeters in diameter is excluded from the calculation of grain-size fraction. The mechanical analysis data used in this table are not suitable for use in naming textural classes of soils.

Table 25.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Aftad	Coarse-loamy, mixed, superactive, frigid Oxyaquic Glossudalfs
Annalake	Coarse-loamy, mixed, superactive, frigid Alfic Oxyaquic Haplorthods
Antigo	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, frigid Haplic Glossudalfs
Au Gres	Sandy, mixed, frigid Typic Endoaquods
Cathro	Loamy, mixed, euic, frigid Terric Haplosaprists
Cress	Sandy, mixed, frigid Typic Dystrudepts
Crex	Mixed, frigid Oxyaquic Udipsamments
Cromwell	Sandy, mixed, frigid Typic Dystrudepts
Croswell	Sandy, mixed, frigid Oxyaquic Haplorthods
Frechette	Coarse-loamy, mixed, active, frigid Typic Glossudalfs
Grayling	Mixed, frigid Typic Udipsamments
Ingalls	Sandy over loamy, mixed, active, frigid Typic Endoaquods
Iosco	Sandy over loamy, mixed, active, frigid Argic Endoaquods
Ishpeming	Sandy, mixed, frigid Entic Haplorthods
*Karlin	Sandy, mixed, frigid Entic Haplorthods
*Kennan	Coarse-loamy, mixed, superactive, frigid Haplic Glossudalfs
Keshena	Fine-loamy, mixed, active, frigid Oxyaquic Glossudalfs
Lablatz	Coarse-loamy, mixed, active, frigid Alfic Epiaquods
Loxley	Dysic, frigid Typic Haplosaprists
Lupton	Euic, frigid Typic Haplosaprists
Mahtomedi	Mixed, frigid Typic Udipsamments
Markey	Sandy or sandy-skeletal, mixed, euic, frigid Terric Haplosaprists
Menominee	Sandy over loamy, mixed, active, frigid Alfic Haplorthods
Mequithy	Coarse-loamy, mixed, superactive, frigid Alfic Haplorthods
Minocqua	Coarse-loamy over sandy or sandy-skeletal, mixed, superactive, nonacid, frigid Typic Endoaquepts
Moodig	Coarse-loamy, mixed, superactive, frigid Alfic Epiaquods
Morganlake	Sandy over loamy, mixed, active, frigid Alfic Oxyaquic Haplorthods
Moshawquit	Loamy, mixed, active, frigid Arenic Glossudalfs
Neconish	Sandy, isotic, frigid Oxyaquic Haplorthods
Neopit	Coarse-loamy, mixed, superactive, frigid Oxyaquic Glossudalfs
Noseum	Sandy, isotic, frigid Oxyaquic Haplorthods
Padus	Coarse-loamy, mixed, superactive, frigid Alfic Haplorthods
Padwet	Coarse-loamy, mixed, superactive, frigid Alfic Haplorthods
Pecore	Fine-loamy, mixed, active, frigid Haplic Glossudalfs
Pence	Sandy, mixed, frigid Typic Haplorthods
Perote	Coarse-loamy, mixed, active, frigid Haplic Glossudalfs
Peshtigo	Fine-loamy, mixed, active, frigid Aquic Glossudalfs
Rabe	Loamy, mixed, active, frigid Arenic Glossudalfs
Robago	Coarse-loamy, mixed, superactive, frigid Argic Endoaquods
Roscommon	Mixed, frigid Mollic Psammaquents
Rosholt	Coarse-loamy, mixed, superactive, frigid Haplic Glossudalfs
Rousseau	Sandy, mixed, frigid Entic Haplorthods
Scott Lake	Coarse-loamy, mixed, superactive, frigid Oxyaquic Glossudalfs
Shawano	Mixed, frigid Typic Udipsamments
Sunia	Mixed, frigid Oxyaquic Udipsamments
Tilleda	Fine-loamy, mixed, active, frigid Haplic Glossudalfs
Tipler	Coarse-loamy, mixed, superactive, frigid Alfic Oxyaquic Haplorthods
Tourtillotte	Mixed, frigid Oxyaquic Udipsamments
Udipsamments	Udipsamments
Vilas	Sandy, mixed, frigid Entic Haplorthods
Wainola	Sandy, mixed, frigid Typic Endoaquods
Wayka	Coarse-loamy, isotic, frigid Typic Epiaquods
Worcester	Coarse-loamy, mixed, superactive, frigid Argic Endoaquods
Wormet	Sandy, mixed, frigid Typic Endoaquods
Wurtsmith	Mixed, frigid Oxyaquic Udipsamments